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Getting Started
Welcome to Calvert

WELCOME TO CALVERT!
We are glad you have selected our curriculum. Please take the time to read the information that follows.

Note: This lesson part, "Welcome to Calvert," is identical for all courses. Once it is finished, it will be marked complete for each course.

If you are the Learning Guide, please make sure you are logged in and have the Teaching Notes enabled. You can do this by clicking on the Teaching Notes toggle, as shown here:

CALVERT'S PLUS CURRICULUM
You will learn using Calvert's PLUS curriculum framework. Our framework is designed to motivate and engage you by using a research-based, digitally supported instructional approach.

WHY DO WE CALL THIS THE PLUS FRAMEWORK?
Our PLUS framework includes Project-Based Learning, Active Learning, Use for Mastery, and Show elements. Details on each element appear below.

Project - Projects are designed to give you fun, engaging, real-world opportunities to creatively show what you have learned. You can also collaborate with other students in the same course.
Learn - Our courses contain a variety of active learning opportunities, including interactive digital activities designed to encourage you to think independently and Quick Checks to assess your understanding.

Use - You will complete a Use for Mastery assessment at the end of each lesson to make sure you have achieved a deeper knowledge (and have "mastered" the concepts).

Show - We offer many creative and exciting opportunities for you to showcase what you have learned. You can submit audio, images, and videos from your computer or mobile device for a teacher to evaluate.

You can view the following video to learn more about the PLUS framework.

Your course is divided into units. Units are made up of lessons, and a lesson is split into lesson parts. Each lesson part is planned to be a day's work.

Please go online to view this video ▶

WHAT YOU WILL FIND IN YOUR COURSE

PROJECT OPENER

Some units in your course are built around a project. When there is a project in your unit, you will see an introduction and description in the beginning of the unit that will tell you:

• What the project will be about
• What you will be doing as part of the project
• How the project will be graded
• Any work that needs to be created or submitted as part of the project

Projects often encourage you to be creative by adding audio, video, or images to make your presentation more interesting and informative. For hints and tips on creating and uploading your projects, click here.

LESSON PARTS

Each unit is made up of lessons. Each lesson helps you learn a new idea in the unit. The lessons are divided into parts. Each part makes up one day's work.

SHOW

“Show” lessons are places in the unit that focus on your project. They give you a chance to show what you have
learned so far and help you make progress on your project. You can check to see where you are in the project and how your work will be scored.

UNIT QUIZ

At the end of every unit, a unit quiz checks your understanding of all the concepts from the unit. Some questions will be scored by the computer, and some will be marked by your teacher.

In lower grades, the Learning Guide will need to help Grade K and Grade 1 students by reading assessments aloud in cases where Text-to-Speech is not available and taking dictation to submit students’ answers online or helping them to upload responses completed using paper and pencil.

You can view the following video to learn more about what you will find in a course.

Please go online to view this video ▶

WHAT YOU WILL FIND IN A LESSON

At the beginning of each lesson, you will see a lesson title and part number at the top of the screen. You will also see resource buttons to the right of the screen. These resource buttons will identify what you will be working on for your project (if applicable) and will also include lesson objectives, books and materials, assignments, as well as the ability to use Text-to-Speech and print the lesson.
RESOURCE BUTTONS
Here's what each resource button will include:

- **Project** – The Project button provides a short description of the project you are doing as part of the lesson.

- **Objectives** – Objectives are statements that describe what you will be learning. The objective will be your goal for the lesson across all lesson parts.

- **Assignments** – The Assignments list highlights the lesson's work at a glance. This list includes reading assignments, labs, activities, and exercises.

- **Books & Materials** – All books and materials needed for the day's lesson are listed here. You may find it helpful to review this list before each day's lesson part.

- **Standards** show how each lesson is aligned with national or state standards.

- **Text-to-Speech** will read the page text aloud or allow you to look up the definition of a word that appears in the lesson.

- **Print** allows you to print the lesson, unit, or course you are currently viewing.

You can view the following video to learn more about what your course and lessons will look like.

Please go online to view this video ▶

COLORS AND CARD TYPES

COLORS
Each lesson card is color-coded.

- **Green** refers to Learn sections.

- **Purple** refers to Use sections.

- **Orange** refers to Project/Show sections.
CARD TYPES

All content in a lesson part is laid out as a series of cards. Each card indicates a distinct activity that you will do as part of your daily work. Here are the different types of cards:

- **Collaboration** is a way you can share information, data, or projects with other Calvert students in your school. Calvert uses an online collaborative tool to allow you to chat with other students in the classes in specifically designed lessons.

- **Final Project** cards will be a place to showcase what you have learned at the end of your project. You can be creative and submit audio, images, or video from your computer or from your mobile device.

- **Interactive Activities** are fun digital tools that will help you learn more about a topic. Interactive Activities are digital activities that may include virtual labs, simulations, videos, and more.

- **More to Explore** is additional content that can help you either learn more about a concept or help you understand a new concept. More to Explores can include videos, additional readings, or digital activities that help you apply knowledge of a concept a different way.

- Some projects are designed to be completed one piece at a time. **Project Progress** cards provide the opportunity to share pieces of project work for feedback in advance of pulling all the pieces together for the final Show.

- **Quick Checks** are short assessments that will help you clarify what topics you have mastered and what concepts you may need to review. After you complete a Quick Check, you will be given the correct answer and a resource to help you review the concept in a new way.

- We want to check in with you to see how you're feeling about your lessons. **Rate Your Enthusiasm** will appear periodically after your lessons, so you can give us real-time feedback during your course.

- We want to check in with you to see how excited you are to begin a project. **Rate Your Excitement** will appear periodically after your lessons so you can give us real-time feedback while you complete each course.
We want to check in with you to see how you are progressing through your project. **Rate Your Progress** will appear on some of the days you are working on a project so you can let us know where you are in the project and how things are going.

We want to check in with you to see how ready you feel for the course. **Rate Your Readiness** will appear in lessons in the Getting Started unit.

We want to check in with you to see how you are understanding each lesson part. **Rate Your Understanding** will appear periodically after your lessons so you can give us real-time feedback while you complete each course.

At the end of every unit, we provide a **Unit Quiz** where you will be assessed on your understanding of all the key concepts learned in that unit. The concepts that are tested are based on the key standards identified by your state.

Each lesson has a **Use for Mastery** assessment. These open-ended response questions help assess how well you understood the lesson concepts. The 'Use For Mastery Guidelines & Rubric' below each question will provide helpful information on how and what to submit for your response. You may be asked to type into a text box or upload a document.

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**ONLINE PLATFORM ACCESS**

You can complete our course using a fully online approach with access to a computer or with a hybrid approach, with the help of printed materials. When online, you can use our content in one of two ways:

1. **Our online platform called Calvert Teaching Navigator (CTN).** You can access CTN online at [http://login.calvertlearning.com](http://login.calvertlearning.com). Your school's Learning Management System (LMS).
2. **If you are viewing the Calvert product through your school's LMS, please contact your school for how to get access.**

Please review our [Technology Requirements](#) to make sure your computer is set up to allow full access to our courses.
**SUGGESTED DAILY SCHEDULE**

The following is a suggested daily schedule as it displays in CTN. Although each subject can be studied in a designated order, know that you can adapt the schedule and pace to meet your individual educational needs.

A complete course is planned for an average school year of about nine months. There are 160–180 daily lesson parts in a course. The number of lesson parts and tests for individual subjects will vary based on the amount of material that must be covered in the course during the school year.

Each day, we recommend that you spend approximately 120-150 minutes in grades K-2 and 100-120 minutes on Social Studies, and 30 minutes reading independently.

You can view the following video to learn more about the Suggested Daily Schedule.

![Please go online to view this video](image-url)

**KNOW YOUR ROLE**

**ROLE OF THE LEARNING GUIDE**

The Learning Guide is a responsible adult (usually a parent) who guides the student through his or her academic journey.
Your certified school teacher directs the instruction, determines the pacing, and makes decisions for intervention and enrichment. However, the Learning Guide has an essential role in helping you on the road to academic success.

The Learning Guide has access to the all the course materials. Additionally, teacher-specific instructions (Teaching Notes) written specifically to the Learning Guide or instructor give information, directions, and suggestions for leading you through a lesson.

When Teaching Notes are enabled, teacher-specific instructions for a card will appear just below that card.

You can view the following video to learn more about the role of Teaching Notes and the Learning Guide.

Please go online to view this video ▶

ROLE OF THE STUDENT

While the lessons in this curriculum are written to you, the student, that does not mean you are expected to work completely on your own. Keep in mind that your Learning Guide is here to support and help you. You and your Learning Guide will work as partners. Together you will decide which assignments you will work on independently and which you will do jointly. During the course, there will be times when you will be directed to read a selection aloud for your Learning Guide, share information you have learned, or take part in a discussion.

When working on your own, ask for your Learning Guide’s assistance if you have any questions or if directions do not seem clear. You should also check with your Learning Guide before linking to any of the websites listed in the lessons or activities.

ROLE OF THE CALVERT SUPPORT STAFF

At Calvert, we understand the importance of having support when you need it. We offer many resources to help you along the way. If you have a question about our curriculum, our Education Counselors are available to help you Monday through Friday, 9:00 a.m. to 5:00 p.m. Eastern time, by phone at 1-888-487-4652, or email at support@calvertservices.org.

RATE YOUR READINESS

Please go online to view and submit this assessment.
PRINT VS. DIGITAL EXPERIENCE

If you plan to do this course exclusively online, you will have access to all the course material digitally.

If you are going to complete some of this course offline, you might have already received a printed version of the lesson manual. If not, you can print at any time using our Print-On-Demand functionality. Using this functionality, you can print a single lesson, an entire unit, or the entire course.

Print-On-Demand does not print the textbooks that you will need as part of your course. Please contact your school directly to have the textbooks shipped to you.

As part of your project work or assessment, you may be required to submit a file, image, or video to your teacher. To do this, you will need access to a computer and a camera-equipped mobile phone.

WORKSHEETS

If you are working in the print version of our lessons, all the worksheets that are needed to complete the course are provided in the Appendix as part of the printed packet. Otherwise, PDFs of all worksheets will be linked to the individual lessons. You will need Adobe Reader® to use these worksheets. Most of these worksheets are fillable, and you can use your computer keyboard to type directly in them and save them on your computer.

NOTEBOOKS AND JOURNALS

You may be directed to use a notebook throughout this course. The Math Notebook should be used to reflect on your learning and can serve as a single place to record information as you move through the course. You can take notes in your physical notebook or even digitally by using an application such as Evernote®.

ONLINE ACTIVITIES

Your course may include interactive digital activities, videos from publishers such as YouTube®, virtual simulations, and digital assessments that cannot be completed without going online.
BOOKS AND MATERIALS

MATH IN FOCUS TEXTBOOK
You will find textbook page numbers in the lesson that are underlined. We refer to this as hyperlinking. Clicking directly on the link opens the corresponding page of the textbook. You can then scroll through the pages of your textbook.

The e-text will not allow you to directly type into any blanks.

MATH IN FOCUS WORKBOOK
Like the textbook, the *Math in Focus* workbook is also hyperlinked. Clicking on a workbook hyperlink opens the corresponding workbook chapter as a PDF document.

You will then need to navigate to the page number mentioned in the hyperlink.
INSTRUCTIONAL VIDEOS

The Math in Focus course is based on the Singapore Math method, which may be new to some Learning Guides. For this reason, Calvert Learning has produced a series of instructional videos to provide training in the basics of this method. These videos will be linked directly in the appropriate lessons, but for your convenience they are listed and linked here as well:

- How to Teach Number Bonds
- How to Teach Number Bonds in Mental Math, Part 1
- How to Teach Number Bonds in Mental Math, Part 2
- How to Teach Problem Solving
- How to Teach Bar Models, Part 1
- How to Teach Bar Models, Part 2
- How to Teach Bar Models, Part 3

BRAINPOP®

Calvert Learning is pleased to offer BrainPOP®, an engaging web-based interactive program that supports the core curriculum. BrainPOP® activities include animated video tutorials, interactive activities, and assessments that provide a rich, multisensory experience designed to improve learning. These research-based activities were developed in accordance with national and state academic standards. These engaging activities are accessed through the online course. When a BrainPOP® activity is appropriate for a lesson, the link is located with the online lesson for that day. Click on the link, and you will be directed to the instructional activities.

DISCOVERY EDUCATION™ VIDEOS

Your course may include videos from Discovery Education™, which provides thousands of subject and grade specific videos to enrich your learning experience. Discovery Education™ videos have been aligned to lessons throughout the Calvert curriculum to reinforce lesson objectives. These videos can be accessed through the online lessons in Grades K–8. If a video has been aligned to a lesson, you will find a link to that video in the online lesson.

ADDITIONAL MATERIALS

We have included many resources designed to provide additional help and support as you complete your course. These supplementary resources are provided to you in the appropriate lessons as downloadable PDFs that you can print as needed.

Please go online to view this video

Your course may also use these materials that are commonly found throughout your home.

RATE YOUR READINESS

Please go online to view and submit this assessment.
Unit 1 – A Whole Number World
**Project: Heading to the City**

**Books & Materials**
- Math in Focus - Teacher Edition

---

**PROJECT DESCRIPTION**

Let's hit the road! Where would you like to travel in the US? Look at a map and choose a city. You could visit family or friends, or you could just explore a new town. You are going to gather information and will present to a parent or guardian in the hope that they will take you to that town for a visit!

You are going to research a city or town that is not your own within the United States. You should find some important numerical data including population, size (land area), and another interesting fact. All facts should be in whole numbers. Make sure to write down the sources of your information. Wikipedia or blogs are not reliable sources. See how many facts you can find!

**PROJECT DETAILS**

In this project you will collect information about a town or city that you would like to visit. To complete this project you will:

- Create a poster representing your town with the information that you find written in standard, expanded, and written form
- Compare the area and population of your town and the one that you want to visit
- List the sources that you used to learn about the town
- Find a hotel in the town that you want to visit and find out how much it will cost to stay there for 7 days
- Find two activities that you would like to do during your visit and calculate the cost for your family to do these activities
- Calculate the number of people per square mile in your town and the one that you would like to visit
- Present all this information to your family as a video, PowerPoint, or a written document

**PROJECT RUBRIC**

The Project Rubric will help you understand how your project will be scored. Your goal should be to earn all 4 points for each part.
**COLLABORATION**

Think about the places you would like to visit. Research a little bit about each one so you can answer questions from your classmates. Then share your ideas. Respond to two other people and ask them questions about the places they want to visit and why they want to go there.

**RATE YOUR EXCITEMENT**

Please go online to view and submit this assessment.
Understanding Whole Numbers - Part 1

Objectives
- Express numbers in standard form, expanded form, and word form to 100,000.
- Skip count by 1, 10, 100, or 1,000.
- Use place value to determine the value of a digit.
- Use place value to compare numbers.
- Determine the rule to extend a pattern.

Books & Materials
- Math in Focus 4A
- Math in Focus - Teacher Edition

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete Practice Questions.

LEARN

WARM-UP
Write each number in standard form.

1. four thousand, eight hundred ninety-three
2. five thousand, three hundred sixty-four
3. one thousand, five hundred two

TEACHING NOTES
Warm-Up Answer Key
1. 4,893
2. 5,364
3. 1,502

INSTRUCTION
Today’s lesson covers important ideas you need to understand before beginning the lessons in this chapter. Read pp. 1-4 in Math in Focus 4A. For Writing numbers in three forms, compare the model of 2,307 made with base-ten blocks to the expanded form of this number. The model shows you how to write the number in expanded form. Notice that you insert a comma after the thousands place when you write a number in any form.
Read **Counting on by ones, tens, hundreds, or thousands**. Do you see the patterns in each example?

The place a digit holds in a number tells you the value of that digit. Use place value when you compare numbers. Pay attention to place value when you look for patterns.

---

### TEACHING NOTES

This course uses the *Math in Focus 4A* textbook and workbook, which is based on the Singapore math method. The first lesson in this course has important information for you about how to help your student succeed in the course. If you are new to Calvert or the Singapore method, take some time to read the information before beginning the lessons.

As you discuss these pages with your student, take note of the skills that seem to be familiar and those that may need review. Do not provide detailed instruction at this point; simply preview the material to prepare for the **Quick Check**.

For more practice, invite your student to write a 4-digit number. Use that number to review the concepts in this lesson: Have him write the number in expanded form, identify the value of each digit, and then use the number to review counting patterns. For example, make a number pattern that starts with his number using the rule subtract 300, such as the following.

5,820  5,520  5,220  4,920  ____

Challenge your student to identify the rule and extend the pattern.

---

### SKILLS CHECK

Complete **Quick Check** on pp. 3–4 in *Math in Focus 4A*.

---

### TEACHING NOTES

**Textbook Answer Key**

Review your student’s answers to the **Quick Check** on pp. 3-4, noting the problems that your student answered incorrectly. Access the appropriate **Reteach** activity that your student should complete for the remainder of this lesson.

In this lesson, your student will be working with bar models. If you are unfamiliar with bar models, you should view the following videos:

**Instructional Support Video:** *How to Teach Bar Modeling, Part 1*

**Instructional Support Video:** *How to Teach Bar Modeling, Part 2*
WRAP-UP

Today you worked with numbers in many different ways.

- You wrote numbers in standard form, word form, and expanded form.
- You used number patterns to count on by ones and tens.
- You used place value to identify values and compare numbers.

✅ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Understanding Whole Numbers - Part 2

**Objectives**
- Express numbers in standard form, expanded form, and word form to 100,000.

**Books & Materials**
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition
- place-value mat
- counters
- play money (Optional)

**Assignments**
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete pages in Workbook 4A.
- Complete Practice Questions.

---

**LEARN**

---

**WARM-UP**

Write the numbers in standard form. What is the next number in the pattern?

1. six hundred twenty-one, six hundred twenty-four, six hundred twenty-seven, ____

2. four thousand, four hundred two; four thousand, six hundred two; four thousand, eight hundred two; ____

---

**TEACHING NOTES**

Warm-up Answer Key

1. 621, 624, 627, 630

2. 4,402; 4,602; 4,802; 5,002

---

**INSTRUCTION**

Read Learn on pp. 5–6 in Math in Focus 4A. Model the problem with your place-value mat and counters. Regroup 10 thousands as 1 ten thousand.

Complete Guided Learning on p. 7. Continue to model each number with counters and the place-value mat.

Read Learn on p. 8. You know that 10 tens equal 1 hundred. In the same way, 10 ten thousands equal 1 hundred thousand. Use what you know about hundreds, tens, and ones to help you understand hundred thousands, ten thousands, and thousands.
Complete **Guided Learning** on p. 8.

---

**TEACHING NOTES**

Encourage your student to use the place-value mat and counters to model the problems as he reads. Discuss how to count to ten thousand and to one hundred thousand, showing your student how the base-ten system extends naturally to the greater place values. Ask him to look for patterns in place value. Remember to check your student’s work to determine if reteaching or extra practice is needed. Provide additional practice as necessary with five-digit numbers.

If your student wants to learn more about place value, then explain that each three-digit group in a number is called a *period*. Each place-value period consists of ones, tens, and hundreds. Provide a list of place-value periods, and challenge your student to predict how the base-ten system is structured beyond the hundred thousands period.

**WATCH FOR THESE COMMON ERRORS**

Some students struggle with the word form of numbers. Writing the word form is easier when students say the numbers correctly. Practice speaking numbers correctly before writing the word form.

---

**PRACTICE**

Complete p. 9 in *Math in Focus 4A*. Then complete pp. 1–2 in *Workbook 4A*.

---

**TEACHING NOTES**

- **Textbook Answer Key**
- **Workbook Answer Key**

Be your student’s partner for the **Hands-On Activity** on the bottom of p. 9 in *Math in Focus 4A*.
**WRAP-UP**

Today you learned how to count and express values to one hundred thousand. You are able to model numbers using place-value mats. You can write numbers in standard form and word form. The skills in this lesson will form a foundation for your learning throughout this course.

**PRACTICE QUESTIONS**

Please go online to view and submit this assessment.
Kim has a board game that uses play money. She has 9 of each kind of bill: $1,000, $100, $10, and $1.

How can Kim make the following amounts?

1. $4,281
2. $5,327

Warm-up Answer Key

1. four $1,000 bills, two $100 bills, eight $10 bills, and one $1 bill
2. five $1,000 bills, three $100 bills, two $10 bills, and seven $1 bills

INSTRUCTION

Read Learn on p. 10 in Math in Focus 4A. Model the problem with your place-value mat. Complete problems 11–19 in Guided Learning on pp. 10–11.

Then read Learn on p. 11. Notice how the colors in the example correspond to the colors on the place-value chart. The expanded form of a number shows the value of each digit.

Complete problems 20–24 in Guided Learning on p. 11 and Find the Value on p. 12.
Ask your student questions about the meaning of each digit in a given five-digit number. He should understand that the location, or place, a digit holds in the number determines the value represented by that digit. Guide your student to see how the place-value chart will help him write the number in standard form. Provide additional practice as needed.

Use Find the Value! on p. 12 to check your student's understanding. For the first round, take the roles of Players 1 and 3 while your student assumes the role of Player 2. As you continue rounds of play, alternate roles. When you assume the role of Player 2, challenge your student by making mistakes. Watch to see if he catches the errors.

If your student struggles with expanded form, try using play money to model each problem. If possible, use colors that match those on the place-value chart.

WATCH FOR THESE COMMON ERRORS
Some students forget that every place value may not be represented when some numbers are written in expanded form. Remind your students that the place value equals zero in that case. For example: 3,000 + 30 = 3,030.

PRACTICE
Complete p. 13 in Math in Focus 4A. Then complete pp. 3–6 in Workbook 4A.

Textbook Answer Key

Workbook Answer Key
WRAP-UP

Today you learned how to find the value of each digit in a five-digit number and how to write that number in expanded form.

<table>
<thead>
<tr>
<th>Ten Thousands</th>
<th>Thousands</th>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

$60,000 + 2,000 + 300 + 50 + 6$

sixty-two thousand, three hundred fifty-six

62,356

QUICK CHECK

Please go online to view and submit this assessment.

MORE TO EXPLORE

View the video, *Expanded Form Video* (04:10) to learn more about how to decompose a 5-digit number.

Please go online to view this video ▶
Understanding Whole Numbers - Part 4

INSTRUCTION

Today you will learn how to find the value of each digit in a seven-digit number.

10 hundred thousands = 1 million

Look at the number 5,961,783 in the place value chart.

Word Form: Five million, nine hundred sixty-one thousand, seven hundred eighty-three

<table>
<thead>
<tr>
<th>Millions</th>
<th>Hundred Thousands</th>
<th>Ten Thousands</th>
<th>Thousands</th>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>9</td>
<td>6</td>
<td>1</td>
<td>7</td>
<td>8</td>
<td>3</td>
</tr>
</tbody>
</table>

the digit 5
- is in the millions place
- stands for 5 one millions or 5,000,000
- has a value of 5,000,000

the digit 9
- is in the hundred thousands place
- stands for 9 hundred thousands or 90,000
- has a value of 90,000

the digit 6
- is in the ten thousands place
- stands for 6 ten thousands or 60,000
- has a value of 60,000

the digit 1
- is in the thousands place
- stands for 1 thousand or 1,000
- has a value of 1,000
the digit 7
- is in the hundreds place
- stands for 7 hundreds or 700
- has a value of 700

the digit 8
- is in the tens place
- stands for 8 tens or 80
- has a value of 80

the digit 3
- is in the ones place
- stands for 3 ones
- has a value of 3

**TEACHING NOTES**

Review the new place values with your student. Using the number 4,521,367, ask the student to identify the place value of a chosen digit. You can also give the student a place value and ask which digit is located in that place. Have the student write the number in written and expanded form. Finally, have the student sketch a table similar to the one in the example and have him or her complete the table to show the number. Remind students that when you have ten of any place value, you need to add one to the next place value. For example, ask the student what would happen if you were to add 5 to the hundred thousands position. (This would add one more million to the millions place value, so the new number would be 5,021,367.)

**RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
Some students are in a reading contest at the local library. They earn points for each book read based on the book’s length and difficulty level. The current leaders are shown in this table.

<table>
<thead>
<tr>
<th>Student</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>April</td>
<td>984</td>
</tr>
<tr>
<td>Jayson</td>
<td>2,256</td>
</tr>
<tr>
<td>Kurt</td>
<td>1,487</td>
</tr>
<tr>
<td>Ruqayyah</td>
<td>1,971</td>
</tr>
</tbody>
</table>

1. Which student has the most points?
2. Who is in second place?
3. Order the students from greatest to least based on the number of points earned.

**TEACHING NOTES**

**Warm-up Answer Key**

1. Jayson
2. Ruqayyah
3. Jayson, Ruqayyah, Kurt, April
Read Learn on p. 14 in *Math in Focus 4A*. You can use place-value charts to compare numbers. The place-value chart organizes the numbers by place value, making them easy to compare. Compare the values of each digit starting with the greatest place value. If the digits are equal, move to the next lower place value.

Complete Guided Learning at the top of p. 15. Use the place-value chart to help you.

Then read Learn on p. 15. Only two of the three numbers being compared have a digit in the ten thousands place. How can you still compare them? 9,638 has zero ten thousands. You can write 0 in that column to help you compare.

Complete Guided Learning at the bottom of p. 15.

Make sure your student uses the place-value chart as he completes the exercises in this lesson.

Start by comparing the digits in the ten thousands place of each number. If a number does not have a digit in the ten thousands place, your student may choose to leave the place blank or enter the digit 0. If the digits in the ten thousands place are equal, then compare the thousands digits. Show your student how to continue comparisons in lower place values until he finds different digits. Once he has found different digits, though, he does not need to consider lesser place values. For example: 35,799 < 36,002 because 3 = 3 (ten thousands place) and 5 < 6 (thousands place). There is no need to continue the comparisons for hundreds, tens, or ones.

**WATCH FOR THESE COMMON ERRORS**

Some students compare the first digit in each number without regard to place value. Remind your student that he should only compare digits with equal place values.

Remind your student to pay close attention to the directions. Sometimes numbers will be ordered from least to greatest. Other times they may be ordered from greatest to least.

Complete problems 1–6 on p. 18 in *Math in Focus 4A*.
WRAP-UP

Today you learned how to compare and order greater numbers.

<table>
<thead>
<tr>
<th>Ten Thousands</th>
<th>Thousands</th>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>5</td>
<td>1</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>9</td>
<td>9</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
<td>9</td>
<td>6</td>
<td>8</td>
</tr>
</tbody>
</table>

- **Step 1**: Compare digits in the ten thousands place. The least number is 59,984.
- **Step 2**: Compare digits in the thousands place of 65,172 and 65,968.
- **Step 3**: Compare digits in the hundreds place of 65,172 and 65,968. 6

Order from least to greatest.

59,984; 65,172; and 65,968.

 ✓ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Understanding Whole Numbers - Part 6

Objectives
- Compare and put numbers in order to 100,000.
- Identify how much greater than or lesser than a number is than another number.
- Determine the rule to extend a pattern.

Books & Materials
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition
- place-value chart
- 20 index cards, cut in half

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete pages in Workbook 4A.
- Complete Practice Questions.

LEARN

WARM-UP

Find the missing number in each pattern.

1. 120  180  240  ______
2. 3,500  3,700  ______  4,100  ______
3. 4,124  5,124  6,124  ______

TEACHING NOTES

Warm-up Answer Key

1. 300
2. 3,900; 4,300
3. 7,124

INSTRUCTION

Read Learn on p. 16 in Math in Focus 4A. The example shows how to use more than and less than to compare two numbers. Notice that the digits in the two numbers are equal for each place value except one. Which place is that? Compare the digits in the thousands place: 5 is 2 less than 7. This means that 65,123 is 2,000 less than 67,123.

Complete Guided Learning on p. 16.
Complete **Hands-On Activity** on p. 17. Then complete **Let’s Explore** on p. 17. Do you see any patterns in the table? To compare values, find the difference.

---

**TEACHING NOTES**

Make sure your student continues to use the **place-value chart** to compare numbers.

Use the index cards to make two sets of number cards with your student to use with the **Hands-On Activity** on p. 17. Each set should contain ten cards to display the digits 0 through 9. Keep each set separate. Shuffle each set of cards, and let your student select 5 cards at random from each set. Ask your student to arrange each set of cards to make a five-digit number. Then have him order the numbers from greatest to least.

Consider this variation on the previous activity: Instruct your student to draw five cards and arrange them to make a five-digit number. Ask: What number is 1,000 more than your number? What number is 20,000 less than your number? What number is 500 more than your number?

In **Let’s Explore**, ask your student to find the pattern displayed by the numbers across the row starting with 18,423. What pattern does your student find down the column starting with 40,423? Guide your student to see that the difference in the numbers in the yellow boxes is 9,000. Ask: Is this true for the numbers in the green boxes?

---

**PRACTICE**

Complete problems 7–15 on p. 19 in **Math in Focus 4A**. Then complete pp. 7–10 and 13–14 in **Workbook 4A**.

Complete the **Math Journal** writing assignment on p. 31 in **Math in Focus 4A**.

---

**TEACHING NOTES**

- **Textbook Answer Key #1**
- **Workbook Answer Key #1**
- **Workbook Answer Key #2**
- **Textbook Answer Key #2**
**WRAP-UP**

Today you learned how to compare five-digit numbers using *more than* and *less than*.

<table>
<thead>
<tr>
<th>Ten Thousands</th>
<th>Thousands</th>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>

Notice that the numbers have the same digit in each place except the ten thousands place.

- Compare the numbers in the ten thousands place.
- 7 is 5 more than 2, so 72,365 is 50,000 more than 22,365.
- 22,365 is 50,000 less than 72,365.

**PRACTICE QUESTIONS**

Please go online to view and submit this assessment.
Understanding Whole Numbers - Part 7

**Books & Materials**
- [Math in Focus - Teacher Edition](#)

**Assignments**
- Complete Interactive Activity.
- Complete Rate Your Understanding.

---

**LEARN**

---

**INTERACTIVE ACTIVITY**

In this activity, you will be given random digits and be asked to create the greatest possible number.

[Place Value Game](#)

---

**TEACHING NOTES**

If your student needs extra practice, have your student complete either the learn, guided learning, or assist practice.

---

**RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
Josh wrote a whole number using the digits 8, 4, 7, 2, 9, and 0.

- Josh's number has a 7 in the thousands place and a 2 in the tens place.
- Josh's number has no hundreds.
- Josh's number is less than 500,000.

Is Josh's number greater than 480,000? Explain your answer.
USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Use the information given to tell if Josh's number is greater than 480,000 but less than 500,000?
- Completely explain the steps you took to reason through each detail?
Let’s hit the road! Where would you like to travel in the US? Look at a map and choose a city. You could visit family or friends, or you could just explore a new town. You are going to gather information and will present to a parent or guardian, in hopes of them taking you to that town for a visit!

For the first part of this project, you are going to begin gathering data about the city or town that you would like to visit. Remember you can pick any town that is not your own and is in the United States. Some information that you should gather would be:

- population
- size (area in square miles)
- an interesting fact
- anything else you would like to share about this city and why you chose it

All facts should be in whole numbers. Make sure to write down the sources of your information. Wikipedia or blogs are not reliable sources. See how many facts you can find!

Once you have gathered your facts, make a poster of your city and state. Write all numbers in standard, expanded, and written form. Remember that you will be using this poster to try to advertise why visiting this city would be so wonderful, so use lots of colors and make it as interesting as you can.

RATE YOUR PROGRESS

Please go online to view and submit this assessment.
**Addition and Subtraction of Whole Numbers - Part 1**

**Objectives**
- Determine the sum of greater numbers without regrouping.
- Determine the sum of greater numbers with regrouping.

**Books & Materials**
- Math in Focus 4A
- Adding Greater Numbers Worksheet
- Math in Focus - Teacher Edition

**Assignments**
- Complete Warm-Up.
- Read and complete pages in *Math in Focus 4A*.
- Complete Adding Greater Numbers Worksheet.
- Complete Practice Questions.

---

**LEARN**

**WARM-UP**

Draw a bar model and solve this problem.

Kyla has 76 beads.
- Her sister gave her 89 more.
- How many beads does Kyla have now?

**TEACHING NOTES**

**Warm-up Answer Key**

Sample answer:

```
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>76</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

Kyla has 165 beads now.

---

**INSTRUCTION**

Read Learn on p. 20–21 in *Math in Focus 4A*. See if you can solve the addition problem on your own on a separate piece of paper. Follow the steps shown. Remember: only add digits with the same place value.
Complete Guided Learning on p. 22. Add the ones digits first. Next add the tens digits. Continue to add digits that have the same place value, working from right to left.

Read Learn on p. 23. Do you see that digits with the same place value line up? Remember:

- 10 ones = 1 ten
- 10 tens = 1 hundred
- 10 hundreds = 1 thousand
- 10 thousands = 1 ten thousand

TEACHING NOTES

Adding greater numbers is a natural extension of the skills your student has already learned. Remind your student about the process of regrouping.

If your student struggles with regrouping, he may find it helpful to practice with two-digit numbers. Ask your student to solve a two-digit addition problem that does not require regrouping, for example, 23 + 65. Then give him a three-digit addition problem, for example, 185 + 610.

Follow this same process to guide your student to success with addition problems that require regrouping. Monitor your student’s work and offer guidance as needed. Ask him to describe how five-digit addition problems are the same as the two-digit problems and how they are different. Once your student is successfully adding two- and three-digit numbers without regrouping, encourage him to try again to solve the problems from Guided Learning on p. 24.

WATCH FOR THESE COMMON ERRORS

Some students do not pay attention to place value when writing addition problems. Check your student's work to ensure that the places are correctly aligned. You can use lined paper turned sideways to help with alignment.

Some students may not show regrouping as they work. Encourage your student to present work that is neat and complete.

PRACTICE

Complete Guided Learning on p. 24 in Math in Focus 4A. Then download and complete Adding Greater Numbers Worksheet.
Today you learned how to add five-digit numbers with and without regrouping.

First, add the ones. Regroup when necessary.

Add the tens. Regroup when necessary.

Add the hundreds. Regroup when necessary.

Add the thousands. Regroup when necessary.

Add the ten thousands. Regroup when necessary.

Please go online to view and submit this assessment.

### PRACTICE QUESTIONS

Please go online to view and submit this assessment.
## Addition and Subtraction of Whole Numbers - Part 2

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Books &amp; Materials</th>
<th>Assignments</th>
</tr>
</thead>
</table>
| - Determine the difference between greater numbers without regrouping.  
- Determine the difference between greater numbers with regrouping. | - Math in Focus 4A  
- Subtracting Greater Numbers Worksheet  
- Read and complete pages in *Math in Focus 4A*.  
- Complete Subtracting Greater Numbers Worksheet.  
- Complete Practice Questions. |

## LEARN

### WARM-UP

Draw a bar model, and solve this problem.

Armand had 72 pennies in his piggy bank. The bank broke, and Armand lost 16 pennies. How many pennies did Armand have then?

### TEACHING NOTES

**Warm-up Answer Key**

Sample answer:

![Bar Model Diagram]

Armand has 56 pennies left.

### INSTRUCTION

Read **Learn** on p. 25–26 in *Math in Focus 4A*. Compare the steps for addition and subtraction. How are they the same? How are they different? Find the difference: 46,589 – 25,302.

Complete **Guided Learning** on p. 26–27. Subtract digits that are in the same place.

Read **Learn** on p. 27–28. Look at the second step: 5 < 8, so you need to regroup 1 ten as 10 ones. Then find the difference: 15 – 8. Solve the problem: 78,345 – 29,476. Complete **Guided Learning** on p. 28.
Read **Learn** on p. 29. Which place will you regroup first? Complete the example with pencil and paper. How many times must you regroup before you begin? Find 70,000 – 15,382.

**TEACHING NOTES**

With your student, brainstorm the similarities between multi-digit addition and subtraction. Remind your student to always start with the ones place. It is important to work from lesser place values to greater values in case regrouping is necessary. With addition, regrouping is sometimes needed after finding the sum. In subtraction, however, your student will have to regroup before he finds the difference.

If your student struggles with subtracting with regrouping, he may find it helpful to practice with two-digit numbers. Start with problems that do not require regrouping, for example, 54 – 21. Next, solve a two-digit problem with regrouping, for example, 62 – 18. Next try three-digit problems. Have your student describe how the process is the same.

Monitor your student’s work and offer guidance as needed. Encourage your student to follow each step precisely. Good notation is important in successful problem solving.

**WATCH FOR THESE COMMON ERRORS**

Check your student’s work to ensure that the place values are correctly aligned.

**PRACTICE**

Complete **Guided Learning** on p. 29 in **Math in Focus 4A**. Then complete **Subtracting Greater Numbers Worksheet**.
Today you learned how to subtract five-digit numbers with and without regrouping.

First, regroup: ten thousands, then thousands, then hundreds, and then tens.

Subtract the ones.
Subtract the tens.
Subtract the hundreds.
Subtract the thousands.
Subtract the ten thousands.

Please go online to view and submit this assessment.
Addition and Subtraction of Whole Numbers - Part 3

**Objectives**
- Use place value to determine the value of a digit.
- Round numbers to the closest 10.
- Round numbers to the closest 100.
- Employ front-end estimation to estimate the sum of two numbers.
- Employ front-end estimation to estimate the difference between two numbers.
- Determine the product of two numbers.

**Books & Materials**
- Math in Focus 4A
- Math in Focus - Teacher Edition

**Assignments**
- Complete Warm-Up.
- Read and complete pages in *Math in Focus 4A*.
- Complete Practice Questions.

**LEARN**

**WARM-UP**

Solve each problem.

1. Round the following numbers to the nearest ten and hundred.
   1. 346
   2. 751
   3. 904

2. Complete the number sentences.
   1. ______ x ______ = 64
   2. ______ x ______ = 40
   3. ______ x ______ = 72

**TEACHING NOTES**

**Warm-up Answer Key**

1. **a** 350; **b** 750; **c** 900; 900

2. Check student’s answers.
INSTRUCTION
Read the cartoon on p. 39 in Math in Focus 4A. It takes Manuel 10 minutes to run around the track once, and it takes Ben 8 minutes. Ben will get back to the start line first because 8 < 10. After that, Ben will cross the start line every 8 minutes: after 16 minutes, 24 minutes, 32 minutes, 40 minutes, and so on. Manuel will get back to the start line after 10 minutes. Then Manuel will cross every 10 minutes: after 20 minutes, 30 minutes, 40 minutes, and so on. The first time the boys will cross the line together will be after 40 minutes.

Today's lesson covers important ideas you need to understand before beginning the lessons in this chapter. Read pp. 40–42 in Math in Focus 4A. See if you can follow along and understand place value, estimation, and multiplication.

TEACHING NOTES
To be successful in this chapter, your student needs a solid foundation in place value, rounding, and multiplication. Assist your student as she works through the Recall Prior Knowledge section, providing help as she needs it. As you discuss these pages with your student, take note of the skills that seem to be familiar and those that may need review. Do not provide detailed instruction at this point; simply preview the material to prepare for the Quick Check.

QUICK CHECK
Complete the Quick Check on pp. 42–43 in Math in Focus 4A.

TEACHING NOTES
Review your student's answers to the Quick Check, noting the problems that your student answered incorrectly. Then go online through your student's portal to today's lesson. Click on the link to access the appropriate Reteach activity that your student should complete for the remainder of this lesson.

RETEACH
After your student completes the Quick Check in the Recall Prior Knowledge lesson of this chapter, review the questions that were answered incorrectly. If, after the review, you feel that your student needs additional exposure to any of these skills, click on the title below that corresponds with the number of the incorrectly answered question(s) and have him or her complete the activity.
Today you reviewed place value.

In the number 493:

- 4 is in the hundreds place and has the value of 4 hundreds or 400
- 9 is in the tens place and has the value of 9 tens or 90
- 3 is in the ones place and has the value of 3 ones or 3

You reviewed how to round numbers and to use front-end estimation to estimate sums and differences.

\[ 544 - 292 \rightarrow 500 - 300 = 200 \]

You reviewed how to write a number as the product of two numbers.

\[ 4 \times 6 = 24 \rightarrow 24 \] is the product of 4 and 6.

**PRACTICE QUESTIONS**

Please go online to view and submit this assessment.
Addition and Subtraction of Whole Numbers - Part 4

**Objectives**
- Round numbers to estimate sums and differences.
- Estimate to justify if answers are reasonable.

**Books & Materials**
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition

**Assignments**
- Complete Warm-Up.
- Read and complete pages in *Math in Focus 4A*.
- Complete pages in *Workbook 4A*.
- Complete Practice Questions.

**LEARN**

**WARM-UP**
Matthew collected 294 baseball cards.
Sarah collected 198 cards.
How many more cards did Matthew collect than Sarah?

**TEACHING NOTES**

| Warm-up Answer: |
|-----------------
| 96 baseball cards |

**INSTRUCTION**

Read Learn on pp. 44–45. The problem asks you to find how many jars of jelly were sold over two months. To find the total, you need to combine the number of jars sold each month. How can you tell if the answer of 585 is reasonable? You can round each number to the nearest hundred and then add the rounded numbers to find an approximate answer. If the approximate answer is close to the actual answer, the actual answer is reasonable. The estimate of 600 is close to 585, so the answer is reasonable. Complete the Guided Learning on p. 45.

Read Learn on p. 46. What is another way to determine if a sum or difference is reasonable? You can use front-end estimation. To use front-end estimation, consider the first digit in each number. Change the rest of the digits to zeros. Then add or subtract. Is 4,218 a reasonable answer to the problem 7,840 – 3,622? Using front-end estimation, 7,000 – 3,000 = 4,000. This estimate is close to 4,218, so the answer is reasonable. Complete the Guided Learning problem on p. 46.
Today you learned how to use estimation to determine whether an answer is reasonable.

Point out that using rounding may produce a more accurate answer than using front-end estimation because, with front-end estimation, you are always rounding down. If your student has difficulty rounding numbers, have her try the following example. Ask your student to estimate the answer to $563 - 322$ by rounding each number to the nearest hundred. Have her circle the hundreds digit and underline the tens digit. Point out that if the underlined digit is 5 or greater, the number is closer to the next hundred, so she should round up. If the underlined digit is less than 5, the number is closer to the previous hundred, so the number rounds down. To complete the estimation, have your student subtract the rounded numbers: $600 - 300 = 300$.

As your student works through the Guided Practice problems, challenge her to predict whether the actual answer will be greater than or less than the estimate. For each exercise, have her explain her prediction.

**PRACTICE**

Complete pp. 15–16 in Workbook 4A.

**WRAP-UP**

Today you learned how to use estimation to determine whether an answer is reasonable.

<table>
<thead>
<tr>
<th>Rounding</th>
<th>Front-End Estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>$833 - 347 = 486$</td>
<td>$5,443 + 3,590 = 9,033$</td>
</tr>
<tr>
<td>$800 - 300 = 500$</td>
<td>$5,000 + 3,000 = 8,000$</td>
</tr>
</tbody>
</table>

500 is close to 486, so 486 is reasonable. 8,000 is close to 9,033, so 9,033 is reasonable.

**PRACTICE QUESTIONS**

Please go online to view and submit this assessment.
Please go online to view and submit this assessment.

PRACTICE QUESTIONS

Encourage your student to write the estimated number next to the actual number. This will help her keep track of the numbers she should be adding or subtracting.

Point out that using rounding may produce a more accurate answer than using front-end estimation because, with front-end estimation, you are always rounding down. If your student has difficulty rounding numbers, have her try the following example. Ask your student to estimate the answer to 563 – 322 by rounding each number to the nearest hundred. Have her circle the hundreds digit and underline the tens digit. Point out that if the underlined digit is 5 or greater, the number is closer to the next hundred, so she should round up. If the underlined digit is less than 5, the number is closer to the previous hundred, so the number rounds down. To complete the estimation, have your student subtract the rounded numbers: 600 – 300 = 300.

As your student works through the Guided Practice problems, challenge her to predict whether the actual answer will be greater than or less than the estimate. For each exercise, have her explain her prediction.

Complete pp. 15–16 in Workbook 4A.

Textbook Answer Key
Workbook Answer Key

Today you learned how to use estimation to determine whether an answer is reasonable.

Rounding
833 – 347 = 486
800 – 300 = 500
500 is close to 486, so 486 is reasonable.

Front-End Estimation
5,443 + 3,590 = 9,033
5,000 + 3,000 = 8,000
8,000 is close to 9,033, so 9,033 is reasonable.

INTERACTIVE ACTIVITY

Follow these instructions for the activity shown in the screen below.

Click here if you would like to see the activity in a new window.

To win the game, you must make a sum as close as possible to the target sum. (You can go over.) Practice with a target sum of 100.

1. Click on Deal to get new digit cards.

2. Think about how you can arrange the digits to get two numbers with a sum close to 100. Write your ideas in your Math Notebook. For example, if the digits are 4, 3, 7, and 1, you can make 34 and 71, which add up to 105.

3. Move the cards into the grid to show your best answer. Then click on Jump.

4. Watch the girl hop on the number line. Were you able to get close to 100? If not, rearrange your cards until you do.

Now click Change game and choose Target 1000. Play the game several times.

TEACHING NOTES

Encourage your student to consider multiple possibilities when trying to find the target sum. You may wish to click on Lesson Info and download the Student Exploration Sheet and Exploration Sheet Answer Key to have your student try some other activities with the Gizmo.

RATE YOUR ENTHUSIASM

Please go online to view and submit this assessment.
USE FOR MASTERY

Write two numbers that when rounded to the greatest place value have an estimated sum of 11,000 and an estimated difference of 3,000. Then find the exact sum and the exact difference. Provide a detailed explanation as to how you reached your answers and why they will work.
USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Write two numbers that, when rounded to the greatest place value, have an estimated sum of 11,000 and an estimated difference of 3,000?
- Provide the exact sum and the exact difference of the 2 numbers you wrote?
- Provide a detailed explanation as to how you reached your answers and why they will work?
Addition and Subtraction of Whole Numbers - Part 7

SHOW

Compare the city you want to visit to your hometown. Identify the city with the greater population and subtract to identify how many more people are in one place compared to the other. Compare land area in the same way.

Write down this information in your Math Notebook to present in your Final Show.

PROJECT PROGRESS

How ready do you feel to complete this part of the project?

- I feel very ready to complete this part of the project; I have learned everything I need to know to do it.
- I feel somewhat ready to complete this part of the project but I am unsure that I have learned everything I need to know to do it.
- I do not feel ready to complete this part of the project.
- I feel very unprepared to complete this part of the project.

How excited do you feel to complete this part of the project?

- I feel very excited to complete this part of the project.
- I feel somewhat excited to complete this part of the project.
- I do not feel excited to complete this part of the project.
- I feel completing this part of the project will be very boring.
Factors and Multiples - Part 1

Objectives
- Determine common factors and greatest common factors among numbers.

Books & Materials
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition
- counters

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete problems in Workbook 4A.
- Complete Practice Questions.

LEARN

WARM-UP

Divide.

1. 24 ÷ 6 = _______
2. 36 ÷ 9 = _______
3. 45 ÷ 5 = _______

TEACHING NOTES

Warm-up Answer Key

1. 4
2. 4
3. 9

INSTRUCTION

Read Learn on pp. 56–57 in Math in Focus 4A. When you make an array with a product, the number of columns and rows show the product’s factors. You can make a 2 by 3 array with 6 turtles, so 2 and 3 are factors of 6. What are all the factors of 6? The factors of a number always include 1 and the number. You can make 1 by 6 and 2 by 3 arrays, so 1, 2, 3, and 6 are factors of 6. Complete Guided Learning on p. 57. Use the multiplication sentences to help you list factors.
Read **Learn** on **p. 58**. How can you use division to determine the factors of a number? If one number divides into another number evenly, the first number is a factor of the second. How do you know that 5 is not a factor of 16? You cannot divide 16 evenly by 5, so it is not a factor. Complete **Guided Learning** on **p. 58**.

Read **Learn** on **pp. 58 and 60**. If a number is a factor of two or more numbers, it is called a *common factor* of those numbers. The number 2 is a common factor of 8 and 12 because 2 is a factor of both numbers. How can you find the greatest common factor of two numbers? Since 1, 2, and 4 are factors of 8 and 12, and 4 is the greatest of these factors, 4 is the greatest common factor of 8 and 12.

### TEACHING NOTES

To reinforce the meaning of the terms, encourage your student to highlight the product and underline the factors as she works.

If your student struggles with finding all the factors of a number, allow her to use counters. Remind your student that if a number is a factor, she will be able to use the number to make a row or a column of an array.

To illustrate, try this activity. Give your student 24 counters. Ask her to make an array with 1 row. Since she can, 1 is a factor of 24. Then ask her to make an array with 2 rows. Repeat with all the numbers from 3 through 24.

As she works, have her make two groups of numbers, those for which she was able to make an array (1, 2, 3, 4, 6, 8, 12, 24) and those for which she was not (5, 7, 9, 10, 11, 13–23). After your student completes the activity, circle the array numbers. Point out that these numbers are all the factors of 24.

If your student wants to learn more about finding the greatest common factor, have her find the greatest common factor of 3 numbers. For example, give her 12, 24, and 30. (6) Encourage your student to use both methods.

### PRACTICE

Complete **Guided Learning** on **pp. 59 and 61** in **Math in Focus 4A**. Then complete problems 1–18 on **pp. 23–26** in **Workbook 4A**.

### TEACHING NOTES

- [Textbook Answer Key](#)
- [Workbook Answer Key](#)
Today you learned how to identify the factors of a number and the common factors and greatest common factor of two numbers.

Factors of 30: 1, 2, 3, 5, 6, 10, 15, 30
Factors of 20: 1, 2, 4, 5, 10, 20

Common factors: 1, 2, 5, 10
Greatest common factor: 10

Please go online to view and submit this assessment.
Factors and Multiples - Part 2

Objectives
- Distinguish numbers as prime or composite.

Books & Materials
- Math in Focus 4A
- Workbook 4A
- Math Journal
- Math in Focus - Teacher Edition
- counters (Optional)

Assignments
- Complete Warm-up.
- Read and complete pages in Math in Focus 4A.
- Complete problems in Workbook 4A.
- Read and complete Math Journal in Math in Focus 4A.
- Complete Quick Check.

LEARN

WARM-UP
Find the factors of the following numbers. Make arrays if you wish.

1. 24
2. 31
3. 64
4. 54

Warm-up Answer Key
1. 1, 2, 3, 4, 6, 8, 12, 24
2. 1, 31
3. 1, 2, 4, 8, 16, 32, 64
4. 1, 2, 3, 6, 9, 18, 27, 54

INSTRUCTION
Read Learn on p. 62 in Math in Focus 4A. Prime numbers only have two factors: 1 and the number itself. Composite numbers have more than two factors. The number 1 only has one factor, so it is neither prime nor composite. How can you decide whether 12 is prime or composite? Find the factors of 12. Since 1, 2, 3, 4, 6, and 12 are all factors of 12, 12 has more than two factors. It is composite. Complete Guided Learning on p. 62.
The **Hands-On Activity** on p. 63 is optional. For problem 1, follow the steps to find all the prime numbers from 1 to 20. Remember, if a number is crossed out, it is composite. If a number is underlined, it is prime. Copy the chart on the bottom of p. 63 and complete problem 2. How do you know if 47 is prime? Since none of the numbers from 2 to 46 are factors of 47, 47 is prime. It has only two factors: 1 and 47.

Read **Let's Explore!** on p. 64. Complete problems 1 and 2. To answer the questions, look at the ones digit of the numbers in each box.

---

**TEACHING NOTES**

If your student has difficulty identifying prime and composite numbers, encourage her to use counters to make arrays.

For example, give your student the number 7. Ask her to make arrays with 7 counters. Encourage her to make the arrays in a systematic way. For example, first she should make an array with 1 row, then 2 rows, then 3 rows, and so on, through 7 rows. Repeat with 20 counters. Then point out that since the only arrays that can be made with 7 are 1 by 7 and 7 by 1, 7 has only two factors, 1 and 7, and so it is prime.

On the other hand, since 1 by 20, 2 by 10, 4 by 5, 5 by 4, 10 by 2, and 20 by 1 arrays can be made with 20 counters, 20 has more than two factors, and so it is composite.

Emphasize that if a number is prime, only two arrays can be made. If a number is composite, three or more arrays can be made.

**WATCH FOR THESE COMMON ERRORS**

Some students think that if a number is odd, it is prime. Have students list the multiplication factors for 21, 25, 27 to demonstrate that this assumption is not true.

---

**PRACTICE**


---

**TEACHING NOTES**

- [Textbook Answer Key](#)
- [Workbook Answer Key](#)
WRAP-UP

Today you learned how to determine whether a number is prime or composite.

- A prime number has two factors: 1 and itself.
  
  The factors of 17 are 1 and 17, so 17 is prime.

- A composite number has more than two factors.
  
  The factors of 15 are 1, 3, 5, and 15, so 15 is composite.

SUPPLEMENTAL

BrainPOP: Prime Numbers

QUICK CHECK

Please go online to view and submit this assessment.

MORE TO EXPLORE

View the video, Prime Numbers (01:48) to learn more about prime numbers.

Please go online to view this video ▶
Factors and Multiples - Part 3

Books & Materials
- Math in Focus - Teacher Edition

Assignments
- Complete Interactive Activity.
- Complete Rate Your Understanding.

LEARN

INTERACTIVE ACTIVITY

Watch the BrainPop video Prime Numbers. Then try some of the activities.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Factors and Multiples - Part 4

Objectives
- Identify multiples of numbers.

Books & Materials
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition
- grid paper
- counters (Optional)

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete pages in Workbook 4A.
- Complete Interactive Activity.
- Complete Practice Questions.

LEARN

WARM-UP

Determine whether 4 is a factor of each number. Write yes or no.

1. 24
2. 18
3. 34
4. 28

TEACHING NOTES

Warm-up Answer Key

1. yes
2. no
3. no
4. yes

INSTRUCTION

Read the first Learn on p. 68 in Math in Focus 4A. A multiple is the product of a given number and another whole number. Since 4 × 9 = 36, 36 is a multiple of 4 and 9. Since 6 × 6 = 36, 36 is also a multiple of 6.

Read the second Learn on p. 68. You can find multiples in the same way you find factors. If a number divides into a product evenly, the product is a multiple of that number. How can you tell that 28 is not a multiple of 3? Since 3 does not evenly divide into 28, 28 is not a multiple of 3. Also, 3 is not a factor of 28.
Determine whether 4 is a factor of each number. Write yes or no.

1. 24
2. 18
3. 34
4. 28

Identify multiples of numbers.

Warm-up Answer Key

1. yes
2. no
3. no
4. yes

WRAP-UP

Allow your student to use counters until she understands the concept. As your student works through the lesson, continue to emphasize that finding multiples is similar to finding factors. If a number is a factor of another number, the second number is a multiple of the first.

<table>
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<td>49</td>
<td>56</td>
<td>63</td>
<td>70</td>
<td>77</td>
<td>84</td>
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<td>100</td>
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<td>120</td>
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<td>99</td>
<td>110</td>
<td>121</td>
<td>132</td>
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<td>12</td>
<td>24</td>
<td>36</td>
<td>48</td>
<td>60</td>
<td>72</td>
<td>84</td>
<td>96</td>
<td>108</td>
<td>120</td>
<td>132</td>
<td>144</td>
</tr>
</tbody>
</table>

If your student needs more help finding the multiples of a number, have her use grid paper to make a multiplication table as shown. Point out that every number in a box is a multiple. Emphasize that every row or column shows multiples of the first number in that row or column. For example, the row for 4 shows the first 12 multiples of 4. Then have your student choose a row and write all the multiplication problems that correspond with the multiples in that row. For example, if your student chooses the row for 4, she would write $4 \times 1 = 4$, $4 \times 2 = 8$, $4 \times 3 = 12$, and so on. Allow your student to use the table as she works.

WATCH FOR THESE COMMON ERRORS

Some students confuse the terms factor and multiple. To emphasize the proper meaning, have your student copy the following example so that she can refer to it while she works.

```
<table>
<thead>
<tr>
<th>multiple</th>
</tr>
</thead>
<tbody>
<tr>
<td>$5 \times 7 = 35$</td>
</tr>
<tr>
<td>↑ ↑</td>
</tr>
<tr>
<td>factors</td>
</tr>
</tbody>
</table>
```
PRACTICE

Complete pp. 29–30 in Workbook 4A.

TEACHING NOTES

Workbook Answer Key

INTERACTIVE ACTIVITY

Play the BrainPop game Sortify to practice your multiplication skills.

WRAP-UP

Today you learned how to find the multiples of a number.

The multiples of 6 are products of the multiplication facts with 6 as a factor.

The first seven multiples of 6 are 6, 12, 18, 24, 30, 36, and 42.

PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Factors and Multiples - Part 5

Objectives
- Determine common multiples and least common multiples between numbers.

Books & Materials
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition
- multiplication table (Optional)

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete pages in Workbook 4A.
- Complete Practice Questions.

LEARN

WARM-UP
Write the first four multiples of each number.

1. 3
2. 7
3. 5

TEACHING NOTES

Warm-up Answer Key
1. 3, 6, 9, 12
2. 7, 14, 21, 28
3. 5, 10, 15, 20

INSTRUCTION
Read Learn on p.70 in Math in Focus 4A. A common multiple of two numbers is a multiple of both numbers. How can you find a common multiple of 3 and 5? List the first few multiples of 3 and the first few multiples of 5. Then look for numbers in both lists. Since 15 is in both lists, it is a common multiple of 3 and 5.

Numbers can have more than one common multiple. For example, common multiples of 2 and 4 include 4, 8, and 12. The least common multiple of two numbers is the least multiple the two numbers share. How can you find the least common multiple of 3 and 4? List several multiples of each number until you find the least multiple they have in common. Since 12 is the least number that is a multiple of both 3 and 4, 12 is the least common multiple of 3 and 4.
Complete **Guided Learning** on p. 71.

Read **Learn** p. 72. What is another way to find the least common multiple? Since a number can only be a multiple of a factor if the factor divides the number evenly, you can use division to find common multiples.

Complete **Guided Learning** on p. 72.

---

**TEACHING NOTES**

Allow your student to use a multiplication table to find multiples until she masters the concept. Remember to check your student's work to determine if reteaching or extra practice is needed.

If your student has difficulty finding the least common multiple, try the following example.

Give your student the numbers 6 and 8 and explain that, when finding the least common multiple of two numbers, it is often easier to begin with the greater number. Have your student begin listing multiples of 8. For each multiple of 8, ask her to check to see if the number is also a multiple of 6. The first multiple of 8 that is also a multiple of 6 is the least common multiple. For example, 8 is not a multiple of 6, 16 is not a multiple of 6, but 24 is a multiple of 6. So, 24 is the least common multiple of 6 and 8. Point out that when you start with the greater number, you list fewer multiples than if you start with the lesser number.

If your student wants to learn more about the concept, have her find the multiples of pairs of numbers where one number is a factor of the other, such as, 3, 6 and 4, 8. Then have her find multiples of other pairs of numbers, such as 6, 9 and 10, 8. Ask your student to look at the list of common multiples in each group. She should realize that, in the pairs where one number is the factor of the other, every multiple of the greater number is also a multiple of the lesser number.

**WATCH FOR THESE COMMON ERRORS**

Some students think that two numbers may not have common multiples. This is often because they do not list enough multiples. Have students start by listing five multiples of each number. If they cannot find a common multiple, have them list another three multiples. Students should continue listing three more multiples at a time until they find a common multiple.

---

**PRACTICE**

Complete **Let's Practice** on p. 73 in *Math in Focus 4A*. Then complete pp. 31–32 in *Workbook 4A*.
Today you learned how to find common multiples and least common multiples.

Multiples of 8: 8, 16, 24, 32, 40
Multiples of 12: 12, 24, 36, 48, 60
Least common multiple: 24

Please go online to view and submit this assessment.
Factors and Multiples - Part 6

**Objectives**
- Apply mathematical concepts and skills to solve problems.

**Books & Materials**
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition
- index cards (Optional) (parent provided)
- counters (Optional)

**Assignments**
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete pages in Workbook 4A.
- Complete Practice Questions.

---

**LEARN**

**WARM-UP**

Find the least common multiple of each pair of numbers.

1. 8 and 10
2. 12 and 14
3. 24 and 30
4. 10 and 15

**TEACHING NOTES**

Warm-up Answer Key

1. 40
2. 84
3. 120
4. 30

**INSTRUCTION**

Read Put On Your Thinking Cap! on p. 77 in Math in Focus 4A.

How can you find Mrs. Lin's secret number? Use the hint in the speech bubble to help you know what to do. After you make the list of multiples of 3 and 5, what other condition do you need to keep in mind? The number is between 23 and 32. Look at your lists to find the secret number.
Complete problems 2–3 on pp. 77–78 in *Math in Focus 4A*. How can you use multiples to help you solve problem 2? Copy the table on p. 78 and use it to help you solve problem 3.

### TEACHING NOTES

**Textbook Answer Key**

As needed, help your student find multiples for the Put On Your Thinking Cap! problems on p. 77 in *Math in Focus 4A*.

For problem 2, encourage your student to think about multiples when solving the problem. Have her try to find all the possible correct answers.

For problem 3 on p. 78, remind your student that perimeter is the distance around a figure. To find perimeter, add the lengths of the sides of the figure. Point out that for each guess, the width must be 5 times the length.

### PRACTICE

Complete pp. 37–40 in *Workbook 4A*.

### TEACHING NOTES

**Workbook Answer Key**

If your student has trouble with the workbook problems, here are a few suggestions.

The first two problems on p. 37 have to do with estimation. If your student has difficulty with problem 1, suggest that she start by rounding each number to the nearest ten. For problem 2, create a number sentence: ______ divided by ______ equals about 50. Think back to a related multiplication fact. What times 50 could give a 3-digit number? If your student needs help with problem 3, suggest that she make lists to help her find the given number. For problem 4, ask your student to think about what must be true of numbers that round to the same ten and hundred. (They must be close to the hundred.) Your student can use the table for problem 5 to help her find the answers.

To illustrate problem 1 on p. 39 in *Workbook*, ask your student how this problem might relate to multiples. Help her to see that she needs to consider multiples of 2 and 3 and that she should look for the pair of multiples that has a difference of 10. A table like the one shown can help your student organize the information:
### WRAP-UP

Today you learned how to use multiples to solve challenging problems.

### PRACTICE QUESTIONS

Please go online to view and submit this assessment.

---

<table>
<thead>
<tr>
<th>Students in the Group</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiples of 3</td>
<td>3</td>
<td>6</td>
<td>9</td>
<td>12</td>
<td>15</td>
<td>18</td>
<td>21</td>
<td>24</td>
<td>27</td>
<td>30</td>
</tr>
<tr>
<td>Multiples of 2</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>12</td>
<td>14</td>
<td>16</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>Difference between multiple of 3 and multiple of 2</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
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<td>10</td>
</tr>
</tbody>
</table>

Have your student look at the column for the number 5. Point out that if there are 5 students in the group and Mr. Chan gives them each 3 pencils, he will have given out 15 pencils. If he gives them each 2 pencils, he will have given out 10 of the 15 pencils. He would have 5 pencils left. Your student can continue the table until she arrives at a difference of 10. If your student needs help with problem 2, she may want to give each customer a number (customer 1, customer 2, etc.) and consider multiples to find the number of customers that get both prizes.

For problem 3, your student might wish to make drawings of what the room would look like with 3 tables pushed together, 4 tables pushed together, and so on. Your student can then use her drawings to solve the problem. Your student may also wish to use manipulatives, such as index cards and counters, to act out the solution.
Factors and Multiples - Part 7

USE

USE FOR MASTERY

Solve the riddle.

- I am a number that is a multiple of 5.
- When you add 3 to me, I can be divided exactly by 7.
- I am between 14 and 32.

What number am I? Explain how you found your answer.
USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Solve the riddle using the information given?
- Explain how each statement added to your understanding and how it helped you solve the riddle?
- Tell how you got to the answer?
Multiplication of Whole Numbers - Part 1

**Objectives**
- Find the product of multi-digit numbers and 1-digit numbers using arrays.

**Books & Materials**
- Math in Focus 4A
- Math in Focus - Teacher Edition
- counters in two different colors (Optional)
- dot paper (Optional)
- colored pencils (Optional)
- Solving Multiplication Problems Using Arrays Worksheet

**Assignments**
- Complete Warm-Up.
- Read and complete pages in *Math in Focus 4A*.
- Complete Solving Multiplication Problems Using Arrays Worksheet.
- Complete Practice Questions.

### LEARN

### WARM-UP

Multiply mentally.

1. $7 \times 100 = \underline{700}$
2. $9 \times 1,000 = \underline{9,000}$
3. $12 \times 10 = \underline{120}$
4. $53 \times 100 = \underline{5,300}$
5. $27 \times 1,000 = \underline{27,000}$

### TEACHING NOTES

**Warm-up Answer Key**

1. 700
2. 9,000
3. 120
4. 5,300
5. 27,000

### INSTRUCTION

Read Learn on p.74 in *Math in Focus 4A*. An array is a set of objects arranged in order, often in rows and columns. Look at the array. How do you know how many rows and columns should be in the array?
There should be 5 rows each with 16 columns because there are 5 boxes each with 16 erasers. The number of counters in the array shows the number of erasers the shop has.

How can you find the number of counters? Find $5 \times 16$. You can think of 16 as $10 + 6$. so you can multiply 5 by 10 and 5 by 6 to find the product.

What is $5 \times 10$? What is $5 \times 6$? Now add the products. Since $50 + 30 = 80$, there are 80 counters in the array. There are 80 erasers altogether.

Complete Guided Learning on p. 74–75. Use the array to find the answers. Remember that $14 = 10 + 4$.

**TEACHING NOTES**

Encourage your student to use counters or dot paper and colored pencils to make arrays throughout his work on this lesson. Remember to check your student’s work to determine if reteaching or extra practice is needed.

If your student struggles to make arrays, first have him write 13 as a sum of 10 and 3. Then guide him to model 13 by making a row of counters. Use 10 of one color and 3 of another color. He can also color in 10 dots on a row of the dot paper, followed by 3 dots of another color.

Now present your student with the multiplication problem $4 \times 13$. Remind him that $4 \times 13$ means 4 groups of 13, which can be modeled as 4 rows with 13 in each row. Have your student make 3 more rows of 13 so there are 4 rows in all. Be sure to continue the color pattern. Then have him count and record the number of each color counter: 40 of one color and 12 of the other color.

Use the array to point out that $40 = 4 \times 10$ and $12 = 4 \times 3$. Then remind him that since $13 = 10 + 3$, you can find the product of $4 \times 13$ by multiplying $4 \times 10$ and $4 \times 3$ and adding the products. Encourage your student to add $40 + 12$ to find the product. (52)

Point out that the number of rows is one factor and the number of columns is the other factor. The product is the total number of counters.

**WATCH FOR THESE COMMON ERRORS**

Some students may not remember to think of a factor as a sum. Reinforce that a number greater than 10 can always be written as the sum of 10 and another number.

**PRACTICE**

Complete p. 74–75 in *Math in Focus 4A*. Then download, print, and complete the *Solving Multiplication Problems Using Arrays Worksheet*.

**TEACHING NOTES**

Textbook Answer Key
Solving Multiplication Problems Using Arrays Worksheet Answer Key

1. a. 40 b. 8 c. 40 + 8 = 48 d. 48  
2. a. 80 b. 32 c. 80 + 32 = 112  
3. 15 × 5 = ?; 5 × 10 = 50; 5 × 5 = 25; 50 + 25 = 75; 15 × 5 = 75  
4. 13 × 3 = ?; 3 × 10 = 30; 3 × 3 = 9; 30 + 9 = 39; 13 × 3 = 39

5. 136;  
6. 60;  
7. 108;  
8. 42;  
9. 84;  
10. 95;
WRAP-UP

Today you learned how to use an array to multiply by a one-digit number.

6 × 14 = ?
6 × 10 = 60
6 × 4 = 24
60 + 24 = 84
6 × 14 = 84

✅ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Multiplication of Whole Numbers - Part 2

**Books & Materials**
- Math in Focus - Teacher Edition

**Assignments**
- Complete Interactive Activity.
- Complete Rate Your Understanding.

---

**LEARN**

---

**INTERACTIVE ACTIVITY**

In this activity you will calculate costs by multiplying.

[BrainPOP: Teachley Mt. Multiplis](#)

---

**RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
Multiplication of Whole Numbers - Part 3

LEARN

WARM-UP
Create an array to solve each problem.

1. \(15 \times 4\)
2. \(22 \times 6\)

TEACHING NOTES

Warm-up Answer Key

1. 60; Check your student’s models.
2. 132; Check your student’s models.

INSTRUCTION

Read Learn Part a and b on p. 92 in Math in Focus 4A. How can you use a place-value mat and counters to model 213? There are 2 hundreds, so use 2 counters in the hundreds column. There is 1 ten, so use 1 ten-rod or 1 counter in the tens column. There are 3 ones, so use 3 counters in the ones column.

Read Learn on p. 94 in Math in Focus 4A. How do you know how many times you will multiply each place value by. Roy's market has three times the number of Ana's, so you would multiply each number by 3. How can you find the number of oranges? Find \(2,476 \times 3\). You can think of 2,476 as 2,000 + 400 + 70 + 6. So to find the product, multiply 3 by 2,000, 3 by 400, 3 by 70, and 3 by 6. What is \(3 \times 2,000\)? What is \(3 \times 400\)? What is \(3 \times 70\)? What is \(3 \times 6\)?

Now add the products. Since \(6,000 + 1200 + 210 + 18 = 80\), there are 7,428 counters in the array. So there are 7,428 oranges altogether.
Complete Guided Learning problems 1–4 on pp. 95–96. Use a place-value mat and counters to model each step.

**TEACHING NOTES**

If your student struggles with using place value to multiply, help him connect place-value models to multiplication. For example, write the problem 2,645 × 5 vertically for your student. Then have him model 2,645 using a place-value mat and counters.

Encourage your student to use the counters to multiply. At each step, have your student write the product beneath the problem. For example, when he multiplies 5 × 5, have him write 25 beneath the problem. When he multiplies 40 × 5, have him write 200 below the 25, and so on for the rest of the digits in 2,645. (25; 200; 3,000; 10,000)

If your student wants to learn more about the concept, then have him try the following activity. Give your student problems with greater numbers, such as 34,233 × 4. (12 + 120 + 800 + 16,000 + 120,000 = 136,932) Have him use place value to find the products in these problems.

**PRACTICE**

Complete problems 1–8 of Let’s Practice on pp. 99–100 in Math in Focus 4A.

**TEACHING NOTES**

Textbook Answer Key

**WRAP-UP**

Today you learned how to multiply by one-digit numbers using counters on a place-value mat and using place value without counters.

\[
2,146 \times 4 = \\
\]

<table>
<thead>
<tr>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[
\begin{array}{c}
12 \\
\times 4 \\
8,584
\end{array}
\]

**PRACTICE QUESTIONS**

Please go online to view and submit this assessment.
LEARN

MULTIPLICATION OF WHOLE NUMBERS - PART 4

Objectives
- Multiply using various methods with and without regrouping.

Books & Materials
- Math in Focus 4A
- Workbook 4A
- Math Journal
- Math in Focus - Teacher Edition
- number cube
- counters
- place-value mat

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete pages in Workbook 4A.
- Complete Quick Check.

LEARN

WARM-UP

Multiply.
1. 84 × 2 = _______
2. 43 × 3 = _______

TEACHING NOTES

Warm-up Answer Key
1. 168
2. 129

INSTRUCTION

Read Learn on p. 96 in Math in Focus 4A. This lesson shows another strategy for multiplying a four-digit number by a one-digit number.

Try the method using 2,354 × 4. First, write 2,354 in expanded notation:

2,000 + 300 + 50 + 4

Use your counters and place-value mat to show the number. Then multiply each addend by 4.
Complete Guided Learning problems 5–9 on p. 96.

Play a variation of Roll and Multiply! on p. 97. Roll the number cube four times. This will be your four-digit number. Then roll it again to get a one digit number. Use the counters and place-value mat to multiply the two numbers together. Finally, use place value to check the answer. Did you get the same answer? If not, check your work. Play three rounds.

Allow your student to use counters as needed until he understands the concept.

If your student struggles with the concept, play a variation of the game Roll and Multiply! First, cover the 5 and the 6 on the number cube with masking tape and write 3 and 4 on the tape; this will limit how great the numbers get as you reteach the concept.

Play the game as described. With the counters and place-value mat have him model the problem. As he does this, have him record and explain how to solve the problem. This will help you specifically determine where he is having difficulty or confusion. For example:

\[
\begin{array}{c}
4,123 \\
\times 2 \\
\hline
6 \\
+ 40 \\
+ 200 \\
+ 8,000 \\
\hline
8,246
\end{array}
\]

PRACTICE

Use your Math Notebook to complete p. 98 in Math in Focus 4A. Then complete Let's Explore! on p. 99 and problems 9–16 of Let's Practice on p. 100 in Math in Focus 4A. Complete pp. 49–52 in Workbook 4A.
WRAP-UP

Today you learned another way to multiply a four-digit by a one-digit number. For this problem, you need to determine the value of each digit before solving.

\[ 4,326 = 4,000 + 300 + 20 + 6 \]

\[
\begin{array}{c}
4,326 \\
\times \ 3 \\
\hline
18 \\
+ 60 \\
+ 900 \\
+ 12,000 \\
\hline
12,978
\end{array}
\]

QUICK CHECK

Please go online to view and submit this assessment.

MORE TO EXPLORE

Be sure that you have mastered multiplying by one digit before you move on to two-digit multipliers. You can view *Multiplying: 4 digits times 1 digit* (03:23) to learn more about how to multiply four-digit numbers by one-digit numbers.

Please go online to view this video.
Complete Guided Learning problems 5–9 on p. 96.

Play a variation of Roll and Multiply! on p. 97. Roll the number cube four times. This will be your four-digit number. Then roll it again to get a one-digit number. Use the counters and place-value mat to multiply the two numbers together. Finally, use place value to check the answer. Did you get the same answer? If not, check your work. Play three rounds.

Allow your student to use counters as needed until he understands the concept. If your student struggles with the concept, play a variation of the game Roll and Multiply! First, cover the 5 and the 6 on the number cube with masking tape and write 3 and 4 on the tape; this will limit how great the numbers get as you reteach the concept.

Play the game as described. With the counters and place-value mat have him model the problem. As he does this, have him record and explain how to solve the problem. This will help you specifically determine where he is having difficulty or confusion. For example:

Use your Math Notebook to complete p. 98 in Math in Focus 4A. Then complete Let's Explore! on p. 99 and problems 9–16 of Let's Practice on p. 100 in Math in Focus 4A. Complete pp. 49–52 in Workbook 4A.

Today you learned another way to multiply a four-digit by a one-digit number. For this problem, you need to determine the value of each digit before solving.

4,326 = 4,000 + 300 + 20 + 6

Please go online to view and submit this assessment.

Be sure that you have mastered multiplying by one digit before you move on to two-digit multipliers. You can learn more about how to multiply four-digit numbers by one-digit numbers.

WRAP-UP

QUICK CHECK

MORE TO EXPLORE

Please go online to view this video ▶

Multiplication of Whole Numbers - Part 5

Objectives

- Find the product of two 2-digit numbers using area models.

Books & Materials

- Math in Focus 4A
- Math in Focus - Teacher Edition
- Multiplying with Area Models Worksheet

Assignments

- Complete Warm-Up.
- Read and Complete pages in Math in Focus 4A.
- Complete Multiplying with Area Models Worksheet.
- Complete Practice Questions.

LEARN

WARM-UP

Multiply mentally.

1. 14 × 2 = _______
2. 22 × 4 = _______
3. 53 × 3 = _______
4. 62 × 5 = _______

TEACHING NOTES

Warm-up Answer Key

1. 28
2. 88
3. 159
4. 310

INSTRUCTION

Read Learn on p. 92 in Math in Focus 4A. Using area models is a strategy for solving multi-digit multiplication problems. An area model can help you visualize the steps in a multiplication problem.
To solve $12 \times 32$, make a rectangle with 12 and 32 as its dimensions. Then decide how to rename one of the numbers. For example, 32 is the same as $30 + 2$. Divide the rectangle into two parts. Now find the areas of the two rectangles.

![Rectangle Diagram]

**TEACHING NOTES**

Remember to check your student’s work to determine if reteaching or extra practice is needed.

If your student struggles with the concept, you may need to spend additional time on writing the expanded form of numbers. Have your student practice writing a number as a sum of two numbers, such as $78 = 70 + 8$. You want your student to develop a sense of numbers and place value so that he can quickly visualize the addends that make up the number.

**WATCH FOR THESE COMMON ERRORS**

Some students may make the problem more complicated by writing a number as the sum of two addends that are more difficult to multiply. For example, a student may say that $46 = 19 + 27$. While this is a true expression, the factors 19 and 27 are much more difficult to multiply than multiples of ten. Encourage your student to find addends that are multiples of ten, such as $46 = 40 + 6$.

**PRACTICE**

Complete **Guided Learning** on p. 93, #3 in **Math in Focus 4A**. Then download, print, and complete the **Multiplying with Area Models Worksheet**.

**TEACHING NOTES**

**Textbook Answer Key**

**Worksheet Answer Key**

1 689 2 2,125 3 1,428 4 310 5 902 6 273 7 1,840 8 1,674 9 930 10 1,050
**WRAP-UP**
Today you learned that using an area model is another strategy for multiplying multi-digit numbers together. Draw a rectangle to help you see the problem. Next find the area of both rectangles. Add the two areas together to find the answer to the problem.

![Area Model Diagram]

**PRACTICE QUESTIONS**
Please go online to view and submit this assessment.
Multiplication of Whole Numbers - Part 6

**Objectives**

- Multiply using various methods with and without regrouping.
- Estimate by rounding numbers or front-end estimation.

**Books & Materials**

- Math in Focus 4A
- Math in Focus - Teacher Edition
- counters
- place-value mat

**Assignments**

- Complete Warm-Up.
- Read and complete pages in *Math in Focus 4A*.
- Complete problems in *Workbook 4A*.
- Complete Practice Questions.

---

**LEARN**

---

**WARM-UP**

Solve each problem.

1. 5 ones × 5 = _______ ones
2. 9 tens × 4 = _______ ones
3. 9 tens × 4 = _______ tens _______ ones

---

**TEACHING NOTES**

Warm-up Answer Key

1. 25
2. 36
3. 3; 6

---

**INSTRUCTION**

Read Learn on p. 101 in *Math in Focus 4A*. Using your place-value mat and counters, model the problem.

Complete Guided Learning on p. 102.

Read Learn on p. 102. The same strategy you used to multiply by tens can be used to multiply by hundreds. You can multiply numbers in any order and get the same product. Pair numbers that are easy
to multiply together. For example, you can change the order of $31 \times 3 \times 100$ to $31 \times 100 \times 3$ and get the same answer.

Complete Guided Learning on p. 103.

Read Learn pp. 103–104. It explains how to multiply a two-digit number by a two-digit number.

![Multiplication Example]

Remember to multiply by the ones first and then the tens.
When you multiply by the digit 2 in 24, remember that you are multiplying by 2 tens, or 20.

TEACHING NOTES

Allow your student to use counters and the place-value mat as needed until he understands the concept.

Your student may not know when to regroup, why regrouping is necessary, or what to do with regrouped numbers. As you talk through the problem and use place value, your student will gain a better understanding of what he being is asked to do and develop number sense.

For example:

\[
\begin{array}{c}
36 \\
\times \quad 24 \\
\hline
144 \\
+720 \\
\hline
864
\end{array}
\]

Explain that in this problem $24 = 2$ tens and 4 ones. First, he will multiply 37 by 4 ones. Next, he will multiply 37 by 2 tens or 20.

PRACTICE

Complete Guided Learning on p. 104 in Math in Focus 4A. Complete problems 1–6 on p. 53 in Workbook 4A.

TEACHING NOTES

Textbook Answer Key

Workbook Answer Key
WRAP-UP

Today you learned a strategy to multiply by a two-digit number. Remember to multiply the ones first and then the tens. Next add the two products together to get the final answer.

\[
\begin{array}{c}
62 \\
\times 34 \\
\hline
248 \\
+1860 \\
\hline
2108
\end{array}
\]

✔️ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
LEARN

MULTIPLICATION OF WHOLE NUMBERS - PART 7

OBJECTIVES
- Multiply using various methods with and without regrouping.
- Estimate by rounding numbers or front-end estimation.

BOOKS & MATERIALS
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition

ASSIGNMENTS
- Complete Warm-up.
- Read and complete pages in Math in Focus 4A.
- Complete problems in Workbook 4A.
- Complete Practice Questions

WARM-UP

Solve each problem.

1. Molly collects stamps and keeps them in a book. She places 35 stamps on each page of the book. She fills 25 pages with stamps. How many stamps does she have in her book?

2. This summer, Andrew watches 12 movies. Each movie is 95 minutes long. How many minutes does Andrew spend watching movies?

TEACHING NOTES

Warm-up Answer Key

1. Molly has 875 stamps.

2. Andrew spent 1,140 minutes watching movies.

INSTRUCTION

Read Learn on p.105 in Math in Focus 4A. You have learned a strategy for multiplying a two-digit number by a two-digit number. Today you will apply the same strategy to multiplying a three-digit number by a two-digit number.

Complete Find the Missing Numbers! on p.106.
Play Find the Missing Numbers! with your student, taking turns writing the number and checking the answers.

WATCH FOR THESE COMMON ERRORS
When multiplying by zero, some students make this common mistake: When solving $307 \times 4$, a student may correctly calculate that $7 \times 4$ is 28. He will write 8 in the ones place and regroup 2 tens. Then he may incorrectly find $4 \times 2$. The correct steps are to first multiply $4 \times 0$ and then add 2 to the product, $0 + 2$.

Incorrect:

\[
\begin{array}{c}
2 \\
307 \\
\times 14 \\
\hline \\
1288 \\
3070 \\
\hline \\
4358
\end{array}
\]

PRACTICE
Complete problems 7–19 on pp. 53–55 in Workbook 4A.

WRAP-UP
Today you learned how to multiply a three-digit number by a two-digit number.

PRACTICE QUESTIONS
Please go online to view and submit this assessment.
LEARN

WARM-UP

Multiply.

1. \[
\begin{array}{c}
409 \\
\times 22 \\
\end{array}
\]

2. \[
\begin{array}{c}
276 \\
\times 48 \\
\end{array}
\]

TEACHING NOTES

Warm-up Answer Key

1. 8,998
2. 13,248

INSTRUCTION

Read Learn on p. 107 in Math in Focus 4A. A number line can help you estimate. It provides a way to see how close a number is to a ten or a hundred. After you round the factors in your problem, you can multiply them to find an estimate for the product.

For example, if you solve 467 \times 32 and your answer is 1,334, ask yourself if it is a reasonable answer. If you round 467 to the greatest place value (hundreds), you get 500. If you round 32 to the greatest place value (tens), you get 30. Notice 500 \times 30 = 15,000. 1,334 is not close to 15,000. If the answer is not
close to the estimate, try solving the problem again. (The correct answer is 14,944.)


Many students make common mistakes when they multiply. Complete Let’s Explore! on p. 108 to see if you can spot the mistakes the student made in his multiplication problems.

Your student may struggle with choosing which digit to use when rounding numbers.

Model for your student how to look to the number to the right of the place value where he must round. For example, to round 468 to the nearest hundred, he must look to the digit in the tens place, the 6. If he is rounding to the nearest ten, he must look to the digit in the ones place.

Or you can say: If you want to round 468 to the nearest ten, what two tens is it between? It’s between 460 and 470. It is 2 away from 470 and 8 away from 460. So 468 rounds to 470.

Complete Let’s Practice on pp. 109–110 in Math in Focus 4A. Then complete problems 17–26 on pp. 55–56 in Workbook 4A.

Today you learned how to estimate a product.

357 × 31 = ______

357 is about 400 and 31 is about 30.
400 \times 30 = 12,000

357 \times 31 is about 12,000.

357 \times 31 is exactly 11,067.

The exact answer is reasonable because it is close to the estimated product.

✅ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Mr. Jackson sold 3 computer monitors in the first year. In the second year, he sold 4 times as many monitors as in the first year. In the third year, he was able to sell 6 times as many monitors as in the first year.

a. How many monitors did Mr. Jackson sell in three years?
b. He earned $185 for each monitor he sold. How much money did Mr. Jackson earn?
c. Upload your work to show how you got your answers.
In these next two parts you will begin planning and budgeting for your trip! You would like to plan to go for a week, so first you will need to find a hotel. Research hotel rates and find one you where you would like to stay. Consider the hotel's distance from fun activities and its cost. You are trying to convince your parents to take you, so you don't want it to be too expensive, but at the same time you want to choose someplace nice enough that you will all enjoy being there. When you find your hotel, write the cost per night and your sources in your Math Notebook.

### PROJECT PROGRESS

**How ready do you feel to complete this part of the project?**

- I feel very ready to complete this part of the project; I have learned everything I need to know to do it.
- I feel somewhat ready to complete this part of the project but I am unsure that I have learned everything I need to know to do it.
- I do not feel ready to complete this part of the project.
- I feel very unprepared to complete this part of the project.

**How excited do you feel to complete this part of the project?**

- I feel very excited to complete this part of the project.
- I feel somewhat excited to complete this part of the project.
- I do not feel excited to complete this part of the project.
- I feel completing this part of the project will be very boring.
Now that you know where you are going to visit and where you will be staying, it is time to decide what you would like to do during the trip. Choose two fun activities that you would like to do and calculate how much it would cost for your entire family to go. Keep this information in your Math Notebook for your final show.

**PROJECT PROGRESS**

How ready do you feel to complete this part of the project?

- I feel very ready to complete this part of the project; I have learned everything I need to know to do it.
- I feel somewhat ready to complete this part of the project but I am unsure that I have learned everything I need to know to do it.
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### Division of Whole Numbers - Part 1

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Books &amp; Materials</th>
<th>Assignments</th>
</tr>
</thead>
</table>
| - Use models to regroup numbers for division.  
  - Find the quotient with regrouping. | - Math in Focus 4A  
- Workbook 4A  
- Math in Focus - Teacher Edition  
- counters  
- place-value mat | - Complete Warm-Up.  
- Read and complete pages in *Math in Focus 4A*.  
- Complete pages in *Workbook 4A*.  
- Complete Practice Questions. |

## LEARN

### WARM-UP

First, show the following numbers with your *counters* and *place-value mat*. Next, divide the blocks into two equal groups. How many tens and how many ones are in each group?

1. 82  
2. 64  
3. 28  
4. 44  
5. 86

### TEACHING NOTES

#### Warm-up Answer Key

1. 4 tens and 1 one  
2. 3 tens and 2 ones  
3. 1 ten and 4 ones  
4. 2 tens and 2 ones  
5. 4 tens and 3 ones
Read **Learn** on pp. 111–112 in *Math in Focus 4A*. Model the problem with your counters and place-value mat. Notice how you start by dividing the hundreds into equal groups. This is different from multiplication. In vertical multiplication, you start with the ones.

Pay attention as you regroup. After you place all your hundreds counters into equal groups, you may have some left over. Each leftover hundreds counter is traded for 10 tens counters. Regroup any leftover hundreds to the tens column with the tens that are already there. After you place all of your tens counters into equal groups, you may have some leftover. Each leftover tens counter is traded for 10 ones counters. Regroup any leftover tens to the ones column with any ones that are already there.

Complete **Guided Learning** on pp. 113–115. Use your counters and your place-value mat as you complete each step.

**Teaching Notes**

Allow your student to use the counters and place-value mat until he understands the concept. Your student may become frustrated with long division. There are multiple steps so he may feel lost in the problem.

The counters allow your student to visualize the problem and see how division works, step-by-step. Many students want to skip the tangible step of working with the counters. However, the more your student works with the manipulatives, the greater his understanding of the concept of division will be.

**Watch for these common errors**

Some students may confuse the order to work through a division problem. This is because when you multiply numbers that are stacked vertically, you start with ones and move from right to left. In division, you start with the greatest place value and move from left to right. Remind your student to start with the greatest place value when dividing.

**Practice**

Complete **Let’s Practice** on p. 115 in *Math in Focus 4A*. Then complete pp. 57–62 in *Workbook 4A*.

**Teaching Notes**

- Textbook Answer Key
- Workbook Answer Key
WRAP-UP

Today you learned how to divide using long division. Start with the hundreds place and work from left to right to find the answer.

\[
\begin{array}{c}
376 \\
2)752 \\
\underline{600} \\
152 \\
-140 \\
\underline{12} \\
-12 \\
\underline{0}
\end{array}
\]

✔ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
**Division of Whole Numbers - Part 2**

**Books & Materials**
- Math in Focus - Teacher Edition

**Assignments**
- Complete Interactive Activity.
- Complete Rate Your Enthusiasm.

---

**LEARN**

---

**INTERACTIVE ACTIVITY**

Play the game Rocketo: Division to practice your skills.

---

**RATE YOUR ENTHUSIASM**

Please go online to view and submit this assessment.
Division of Whole Numbers - Part 3

Objectives
• Divide numbers using various strategies with and without remainders.

Books & Materials
• Math in Focus 4A
• Workbook 4A
• Math in Focus - Teacher Edition
• counters
• place-value mat

Assignments
• Complete Warm-Up.
• Read and complete pages in Math in Focus 4A.
• Complete pages in Workbook 4A.
• Complete Practice Questions.

LEARN

WARM-UP
1. Show 7 tens and 6 ones using counters and a place-value mat.

2. Divide the counters into two equal groups.

3. Explain how you divided the counters.

4. How many counters do you have in each group?

TEACHING NOTES

Warm-up Answer Key
1. Check your student’s work.

2. Check your student’s work.

3. First, you place 3 tens counters in one pile and 3 tens counters in another pile. There will be a counter from the tens column left over. Regroup this counter, replacing it with 10 ones, and add it to the existing pile of 6 ones. Next, divide the ones into the two equal groups.

4. 3 tens counters and 8 ones

INSTRUCTION

Read Learn on p. 116 in Math in Focus 4A. As you study the problems in this lesson, practice the terms used in division.
Read Learn on p.117 in Math in Focus 4A. In previous lessons you learned how to divide two- and three-digit numbers. Today you are dividing four-digit numbers. Remember that in division, you work from left to right.

Complete Guided Learning on p.118. Check to see if your answers are reasonable. For example, if your answer to \(145 \div 5 = 725\), ask yourself if 725 is a logical answer. Think: If I am putting 145 into 5 groups, I cannot have 725 in each group. Something is not right. I should rework the problem. (The correct answer is 29.)

**TEACHING NOTES**

**Textbook Answer Key**

If your student struggles with the concept, work through another sample problem together. Before beginning to divide, ask your student to show the dividend in expanded form with his counters and place-value mat.

For example, for the problem \(4,352 \div 2\), start by showing the expanded form of 4,352.

\[
4,000 + 300 + 50 + 2
\]

Next use the counters to show how you are going to divide each group by 2. First, divide 4,000 by 2. So each group will have 2 thousands.

Next divide 300 into 2 groups. There will be 1 hundred in each group, and 1 hundred will be regrouped to the tens.

1 hundred is regrouped to 10 tens and is added to the existing 5 tens. Then 15 tens are divided into 2 groups with 7 tens in each group, and 1 ten regrouped to the ones.

Finally the 1 ten is regrouped to 10 ones and added to the existing 2 ones. 12 ones are divided into two groups of 6.

Count how many is in each group: 2,176.

Now solve the same problem on paper. Refer back to the counters as often as necessary.

**WATCH FOR THESE COMMON ERRORS**

Sometimes there is no number above the first digit in the dividend. If your student has difficulty with this, he can use a 0 to hold the place. Another method is for your student to draw a tiny slash or X above the place in the dividend to remind him where he will begin to write the quotient.
Complete p. 63 in *Workbook 4A*.

Today you learned how to divide a four-digit number by a one-digit number.

```
     186
  8)1488

  - 800
   688
  - 640
   48
  - 48
   0
```

Please go online to view and submit this assessment.
Division of Whole Numbers - Part 4

**Objectives**
- Divide numbers using various strategies with and without remainders.
- Estimate by rounding numbers or front-end estimation.

**Books & Materials**
- Math in Focus 4A
- Workbook 4A
- *Math in Focus - Teacher Edition*

**Assignments**
- Complete Warm-Up.
- Read and complete pages in *Math in Focus 4A*.
- Complete pages in *Workbook 4A*.
- Complete Practice Questions.

---

**LEARN**

**WARM-UP**

Solve each problem.

1. There are 564 chairs and many tables in a large assembly hall. Six chairs will be placed around each table. How many tables are needed if all of the chairs will be used?

2. Ann has a goal to read 1,635 minutes during the months of June, July, and August. If she wants to meet her goal, how many minutes should she read each month?

---

**TEACHING NOTES**

**Warm-up Answer Key**

1. Ninety-four tables will be needed.

2. Ann should read 545 minutes each month to reach her goal.

---

**INSTRUCTION**

Read Learn on p. 119 in *Math in Focus 4A*. Many times when you divide, the answer will not come out evenly. The number that is left over is called the remainder.

For example, in the problem $15 \div 2$, start by dividing 15 into two equal groups. You can put 7 into each group ($7 + 7 = 14$), but you will have 1 left over. This is not enough for both groups. This is your remainder. Your remainder must be included in your answer.

$$15 \div 2 = 7 \text{ R}1$$

Note that the capital R stands for remainder.
Complete **Guided Learning** on pp. 119–120. As you solve the problems, estimate the answer. When you calculate the exact answer, compare it to your estimate. Are the answers close? If not, recheck your calculations.

For example, before you begin the problem $150 \div 4$, estimate your answer.

Think: I will round 150 up to 160 because I know 16 is a multiple of 4 and I can do that problem in my head. So, $160 \div 4 = 40$. So my exact answer should be close to 40.

**TEACHING NOTES**

**Textbook Answer Key**

If your student struggles with division, try making these boxes to show where the digits should go. Note: If your student usually writes a 0 in the first place above the dividend, you should draw a box there, too.

```
  4
3 4 6
```

**PRACTICE**

Complete p. 64 in **Workbook 4A**.

**TEACHING NOTES**

**Workbook Answer Key**
WRAP-UP

Today you continued to solve division problems. However, your answers did not come out equally: they produced a remainder. When you have a remainder, include it in your answer with the letter R. For example:

\[ 3,452 \div 3 = 1,150 \text{ R2} \]

Practice Questions

Please go online to view and submit this assessment.
Division of Whole Numbers - Part 5

Objectives
- Divide numbers using various strategies with and without remainders.
- Estimate by rounding numbers or front-end estimation.

Books & Materials
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete pages in Workbook 4A.
- Complete Practice Questions.

LEARN

WARM-UP
Round each number to the nearest ten.

1. 47
2. 21
3. 84
4. 467
5. 3,491

TEACHING NOTES

Warm-up Answer Key

1. 50
2. 20
3. 80
4. 470
5. 3,490
INSTRUCTION

Read Learn on p. 120 in Math in Focus 4A. You can use multiplication to estimate the answer of a division problem.

Try the problem $355 \div 4$. First, round 355 to a number that is easily divisible by 4.

$4 \times 8 = 32$ and $4 \times 9 = 36$

You could round 355 to 320 or 360 since both are divisible by four. But 355 is closer to 360, so you will get a more accurate estimate if you choose 360.

$360 \div 4 = ______$
Think: $4 \times ______ = 360$.

$360 \div 4 = 90$ $355 \div 4$ is about 90.

Then complete Guided Learning on pp. 121–122.

WATCH FOR THESE COMMON ERRORS

Watch that your student does not ignore the zeros when dividing. Explain that if a zero is in the dividend, it needs a number above it just like any other digit.

PRACTICE

Read and complete the problem in Let’s Explore! on p. 122 in Math in Focus 4A. Then complete Let’s Practice on pp. 122–123. Complete pp. 65–66 in Workbook 4A.

Textbook Answer Key
Workbook Answer Key
**WRAP-UP**

Today you used multiplication to find an estimate to a division problem.

In the problem 524 ÷ 5, round 524 to a number that you can easily divide by 5.

\[
5 \times 10 = 50 \text{ and } 5 \times 11 = 55
\]

524 is closer to 500 than 550.

\[
500 ÷ 5 = ______
\]

Think to yourself: \(5 \times ______ = 500\)

\[
5 \times 100 = 500
\]

524 ÷ 5 is about 100.

---

**PRACTICE QUESTIONS**

Please go online to view and submit this assessment.
Division of Whole Numbers - Part 6

Books & Materials
- Math in Focus - Teacher Edition

Assignments
- Complete Use For Mastery.

USE

USE FOR MASTERY

Part A
Divide.

6,499 ÷ 7 =  \_ \_ \_ \_ R \_ \_ \_ \_  

Part B:
Jim thinks the quotient has a remainder of 7. Explain Jim's mistake.

0 / 10000 Word Limit

Upload files

Supported file formats: PDF, JPG, GIF, PNG

0 / 12 File Limit
USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Solve for the equation given in Part A?
- Explain why 7 cannot be a remainder in the equation in Part A?
SHOW

Now that you have worked on improving your division skills, it is time to use the information that you found in the first part of the project. Use the population and area to calculate the number of people for every square mile for the town that you want to visit, as well as your own town. You may use a calculator. Show your work and write your answers in your Math Notebook. Then save them to use for your final show.

PROJECT PROGRESS

How ready do you feel to complete this part of the project?

- I feel very ready to complete this part of the project; I have learned everything I need to know to do it.
- I feel somewhat ready to complete this part of the project but I am unsure that I have learned everything I need to know to do it.
- I do not feel ready to complete this part of the project.
- I feel very unprepared to complete this part of the project.

How excited do you feel to complete this part of the project?

- I feel very excited to complete this part of the project.
- I feel somewhat excited to complete this part of the project.
- I do not feel excited to complete this part of the project.
- I feel completing this part of the project will be very boring.
Problem Solving with Whole Numbers - Part 1

Objectives
- Round numbers to estimate products and quotients.
- Estimate to justify if answers are reasonable.

Books & Materials
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition
- base-ten blocks
- paper clips (Optional)

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete pages in Workbook 4A.
- Complete Practice Questions.

LEARN

WARM-UP
Solve each problem.

1. \(455 \times 6 = \)
2. \(66 \div 3 = \)
3. \(201 \times 8 = \)
4. \(95 \div 5 = \)

TEACHING NOTES

Warm-up Answer Key
1. 2,730
2. 22
3. 1,608
4. 19

INSTRUCTION

Read Learn on p. 47 in Math in Focus 4A. How can you determine if 652 is a reasonable answer for \(326 \times 2\)? You can round and multiply to estimate the answer. If the estimated answer is close to the actual answer, the actual answer is reasonable. Round 326 to 300 and multiply 300 \(\times 2\). The estimate 600 is close to 652, so the answer is reasonable. Complete the Guided Learning on p. 48.

Read Learn on p. 48. How can you use front-end estimation to estimate \(134 \times 5\)? Change 134 to 100 and multiply 100 \(\times 5\). The estimate 500 is close to 670, so the answer is reasonable. Complete Guided
Learning on p. 49. Read Learn on p. 49. How can you use related multiplication facts to check the reasonableness of quotients? Look for a multiplication fact that has a factor of 3 and product that is close to 72. Since \(3 \times 20\) is 60 and 72 is close to 60, \(72 \div 3\) is about \(60 \div 3\). Since \(60 \div 3 = 20\) and 20 is close to 24, the answer is reasonable.

**FUN FACT**

A centipede can have up to 149 legs on one side of its body. \(150 \times 2 = 300\) That is about 300 legs in all.

**TEACHING NOTES**

Encourage your student to circle the number that she is rounding as she completes the problems in this lesson. Remember to check your student’s work to determine if reteaching or extra practice is needed.

If your student has difficulty finding a related multiplication fact, have her try the following example. Give your student \(74 \div 2 = 37\). Have her write the multiplication fact \(2 \times 37 = 74\) and circle or highlight 2 and underline 74. Explain that the related multiplication sentence has the circled number, 2, as a factor and a product that is close to the underlined number, 74.

Explain that 74 is close to both 60 and 80. Think: \(2 \times 3 = 6\) and \(2 \times 30 = 60\); \(2 \times 4 = 80\) and \(2 \times 40 = 80\). Since 74 is closer to 80 than to 60, use the multiplication sentence \(2 \times 40 = 80\). Then rewrite \(2 \times 40 = 80\) as \(80 \div 2 = 40\). Since \(74 \div 2\) is about \(80 \div 2 = 40\). Since \(74 \div 2\) is about \(80 \div 2 = 40\). Since 37 is about 40, 37 is a reasonable answer.

**WATCH FOR THESE COMMON ERRORS**

Some students may think the estimated answer must be very close to the actual answer for the actual answer to be reasonable. Point out that accuracy of the estimated answer depends on how close the rounded numbers are to the actual numbers.

Some students may have difficulty explaining their answers. Encourage your student to write the numbers she used to estimate and refer to the numbers when formulating an explanation.

**PRACTICE**

Complete pp. 50–51 in *Math in Focus 4A*. Then complete pp. 18–19 in *Workbook 4A*.
Today you learned how to check whether a product or quotient is reasonable.

To determine if a product is reasonable, round or use front-end estimation and then multiply.

\[543 \times 4 = 2,172 \rightarrow 500 \times 4 = 2,000\]

To determine if a quotient is reasonable, use related multiplication facts.

\[84 \div 3 = 28 \rightarrow 90 \div 3 = 30\]

\[30 \times 3 = 90\]

Please go online to view and submit this assessment.
Problem Solving with Whole Numbers - Part 2

Books & Materials
- Math in Focus - Teacher Edition

Assignments
- Complete Interactive Activity.
- Complete Rate Your Understanding.

LEARN

INTERACTIVE ACTIVITY

Try this activity to practice your skills.

Interactive Activity

TEACHING NOTES

If your student needs extra practice, have your student complete either the learn, guided learning, or assist practice..

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Problem Solving with Whole Numbers - Part 3

**Objectives**
- Round numbers to estimate.
- Estimate to justify if answers are reasonable.
- Determine if an estimate or exact answer is required.

**Books & Materials**
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition

**Assignments**
- Complete Warm-Up.
- Read and complete pages in *Math in Focus 4A*.
- Complete pages in *Workbook 4A*.
- Complete Quick Check.

---

**LEARN**

**WARM-UP**
Solve each problem.

1. \(145 \times 7 = \) _______
2. \(4,774 - 3,988 = \) _______
3. \(93 \div 3 = \) _______
4. \(14,322 + 25,103 = \) _______

---

**TEACHING NOTES**

**Warm-up Answer Key**

1. 1,015
2. 786
3. 31
4. 39,425

---

**INSTRUCTION**

Read *Let's Explore!* on p. 52 in *Math in Focus 4A*. How can you estimate \(73 \div 8\)? One way to estimate is to think of a number close to 73 that has 8 as a factor. Since 72 is close to 73 and \(72 \div 8 = 9\), \(73 \div 8\) is about 9.
You can also think of a related multiplication fact: $8 \times 9 = 72$, so the quotient is about 9. How can you estimate $9 \times 26$? You can change either or both factors to a nearby number that is easy to multiply. You can multiply $10 \times 26$, $9 \times 25$, or $10 \times 25$ to estimate. Choose a method to estimate the answers to problems 1–2 on p. 52.

Read Learn on p. 53. Sometimes you need to find an exact answer to a problem, but sometimes an estimate is enough. Look at the problem. When you round the prices to the nearest hundred and add, it is clear that the cost of the items is greater than $1,000$, so the committee does not have enough money. An estimate is all that is needed to solve this problem. However, in the problem at the bottom of the page, the question is how many, so an exact answer is needed. Complete Guided Learning on p. 54.

**TEACHING NOTES**

Emphasize to your student that there are many ways to estimate sums, differences, products, and quotients. She should use a method that makes sense to her. Remember to check your student’s work to determine if reteaching or extra practice is needed.

If your student does not understand when a problem needs an exact answer and when an estimate is enough, point out that keywords can help her decide. Give your student this context: There were 244 people at a concert on Saturday and 384 people at the concert on Sunday. Then ask: About how many people were at the concert during the two days? Have your student identify whether she should find an exact or an estimated answer and explain why. Point out that the word about in the question indicates that an estimate is enough. Then ask: How many more people were there on Sunday than Saturday? Your student should recognize that how many more indicates that an exact answer is required.

As your student progresses through the problems on p. 54, encourage her to write down keywords in the problem that can help her decide whether to estimate. For example, does he have enough money in problem 17 and about how much in problem 20 indicate estimation?

**PRACTICE**

Complete Let’s Practice on p. 55 in Math in Focus 4A. Then complete p. 20 in Workbook 4A.

**TEACHING NOTES**

Textbook Answer Key

Workbook Answer Key
WRAP-UP

Today you learned different ways to estimate products and quotients. You also learned how to decide whether to find an estimate or an exact answer to solve a problem.

Mrs. Tobin uses 78 pounds of gardening soil. She uses the same amount of soil in each of her 4 flower beds. About how many pounds of soil will she use in each bed?

The word *about* means you can estimate the quotient.

78 is close to 80 and $80 \div 4 = 20$, so Mrs. Tobin will use about 20 pounds of soil in each bed.

✅ QUICK CHECK

Please go online to view and submit this assessment.

MORE TO EXPLORE

If you have trouble with the Quick Check, draw a picture to help you understand the problem. Round 67 to the nearest ten. Then use a strategy to multiply that number by 5.
Problem Solving with Whole Numbers - Part 4

Objectives
- Use bar models to solve multiplication and division problems.

Books & Materials
- Math in Focus - Teacher Edition
- Multiplication and Division Bar Models Worksheet

Assignments
- Complete Warm-Up.
- Read and complete Multiplication and Division Bar Models Worksheet.
- Complete Practice Questions.

LEARN

WARM-UP

Draw an area model that shows how to solve each problem.

1. Trevor is counting pennies by placing them in stacks of 15. Trevor has 10 stacks. How many pennies does Trevor have?

2. Rachel and 4 of her friends make a total of $585 from a bake sale. They share the money equally. How much money do they each receive?

TEACHING NOTES

Warm-up Answer Key

1. 150; Drawings will vary.
2. $117; Drawings will vary.

INSTRUCTION

Bar models show what is happening in a word problem. These models can help you solve addition, subtraction, multiplication, and division problems. To draw a bar model, you need to show all of the information in the story. You use labels to tell what the problem is about. Use a question mark to show what you are trying to find. In this lesson, you will learn how to use bar models to solve multiplication and division problems.

Download, print, and read the examples on [Multiplication and Division Bar Models Worksheet](#).
If you are unfamiliar with bar models, you should view the following videos:

**Instructional Support Video:** [How to Teach Bar Models, Part 1](#)

**Instructional Support Video:** [How to Teach Bar Models, Part 2](#)

**Instructional Support Video:** [How to Teach Bar Models, Part 3](#)

Guide your student through the first problem. Ask him to explain the bar model to you. Each section of the bar represents one box of name tags. The label for the first section shows 25 name tags in each box. The 6 sections represent 6 boxes.

Multiplying the number of name tags per box by the number of boxes will give the total number of name tags. Remind your student to write math problems that match each bar model as he completes the lesson.

Your student will continue to use bar models for word problems. You may follow these steps:

1. **Read the problem.** Identify what the problem is asking and write a sentence.
   - The community center has ______ name tags.

2. **Draw a bar model** to show the total number of name tags.
   - Label it with a question mark.
   - Next divide the whole into 6 equal sections to show that there are 6 boxes.
   - Finally label one section 25 to show that there are 25 name tags in each box.

3. **Solve the problem.**
   - $25 \times 6 = 150$

4. **Complete the answer sentence.**
   - The community center has 150 name tags.

Your student may want to write the answer in the bar model. He may also erase the question mark and replace it with the answer, or write an equal sign and the answer.

**PRACTICE**

Complete the **Your Turn** and **Practice** sections on *Multiplication and Division Bar Models Worksheet*. 
If you are unfamiliar with bar models, you should view the following videos:

Instructional Support Video: How to Teach Bar Models, Part 1
Instructional Support Video: How to Teach Bar Models, Part 2
Instructional Support Video: How to Teach Bar Models, Part 3

Guide your student through the first problem. Ask him to explain the bar model to you. Each section of the bar represents one box of name tags. The label for the first section shows 25 name tags in each box. The 6 sections represent 6 boxes.

Multiplying the number of name tags per box by the number of boxes will give the total number of name tags. Remind your student to write math problems that match each bar model as he completes the lesson.

Your student will continue to use bar models for word problems. You may follow these steps:

1. Read the problem. Identify what the problem is asking and write a sentence.
   The community center has _______ name tags.

2. Draw a bar model to show the total number of name tags. Label it with a question mark.
   Next divide the whole into 6 equal sections to show that there are 6 boxes.
   Finally label one section 25 to show that there are 25 name tags in each box.

3. Solve the problem.
   $25 \times 6 = 150$

4. Complete the answer sentence.
   The community center has 150 name tags.

Your student may want to write the answer in the bar model. He may also erase the question mark and replace it with the answer, or write an equal sign and the answer.

Worksheet Answers:

Your Turn

1 unit $\Rightarrow$ 8
9 units $\Rightarrow$ $9 \times 8 = 72$
Mrs. O’Brien has 72 packs of fruit snacks.

Practice

1 48 cards

2 16 cups

3 24 pages

4 21 bags

12 cookies

Today you learned how to use bar models to solve multiplication and division problems. Read the problem carefully and write an answer sentence.

WRAP-UP
WRAP-UP

Today you learned how to use bar models to solve multiplication and division problems.

- Read the problem carefully and write an answer sentence.
- Draw a bar to show each part from the problem.
- Label the parts and the whole. Use a \( ? \) to show what is missing.
- Write a math problem, and then solve to find the missing value.
- Complete the sentence to answer the question.

PRACTICE QUESTIONS

Please go online to view and submit this assessment.
### Problem Solving with Whole Numbers - Part 5

#### Objectives
- Apply mathematical operations to real world problems.
- Solve multi-step problems by adding, subtracting, multiplying, or dividing.

#### Books & Materials
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition

#### Assignments
- Complete Warm-Up.
- Read and complete pages in *Math in Focus 4A*.
- Complete pages in *Workbook 4A*.

---

#### LEARN

**WARM-UP**

Draw a bar model to solve this problem.

Ann and Sara are neighbors in the country. Both girls have many trees in their yards. Ann has twice as many trees as Sara. Altogether there are 600 trees in both yards. How many trees are in Sara’s yard?

---

#### Teaching Notes

**Warm Up Answer Key**

![Sample bar model: Ann and Sara's trees](image)

- Warm-up
- Sample bar model:
  - ?
  - Sara
  - 600 trees
  - Ann
  - 200 trees
INSTRUCTION

Read Learn on p. 124 in Math in Focus 4A. Many word problems need more than one step to complete the problem. Each step may use a different operation.

To solve a word problem, first read the problem carefully. Next, reread the problem to figure out what you know from the problem and what the problem is asking you to find.

When a problem has the phrase twice as much, it means two times the amount. For example, Bob and Sue collect baseball cards. Bob has twice as many cards as Sue. This means Bob has two times the amount of cards as Sue.

When you solve multi-step problems, make sure you complete all of the steps in the problem. Skipping a step, or not completing the final step, will result in an incorrect answer.

Complete Guided Learning on p. 125.

Next read Learn on p. 126 and 129. You may need to draw more than one bar model to complete multi-step problems. One bar model may only provide you with part of the answer you need to complete the problem.


TEACHING NOTES

WATCH FOR THESE COMMON ERRORS
Some students struggle with word problems even when they understand the math concepts required in them. After reading a problem, encourage your student to talk through it aloud and explain what the problem entails.

PRACTICE

In your Math Journal, complete the writing activity on p. 132 in Math in Focus 4A. Then complete Let’s Explore! on p. 133 and Let’s Practice on pp. 133–134. Complete pp. 67–72 in Workbook 4A.
Today you learned how to solve multi-step problems. You may need to make more than one bar model to solve a multi-step problem.

Please go online to view and submit this assessment.
LEARN

WARM-UP

Solve each problem.

1. $23 \times 100 = \underline{2300}$
2. $45 \times 100 = \underline{4500}$
3. $91 \times 10 = \underline{910}$
4. $10 \times 32 = \underline{320}$
5. $65 \times 100 = \underline{6500}$
6. $2 \times 100 = \underline{200}$
7. $10 \times 39 = \underline{390}$
8. $71 \times 100 = \underline{7100}$
9. $43 \times 100 = \underline{4300}$
10. $56 \times 10 = \underline{560}$
11. $12 \times 10 = \underline{120}$
12. $69 \times 100 = \underline{6900}$
13. $100 \times 81 = \underline{8100}$
14. $99 \times 100 = \underline{9900}$
15. $36 \times 10 = \underline{360}$
**TEACHING NOTES**

**Warm-up Answer Key**

1. 2,300  
2. 4,500  
3. 910  
4. 320  
5. 6,500  
6. 200  
7. 390  
8. 7,100  
9. 4,300  
10. 560  
11. 120  
12. 6,900  
13. 8,100  
14. 9,900  
15. 360

---

**INSTRUCTION**

Read Learn on p. 131 in Math in Focus 4A. There are times when you will solve a word problem with unknown numbers. An unknown number is a number you need to find in order to complete the problem. Mathematicians use letters to represent an unknown number.

At the restaurant, a cup of soup costs $3.  
One table ordered 5 cups of soup.  
How much was their bill?

Your unknown in this problem is how much money is owed on the bill. First, define the unknown. In this problem, use the letter \( c \) to represent the cost of the bill.

\[
\begin{align*}
  c &= \text{cost of bill} \\
  3 \times 5 &= c & c &= 15
\end{align*}
\]

The table's bill was $15.

When you are finished, insert the answer into the original equation. The equation should be correct.

\[
3 \times 5 = 15
\]

Complete Let's Practice on pp.133–134 in Math in Focus 4A.

---

**TEACHING NOTES**

**Textbook Answer Key**

**WATCH FOR THESE COMMON ERRORS**

Some students may solve correctly for the unknown and think they are finished with the problem. However, further steps may be needed to successfully answer the question. Encourage your student to reread the problem and check the reasonableness of the answer.
PRACTICE

Complete pp. 73–74 in Workbook 4A. Download, print, and complete the Unknowns in Multi-Step Problems Worksheet.

Workbook Answer Key

Worksheet Answers:

1. a. \( k \) = minutes Kate read; \( k = 600 + 200; k = 800 \); Kate read 800 minutes.

   b. \( j \) = minutes Jessica read; \( j = 800 \times 2; j = 1,600 \); Jessica read 1,600 minutes.

   c. \( m \) = minutes read altogether; \( m = 600 + 800 + 1,600; m = 3,000 \); Max, Kate, and Jessica read 3,000 minutes altogether.

2. a. \( m \) = boxes of crayons packed during the first hour; \( m = 120 \div 30; m = 4 \); Tim packed 4 boxes of crayons during the first hour.

   b. \( t \) = boxes of crayons packed during the second hour; \( t = 150 \div 30; t = 5 \); Tim packed 5 boxes of crayons during the second hour.

   c. \( t \) = total boxes packed; \( t = 4 + 5; t = 9 \); Tim packed 9 boxes of crayons.

3. a. \( h \) = number of honey granola bars; \( h = 12 + 5; h = 17 \); There are 17 honey granola bars.

   b. \( c \) = number of chocolate chip bars; \( c = 12 \times 3; c = 36 \); There are 36 chocolate chip bars.

   c. \( t \) = total granola bars; \( t = 12 + 17 + 36; t = 65 \); There are 65 granola bars in the box, which means there are enough for 42 friends.

   d. \( b \) = bars left over; \( b = 65 - 42; b = 23 \); There will be 23 bars left over.

WRAP-UP

Today you learned how to solve word problems using a letter to find an unknown quantity. Before you start the problem, define the unknown.

Molly can read 125 words per minute.
One afternoon she read for 60 minutes.
How many words did she read?
Today you learned how to solve word problems using a letter to find an unknown quantity. Before you start the problem, define the unknown.

Molly can read 125 words per minute.

One afternoon she read for 60 minutes.

How many words did she read?

\[ w = \text{words read} \]
\[ 125 \times 60 = w \]

\[ w = 7,500 \]
Molly read 7,500 words.

Always check your answer by putting the solution into the original problem to make sure the equation is true.

\[ 125 \times 60 = 7,500 \]

✔️ **PRACTICE QUESTIONS**

Please go online to view and submit this assessment.
Problem Solving with Whole Numbers - Part 7

**Objectives**
- Apply mathematical concepts and skills to solve problems.

**Books & Materials**
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition

**Assignments**
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete Practice Questions.

### LEARN

**WARM-UP**

Solve each problem.

1. \(32 \times 20 = \) ______
2. \(81 \times 30 = \) ______
3. \(79 \times 20 = \) ______
4. \(55 \times 100 = \) ______
5. \(93 \times 200 = \) ______
6. \(42 \times 400 = \) ______
7. \(83 \times 1,000 = \) ______
8. \(61 \times 2,000 = \) ______
9. \(55 \times 5,000 = \) ______

**TEACHING NOTES**

**Warm-up Answer Key**

1. 640 2. 2,430 3. 1,580 4. 5,500 5. 18,600 6. 16,800 7. 83,000 8. 122,000 9. 275,000

**INSTRUCTION**

Read through problems 1–4 in Put On Your Thinking Cap! on p. 135 of Math in Focus 4A. The book provides four factors: 12, 865, 470, and 45. For numbers 1–4, determine two factors that can be multiplied together to get the given product.
Textbook Answer Key

Have your student use estimation skills and round the factors to the greatest place value value so he can easily calculate the problems using mental math.

Next, have him read problem 5 on p. 135. This is a great problem to use letters to represent the unknown numbers.

\[ m = \text{number of men} \]
\[ w = \text{number of women} \]
\[ c = \text{number of children} \]

Now have him write equations to solve each unknown, or variable.

\[ w = 5 \times c \]
\[ m = 3 \times w \]
\[ m = 3 \times (5 \times c) \]

The entire equation is multiplication, so your student should use the Associative Property to multiply the factors in any equation without parentheses.

\[ 3 \times 5 \times c = m \]
\[ 15 \times c = m \]

In the stadium, the number of men is 15 times the number of children.

To figure out section b, insert 730 into the equation you developed for the number of men in the stadium

\[ 15 \times c = m \]
\[ 15 \times 730 = m \]
\[ \text{______} = m \]

Be sure to have your student check the reasonableness of his answers when he is finished.

Remind your student that the definition of perimeter is the distance around a figure.

WRAP-UP

Today you learned how to solve complex word problems. As you work through these problems, read each problem twice to be sure you understand what information the problem tells you and what the problem asks you to do.

PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Problem Solving with Whole Numbers - Part 8

A store manager ordered 28 crates of mangoes. There were 36 mangoes in each crate. When the mangoes were delivered, he sold the ripe mangoes and repacked the rest equally into 73 boxes. There were 12 mangoes in each box. How many ripe mangoes were sold? Show your work and explain your reasoning.

Did you:
- Use the information given to find how many ripe mangoes were sold?
- Show all your work?
- Explain your reasoning for coming up with the answer you did?
It's time to complete your project and present your travel itinerary and budget. Include data about the city you would like to visit and cost per day. You can present all of this as a video, a PowerPoint, or a written document. Make sure to include all the following items:

- A poster representing your town with the information that you find written in standard, expanded, and written form
- Your comparison of the area and population of your town and the one that you want to visit
- The name of the hotel that you want to visit and how much it will cost to stay there for 7 days
- The two activities that you would like to do during your visit and the cost for your family to do these activities
- The number of people per square mile in your town and the one that you would like to visit
- A list of the sources you used to get information for the project

Present all this information to your family as a video, PowerPoint, or a written document. Upload all your work in the box.

Please upload your presentation. If your presentation is a video, upload your video to YouTube and place the link in the text box below. For help uploading your video, click [here](#). Remember, you are trying to convince your audience to take you on this trip! Don't forget to show your calculations and all your hard work. Please upload all your sources, computations, and notes as well.
If you would like, you may type your concluding paragraph in the text box.

Supported file formats: PDF, JPG, GIF, PNG, Word, Powerpoint

0 / 4 File Limit

0 / 10000 Word Limit
Unit Quiz: A Whole Number World

Books & Materials
- Math in Focus - Teacher Edition

✔️ UNIT QUIZ

Please go online to view and submit this assessment.
Unit 2 – Numbers in Between
Project: Cooking with Fractions

Books & Materials
- Math in Focus - Teacher Edition 4A

Assignments
- Complete Rate Your Excitement.

PROJECT DESCRIPTION

It's time to have some fun cooking with fractions. In this project you will plan to make breakfast for your family. You will be using all of your skills with fractions to follow and modify the recipe to feed more people. At the end of the assignment, you will make the recipe for your family. Here is the recipe you will be making by the end of the project:

MORNING EGG CASSEROLE
- cooking spray
- 2 cups diced cooked ham
- 6 teaspoons butter
- 7 slices bread, crusts removed
- 1/2 pound American cheese, cubed
- 3 cups milk
- 6 eggs, beaten
- 3/4 teaspoon dry mustard
- 3/4 teaspoon salt

1. Spray a 9x13-inch casserole dish with cooking spray.
2. Spread ham into the bottom of prepared casserole dish. Butter one side of each bread slice; cut slices into cubes. Arrange buttered bread cubes atop ham; layer American cheese over bread cubes.
3. Whisk milk, eggs, mustard powder, and salt together in a bowl; pour over American cheese layer. Cover dish with aluminum foil and refrigerate 8 hours or overnight.
4. Preheat oven to 350 degrees F (175 degrees C). Remove aluminum foil from casserole.
5. Bake in the preheated oven until cheese is melted and eggs are set in the middle, about 1 hour.

In this project, you will be making a breakfast for your family, but you will also be showing off your amazing fraction skills. In order to complete this project, you will need to:

- Figure out ways to measure the ingredients with a limited number of tools.
- Calculate the quantity of a mixture of ingredients.
- Determine how much you will need to buy at the store based on what you have and what you need.
- Modify the recipe to feed an additional number of people.
• Rewrite the recipe in decimal form.
• Make the breakfast and share your results with your peers.

You will work on this project during and throughout the unit. After the lesson, Understanding Fractions and Mixed Numbers, you will find equivalent fractions in order to measure the ingredients with only one type of spoon and measuring cup. After Adding and Subtracting with Fractions, you will add fractions to see how much seasoning you will have, and subtract fractions to figure out what else you will need. Once you complete the lesson, Multiplication with Fractions, you will need to multiply fractions, so that you can make enough food for the extra people that you have invited. After completing the Decimals lesson, you will consider how fractions relate to decimals when you need to rewrite the recipe in decimal form. Finally during Interim Show 5, you will try making the recipe yourself and share your experiences.

PROJECT RUBRIC

The Project Rubric will help you understand how your project will be scored. Your goal should be to earn all 4 points for each part.

SHOW

COLLABORATION

Have you ever cooked for your family before? If you have, share your experience with your classmates. If you haven't, talk about how you would feel cooking for your family. What might be easy for you? What might be challenging? Then respond to two of your peers.

RATE YOUR EXCITEMENT

Please go online to view and submit this assessment.
Understanding Fractions and Mixed Numbers - Part 1

Objectives
- Use bar models to represent fractions.

Books & Materials
- Math in Focus - Teacher Edition
- Representing Fractions with Bar Models Worksheet

Assignments
- Complete Warm-Up.
- Read and complete Representing Fractions with Bar Models Worksheet.
- Complete Practice Questions.

LEARN

WARM-UP
Write the fraction of each set that is shaded.

1. 
   - Orange circles
   - White circles

2. 
   - Orange diamonds
   - White diamonds

3. 
   - Orange hexagons
   - White hexagons
You know how to draw a picture to represent a fraction. One kind of picture is called a bar model. Bar models can help you represent fractions and the relationships among fractions. When you draw a bar model, the bar can represent one whole. The bar is divided into equal parts depending on the number of equal parts in the whole. You use labels to label the fractional parts and a question mark to show what you are trying to find. In this lesson, you will learn how to use bar models to represent fractions, add fractions with like denominators, and find a fraction of a set.

Download, print, and read the examples on Representing Fractions with Bar Models Worksheet.

Guide your student through the first problem. Point out that Jonathan has 8 trading cards, so the bar is divided into 8 equal parts. Explain that each part represents a card. The whole bar represents all of Jonathan’s cards. Ask your student why there are 3 sections shaded. (Jonathan has 3 baseball cards.) Help your student understand that since 3 of the 8 parts are shaded, \( \frac{3}{8} \) of the cards are baseball cards.

For the second problem, point out that the whole is divided into fifths because the fractional parts of the story that Michelle wrote are expressed in fifths. Explain that the amount of the story that Michelle wrote is represented by the shaded parts of the bar. For the third problem, explain that since you are finding 2 thirds of 24, the whole is divided into thirds. Have your student explain why each unit represents 8. (24 is divided into 3 equal parts and \( 3 \times 8 = 24 \).) Point out that since each part represents 8, 2 parts represent \( 2 \times 8 = 16 \).

Guide your student through the Your Turn problems. To encourage your student to explain each bar model, ask questions such as the following:

- How many parts are in the whole?
- What does each part stand for?
You know how to draw a picture to represent a fraction. One kind of picture is called a bar model. Bar models can help you represent fractions and the relationships among fractions. When you draw a bar model, the bar can represent one whole. The bar is divided into equal parts depending on the number of equal parts in the whole. You use labels to label the fractional parts and a question mark to show what you are trying to find. In this lesson, you will learn how to use bar models to represent fractions, add fractions with like denominators, and find a fraction of a set.

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Guide your student through the first problem. Point out that Jonathan has 8 trading cards, so the bar is divided into 8 equal parts. Explain that each part represents a card. The whole bar represents all of Jonathan's cards. Ask your student why there are 3 sections shaded. (Jonathan has 3 baseball cards.) Help your student understand that since 3 of the 8 parts are shaded, of the cards are baseball cards.

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Guide your student through the Your Turn problems. To encourage your student to explain each bar model, ask questions such as the following:

- How many parts are in the whole?
- What does each part stand for?
- What do the shaded part(s) stand for?

Be sure your student draws a bar model for each problem in this lesson. Your student may want to write the answer in the bar model, erase the question mark and replace it with the answer, or write an equal sign and the answer.

If your student struggles with drawing bar models to represent fractions, invite her to draw a picture to model the problem. The picture should make sense to your student, and accurately model the problem. Compare and contrast the picture with a correct bar model.

**Your Turn Answer Key**

![Bar model example](image)

Example 2

\[
\frac{2}{9} + \frac{5}{9} = \frac{7}{9}
\]

\[
\frac{3}{4} \text{ of } 24 \text{ is } 18.
\]

**PRACTICE**

Complete the Practice section of Representing Fractions with Bar Models Worksheet.

**TEACHING NOTES**

Practice Answer Key:

1. \( \frac{4}{5} \)  
2. \( \frac{8}{10} \)  
3. 14  
4. 6  
5. \( \frac{3}{8} \) of the crackers  
6. 25 pages

**WRAP-UP**

Today you learned how to use bar models to represent fractions. You will use bar models to help you represent the fraction concepts presented in this lesson.
PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Understanding Fractions and Mixed Numbers - Part 2

Books & Materials
- Math in Focus 4A
- Math in Focus - Teacher Edition

Assignments
- Read and complete pages in Math In Focus 4A.
- Complete Interactive Activity.
- Complete Rate Your Understanding.

LEARN

WARM-UP

Draw a bar model for each of the following.

1. \( \frac{5}{6} \)

2. \( \frac{1}{5} + \frac{3}{5} \)

3. \( \frac{1}{3} \) of 12

TEACHING NOTES

Warm-up Answers

1. 

2. 

3. 

Assignments

- Read and complete pages in Math In Focus 4A.
- Complete Interactive Activity.
- Complete Rate Your Understanding.
INSTRUCTION

Read **Recall Prior Knowledge Comparing Unlike Fractions** on p. 242 in *Math in Focus 4A*. Look at the model in part a. Notice that the whole for both fractions is the same size. You cannot compare fractions if they are not part of the same whole.

**RIGHT:**

\[
\begin{array}{c}
\text{\[ \frac{1}{2} \]}\\
\text{\[ \frac{3}{7} \]}
\end{array}
\]

**WRONG:**

\[
\begin{array}{c}
\text{\[ \frac{1}{2} \]}\\
\text{\[ \frac{3}{7} \]}
\end{array}
\]

To compare fractions, you can find equivalent fractions with the same denominator. How do you know what number to use as the common denominator for \( \frac{1}{2} \) and \( \frac{3}{7} \)? Since 14 is a multiple of both 2 and 7, use 14 as the common denominator.

Look at the first model. How can you write an equivalent fraction for \( \frac{1}{2} \)? When you multiply the denominator by a number, you have to multiply the numerator by that same number. To get a denominator of 14, you multiplied the 2 by 7, so you multiply the 1 by 7 also. So \( \frac{1}{2} \) is the same as \( \frac{7}{14} \). You do the same with \( \frac{3}{7} \), only this time you are multiplying the numerator and denominator by 2. So \( \frac{3}{7} \) is the same as \( \frac{6}{14} \).

Read **Recall Prior Knowledge Comparing Unlike Fractions** on p. 242 in *Math in Focus 4A*. You can also compare fractions by comparing them to a benchmark fraction like \( \frac{1}{2} \). A fraction that is less than \( \frac{1}{2} \) is
less than a fraction that is greater than \( \frac{1}{2} \). Look at the number line. How can you tell that \( \frac{3}{8} \) is less than \( \frac{4}{6} \)?

\( \frac{3}{8} \) is less than \( \frac{1}{2} \)

\( \frac{4}{6} \) is greater than \( \frac{1}{2} \)

\( \frac{3}{8} \) is less than \( \frac{4}{6} \)

---

**TEACHING NOTES**

[Textbook Answer Key](#)

Remind students that the number on the top of the fraction, the numerator, is how many parts or pieces they are choosing out of all of them. The number on the bottom of the fraction, the denominator, is the number of parts the object is divided into or the number of objects in the group. Also, when dividing objects into fractions, it is important that each part is the same size.

---

**INTERACTIVE ACTIVITY**

In this game you will divide up images and choose different parts to create fractions.

[BrainPop Satisfraction](#)

---

**RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
Understanding Fractions and Mixed Numbers - Part 3

Objectives
- Compare fractions with unlike denominators using symbols (> , <, or =).

Books & Materials
- Math in Focus 4A
- Comparing Fractions With Unlike Denominators Worksheet
- Math in Focus - Teacher Edition 4A
- fraction strips
- grid paper (optional)

Assignments
- Complete Warm-Up.
- Read and complete pages Math in Focus 4A.
- Complete Comparing Fractions With Unlike Denominators Worksheet.
- Complete Quick Check.
- Complete More to Explore.

LEARN

WARM-UP
For each fraction, write an equivalent fraction with the given denominator.

1. \( \frac{2}{3} = \frac{?}{12} \)

2. \( \frac{1}{4} = \frac{?}{8} \)

3. \( \frac{2}{3} = \frac{?}{9} \)

4. \( \frac{2}{5} = \frac{?}{10} \)

TEACHING NOTES

Warm-up Answer Key
1. 8
2. 2
3. 6
4. 4
Read Recall Prior Knowledge Comparing Unlike Fractions on p. 242 in Math in Focus 4A. To compare fractions, you find equivalent fractions with the same denominator. How do you know what number to use as the common denominator for $\frac{1}{2}$ and $\frac{3}{7}$? Since 14 is a multiple of both 2 and 7, use 14 as the common denominator.

Look at the first model. How can you write an equivalent fraction for $\frac{1}{2}$? When you multiply the denominator by a number, you have to multiply the numerator by that same number. To get a denominator of 14, you multiplied the 2 by 7, so you multiply the 1 by 7 also. So $\frac{1}{2}$ is the same as $\frac{7}{14}$. You do the same with $\frac{3}{7}$, but this time you are multiplying the numerator and denominator by 2. So $\frac{3}{7}$ is the same as $\frac{6}{14}$.

Read Recall Prior Knowledge Comparing Unlike Fractions on p. 242 in Math in Focus 4A. You can also compare fractions by comparing them to a benchmark fraction like $\frac{1}{2}$. A fraction that is less than $\frac{1}{2}$ is less than a fraction that is greater than $\frac{1}{2}$. Look at the number line. How can you tell that $\frac{3}{8}$ is less than $\frac{4}{6}$?

$\frac{3}{8}$ is less than $\frac{1}{2}$

$\frac{6}{2}$ is greater than $\frac{1}{2}$

$\frac{3}{8}$ is less than $\frac{4}{6}$

**TEACHING NOTES**

If your student has difficulty comparing fractions, have them use fraction strips to model equivalent fractions. For example, ask your student to compare $\frac{1}{2}$ and $\frac{2}{3}$. Have him or her first find the least common multiple of the denominators. (6) Then have him or her use fraction strips to find a fraction equivalent to $\frac{1}{2}$ with a denominator of 6. ($\frac{3}{6}$) Have him or her repeat with $\frac{2}{3}$: ($\frac{4}{6}$). Then have him or her compare. Point out that the longer fraction strip is the greater fraction.

If your student has difficulty comparing fractions to $\frac{1}{2}$, have him or her make number lines from 0 to 1 on grid paper that show sixths, eighths, and tenths. He or she should label the number lines with the fractions. Then have him or her compare the numerator and denominator of each fraction. Point out that if a fraction is less than $\frac{1}{2}$, the numerator is less than half the denominator. If a fraction is greater than $\frac{1}{2}$, the numerator is greater than half of the denominator. For example, 4 is half of 8, so $\frac{3}{8}$ is less than $\frac{1}{2}$ because $3 < 4$. On the other hand $\frac{5}{8}$ is greater than $\frac{1}{2}$ because $5 > 4$. 
If your student wants a challenge, have him or her put 3 or more fractions in order. Give them sets that have fractions that are greater than, equal to, and less than $\frac{1}{2}$, such as $\frac{2}{3}$, $\frac{4}{5}$, and $\frac{2}{5}$.

**WATCH FOR THESE COMMON ERRORS**

Some students compare numerators of fractions that do not have like denominators. Reinforce that if the denominators are different, the sizes of the parts of the whole are different. To compare numerators, you need to make the size of the parts of the whole the same by finding a common denominator.

**PRACTICE**

Complete p. 244 #11-16 in *Math in Focus 4A*. Download, print, and complete the *Comparing Fractions with Unlike Denominators Worksheet*.

**TEACHING NOTES**

Textbook Answer Key

Worksheet Answer Key

1. $\frac{3}{12} < \frac{8}{12}$
2. $\frac{2}{24} = \frac{3}{24}$
3. $\frac{6}{14} < \frac{10}{14}$
4. $\frac{2}{24} < \frac{6}{24}$
5. $\frac{5}{6} < \frac{7}{8} < \frac{9}{10} = \frac{4}{5}$

**WRAP-UP**

Today you learned how to compare fractions. The following example shows two ways.

Which is greater, $\frac{3}{4}$ or $\frac{2}{5}$?

\[
\frac{3 \times 5}{4 \times 5} = \frac{15}{20}, \quad \frac{2 \times 4}{5 \times 4} = \frac{8}{20}
\]

$\frac{5}{20} > \frac{8}{20}$

$\frac{3}{4} > \frac{2}{5}$

Which is greater, $\frac{3}{4}$ or $\frac{2}{5}$?

$\frac{2}{5}$ is less than $\frac{1}{2}$.

$\frac{3}{4}$ is greater than $\frac{1}{2}$.

$\frac{3}{4} > \frac{2}{5}$

**QUICK CHECK**

Please go online to view and submit this assessment.
MORE TO EXPLORE

Play the game shown in the screen below to compare two fractions and see if they are greater than, less than, or equal to each other. Click here if you would like to see the activity in a new window.

In the Draw chalk marks section, use the up arrow to set the value to 4. Click Go Chalky! Into how many sections does Chalky divide the garden? Are the sections the same? Since Chalky divided the garden into 4 equal sections, you can say that the distance between chalk marks represents $\frac{1}{4}$ of the garden.

Now, in the Distance to travel section, use the up and down arrows next to the fraction to set the distance to $\frac{3}{4}$. Then click Go Bud! to have Bud plant a flower at the $\frac{3}{4}$ mark. Go back and change the fraction to $\frac{4}{5}$. Then click Go Blossom! to have Blossom plant a flower at the $\frac{4}{5}$ mark. Whose flower is closer to the end of the garden? Since Blossom's flower is closer to the end of the garden (1 whole), $\frac{4}{5}$ is greater than $\frac{3}{4}$.

Click Clear: Chalk and Gardens. Now use the Gizmo to tell which fraction in each pair is greater.

1. $\frac{2}{3}$ and $\frac{5}{6}$
2. $\frac{2}{5}$ and $\frac{1}{3}$
3. $\frac{3}{8}$ and $\frac{4}{7}$

INTERACTIVE ACTIVITY

TEACHING NOTES

Answers:

1. $\frac{5}{6}$
2. $\frac{2}{5}$
3. $\frac{4}{7}$

If you would like, you can click on Lesson Info and download the Student Exploration Sheet and Exploration Sheet Answer Key to have your student try some other activities with the Gizmo.
Understanding Fractions and Mixed Numbers - Part 4

Objectives
- Determine the mixed number represented by a model.
- Sketch models of mixed numbers.

Books & Materials
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition
- grid paper (optional)

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete pages in Workbook 4A.
- Complete Practice Questions.

LEARN

WARM-UP

Draw a model to show each fraction.

1. \(\frac{3}{4}\)
2. \(\frac{7}{10}\)
3. \(\frac{5}{9}\)
4. \(\frac{2}{3}\)

TEACHING NOTES

Warm-up Answer Key

Check student's models.

INSTRUCTION

Read Learn on p. 251 in Math in Focus 4A. How many watermelons are there? There are 2 whole watermelons and \(\frac{1}{2}\) watermelon, so there are \(2 + \frac{1}{2}\) or \(2 \frac{1}{2}\) watermelons in all.

What type of number is \(2 \frac{1}{2}\)? When you add a whole number and a fraction, the result is a mixed number. \(2 \frac{1}{2}\) is a mixed number. Complete Guided Learning on p. 251.
Complete the **Hands-On Activity** on p. 252. For problem 1, draw a model for each mixed number. How can you model \(1 \frac{1}{2}\)? Use 1 whole circle and \(\frac{1}{2}\) circle. For problem 2, draw pictures to show each mixed number. You can draw bar models or fraction circles.

Complete **Guided Learning** on p. 253.

---

### TEACHING NOTES

As your student draws models, remind him that the sections of the models need to be as equal as possible. Point out that labeling the sections will help if he has difficulty making the parts the same size.

If your student has difficulty creating drawings to show the fractions, allow her to draw bar models or rectangles to show each fraction. For example, she might draw the following picture to show \(2 \frac{1}{2}\).

![Diagram of a model showing 2 wholes and 1 half.]

Allowing your student to use grid paper will further help him draw equal parts.

**WATCH FOR THESE COMMON ERRORS**

Some students confuse the parts of the mixed number when showing it with a model. Encourage your student to write each mixed number as a sum, for example, \(1 \frac{1}{2} = 1 + \frac{1}{2}\). Then have her label each part as **whole number** and **fraction**. Have her make or draw the whole number part first and then show the fractional part.

---

### PRACTICE

Complete pp. 151–153 in **Workbook 4A**.

---

### TEACHING NOTES

**Workbook Answer Key**
WRAP-UP

Today you learned about mixed numbers.

The model shows $2 \frac{2}{3}$ because there are 2 wholes and $\frac{2}{3}$ of a whole.

$$2 + \frac{2}{3} = 2 \frac{2}{3}$$

![Diagram showing two wholes and two-thirds of a whole]

✓ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Understanding Fractions and Mixed Numbers - Part 5

**Objectives**
- Determine the mixed number represented by a model.
- Sketch models of mixed numbers.

**Books & Materials**
- Math in Focus 4A
- Workbook 4A
- *Math in Focus - Teacher Edition*
- *fraction strips* (optional)

**Assignments**
- Complete Warm-Up.
- Read and complete pages in *Math in Focus 4A*.
- Complete pages in *Workbook 4A*.
- Complete Practice Questions.

---

**LEARN**

**WARM-UP**
Write the mixed number represented by each sum.

1. $3 + \frac{3}{4} = \underline{______}$
2. $2 + \frac{1}{10} = \underline{______}$
3. $4 + \frac{4}{5} = \underline{______}$
4. $1 + \frac{2}{3} = \underline{______}$

---

**TEACHING NOTES**

**Warm-up Answer Key**

1. $3 \frac{3}{4}$
2. $2 \frac{1}{10}$
3. $4 \frac{4}{5}$
4. $1 \frac{2}{3}$
INSTRUCTION

Read Learn on p. 254 in Math in Focus 4A. Look at the number line. The mixed numbers $2 \frac{1}{4}$, $2 \frac{2}{4}$, and $2 \frac{3}{4}$ are between 2 and 3. What mixed numbers are between 3 and 4? The mixed numbers $3 \frac{1}{4}$, $3 \frac{2}{4}$, and $3 \frac{3}{4}$ are between 3 and 4. If you divide the number line into fourths, A shows $2 \frac{2}{4}$ and B shows $3 \frac{1}{4}$. Complete Guided Learning on p. 254.

Then read Learn on p. 255. How can you write a mixed number in simplest form? If the fraction part of a mixed number is not in simplest form, you can simplify it the same way you would simplify it if there were not a whole number part. What is $\frac{6}{8}$ written in simplest form? Since 2 is the greatest common factor of 6 and 8, divide 6 by 2 and 8 by 2 to write $\frac{6}{8}$ in simplest form. The simplest form of $\frac{6}{8}$ is $\frac{3}{4}$. Complete Guided Learning on p. 255.

TEACHING NOTES

As your student works through the number line problems, suggest he sketch the number lines and write all the missing fractions. For example, for problems 7–8 on p. 254, your student should write the remaining fifths between 1 and 2 and between 2 and 3.

If your student has difficulty writing mixed numbers in simplest form, have her first rewrite the number separating the whole number from the fraction. Then have her use fraction strips to compare the denominators and find the common denominator. After she has completed this step, remind your student to make sure that she has included the whole number in the final answer and not just the fraction.

PRACTICE

Complete pp. 256–257 in Math in Focus 4A. Then complete pp. 154–156 in Workbook 4A.

TEACHING NOTES

Textbook Answer Key
Workbook Answer Key
WRAP-UP

Today you learned how to represent fractions on a number line.

A represents $1 \frac{3}{5}$ on the number line.

You also learned how to write mixed numbers in simplest form.

$$2 \frac{2}{6} = 2 \frac{1}{3}$$

SUPPLEMENTAL

- BrainPOP: Reducing Fractions

PRACTICE QUESTIONS

Please go online to view and submit this assessment.
# Understanding Fractions and Mixed Numbers - Part 6

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Books &amp; Materials</th>
<th>Assignments</th>
</tr>
</thead>
</table>
| - Determine the improper fraction represented by a model.  
- Write mixed numbers as improper fractions.  
| - Math in Focus 4A  
- Workbook 4A  
- Math in Focus - Teacher Edition  
- fraction strips  | - Complete Warm-Up.  
- Read and complete pages in Math in Focus 4A.  
- Complete pages in Workbook 4A.  
- Complete Practice Questions.  |

## LEARN

## WARM-UP

Look at each letter. Write the mixed number in simplest form.

1. A
2. B
3. C
4. D

### Warm-up Answer Key

1. $1 \frac{2}{6} = 1 \frac{1}{3}$
2. $1 \frac{5}{6}$
3. $2 \frac{3}{6} = 2 \frac{1}{2}$
4. $2 \frac{4}{6} = 2 \frac{2}{3}$

## TEACHING NOTES
**INSTRUCTION**

Read Learn on pp. 258–259 in *Math in Focus 4A*. An improper fraction is a fraction in which the numerator is greater than the denominator. Look at the fraction strips in D. There are 4 thirds, so the strips represent \( \frac{4}{3} \). The strips also show 3 thirds, or 1 whole, and 1 more third.

\[
1 \text{ whole} + 1 \text{ third} = 1 \frac{1}{3}
\]

The same model shows both 4 thirds and 1 whole and 1 third.

\[
1 \frac{1}{3} = \frac{4}{3}
\]

Look at the fraction circles on p. 259. There are 5 thirds in all. The circles also show 1 whole and \( \frac{2}{3} \) of another whole. The circles show \( \frac{5}{3} \) and \( 1 \frac{2}{3} \).

\[
1 \frac{2}{3} = \frac{5}{3}
\]

Complete Guided Learning on p. 259.

Then read Learn on p. 260. How many halves are in 2 \( \frac{1}{2} \)? There are 2 halves in every whole.

\[
2 + 2 + 1 = 5
\]

There are 5 halves in 2 \( \frac{1}{2} \).

\[
2 \frac{1}{2} = \frac{5}{2}
\]

Complete Guided Learning on p. 260.

Look at the Hands-On Activity on p. 261. Draw pictures to show each improper fraction. Then read Learn. You can write improper fractions in simplest form in the same way you write fractions and mixed numbers in simplest form. Divide the numerator and denominator by their greatest common factor. The greatest common factor of 10 and 14 is 2, so to write \( \frac{14}{10} \) in simplest form, divide 14 and 10 by 2.

\[
\frac{14}{10} = \frac{7}{5}
\]

Complete Guided Learning on p. 262.

**TEACHING NOTES**

In the Hands-On Activity, remind your student that the denominator tells how many parts are in the whole. The numerator tells how many parts are being referenced. For example, in the fraction \( \frac{5}{3} \), 3
tells you that there are 3 parts in a whole, so divide the whole into thirds. The 5 tells you there are 5 parts, or 5 thirds.

**PRACTICE**


**TEACHING NOTES**

- Textbook Answer Key
- Workbook Answer Key

**WRAP-UP**

Today you learned how to model and write improper fractions and mixed numbers.

**PRACTICE QUESTIONS**

Please go online to view and submit this assessment.
Understanding Fractions and Mixed Numbers - Part 7

**Objectives**
- Rewrite improper fractions and mixed numbers by multiplying and dividing.

**Books & Materials**
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition
- number cube
- fraction strips (optional)

**Assignments**
- Complete Warm-Up.
- Read and complete pages in *Math in Focus 4A*.
- Complete pages in *Workbook 4A*.
- Complete Practice Questions.

---

**LEARN**

**WARM-UP**

Write an improper fraction and mixed number for each model.

1. ![Model Image]

   \[ \frac{4}{3}, \frac{1}{3} \]

2. ![Model Image]

   \[ 2 \frac{2}{5}, 1 \frac{2}{5} \]

---

**TEACHING NOTES**

**Warm-up Answer Key**

1. \( \frac{4}{3}, \frac{1}{3} \)
2. \( 2 \frac{2}{5}, 1 \frac{2}{5} \)
**INSTRUCTION**

Read Learn on p. 264 in *Math in Focus 4A*. How can you rename an improper fraction as a mixed number? Think about the model for $\frac{4}{3}$. The improper fraction $\frac{4}{3}$ means 4 thirds. There are 3 thirds in a whole. $\frac{4}{3}$ is 3 thirds and 1 more third.

$$\frac{4}{3} = 1 \text{ whole} + 1 \text{ third} \text{ or } 1 \frac{1}{3}$$

How can you rename $\frac{6}{3}$? Since $\frac{6}{3}$ is 3 thirds (one whole) plus 3 thirds (one whole), $\frac{6}{3} = 1 + 1 = 2$. Complete Guided Learning on p. 265.

Then read Learn on p. 265. How can you use division to rename an improper fraction as a mixed number? The fraction bar means divided by, so to rename $\frac{7}{3}$ as a mixed number, you can use the division rule to divide 7 by 3. Since 7 divided by 3 is 2 remainder 1, there are 2 wholes and 1 third in $\frac{7}{3}$.

$$\frac{7}{3} = 2 \frac{1}{3}$$

To rename $\frac{6}{3}$, divide 6 by 3. Since 6 divided by 3 is 2, $\frac{6}{3} = 2$.

**TEACHING NOTES**

As your student works through the problems, encourage him to use models to show each example.

If your student has difficulty understanding how to use division to rename improper fractions as mixed numbers, try this activity. Ask your student to use fraction strips to make $\frac{11}{4}$. Then have her put the fourths into groups of 4 fourths to show as many wholes as possible. Point out that putting the 11 fourths strips into groups of 4 is the same as dividing 11 by 4. Ask her to identify how many groups of 4 she made. (2) Then ask her to determine how many fourths are left. (3) Point out that since 11 fourths can be divided into 2 groups of 4 fourths with 3 fourths left over, $\frac{11}{4} = 2 \frac{3}{4}$. Repeat with other improper fractions, such as $\frac{10}{3} (3 \frac{1}{3})$ and $\frac{18}{4} (4 \frac{2}{4} = 4 \frac{1}{2})$.

**PRACTICE**


---

**FUN FACT**

The division symbol, or $\div$, is called an obelus. Obelus comes from the Greek word meaning sharpened stick.
Today you learned how to rename improper fractions as mixed numbers.

Use a model.

\[
\frac{6}{4} = \frac{4}{4} + \frac{2}{4} = 1 + \frac{2}{4} = 1 \frac{2}{4} = 1 \frac{1}{2}
\]

Use the division rule.

\[
\frac{6}{4} \text{ means 6 divided by 4.}
\]

\[
\begin{array}{c}
4 \overline{)6} \\
-4 \\
\hline
2
\end{array}
\]

\[
6 \div 4 = 1 \text{ R2, so } \frac{6}{4} = 1 \frac{2}{4} = 1 \frac{1}{2}
\]

Please go online to view and submit this assessment.
Understanding Fractions and Mixed Numbers - Part 8

Objectives
- Rewrite improper fractions and mixed numbers by multiplying and dividing.

Books & Materials
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition
- number cube
- fraction strips (optional)

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete pages in Workbook 4A.
- Complete Practice Questions.

LEARN

WARM-UP

Use the division rule to rename each improper fraction as a mixed number in simplest form.

1. \( \frac{7}{3} \)
2. \( \frac{21}{6} \)
3. \( \frac{35}{4} \)
4. \( \frac{17}{2} \)

TEACHING NOTES

Warm-up Answer Key

1. 2 \( \frac{1}{3} \)
2. 3 \( \frac{1}{2} \)
3. 8 \( \frac{3}{4} \)
4. 8 \( \frac{1}{2} \)
Read Roll and Rename! on p. 267 in Math in Focus 4A. Roll the number cube two times and use the numbers to create an improper fraction. Then rename the improper fraction as a mixed number.

Then read Learn. Remember that $3 \frac{3}{4} = 3 + \frac{3}{4}$. To rename $3 \frac{3}{4}$ as an improper fraction, you need to determine how many fourths are equal to 3 wholes. There are 4 fourths in each whole.

$$3 \times 4 = 12$$

There are 12 fourths in 3 wholes.

3 wholes is 12 fourths, and $\frac{3}{4}$ is 3 fourths.

$$3 \frac{3}{4} = 12 \text{ fourths} + 3 \text{ fourths} = 15 \text{ fourths}$$

$$3 \frac{3}{4} = \frac{12}{4} + \frac{3}{4} = \frac{15}{4}$$

Complete Guided Learning on p. 268.

Read Learn on p. 269. Another way to change a mixed number to an improper fraction is to multiply the whole number part by the denominator, and then add the numerator to the product. When you multiply the whole number by the denominator, you find the number of fractional parts in the whole part.

For example, in $3 \frac{1}{2}$, when you multiply 3 by 2, you find the number of halves in 3 wholes.

$$3 \times 2 = 6$$

There are 6 halves in 3 wholes.

Since $3 \frac{1}{2} = 6 \text{ halves} + 1 \text{ half}$, you add the numerator 1 to the product 6 to find that there are 7 halves in all. So, 3 wholes and $\frac{1}{2}$ of a whole is equal to 7 halves.

$$3 \frac{1}{2} = \frac{7}{2}$$

Complete Guided Learning on p. 269.

If your student has difficulty understanding how to use the multiplication rule to rename mixed numbers as improper fractions, ask him to use fraction strips to make $3 \frac{3}{5}$. Then have him count the number of fifths in 3 wholes. (15) Point out that the number of fifths in 3 wholes is the whole number, 3 times the denominator, 5. Then ask him to determine how many more fifths he has to add to find the number of fifths in all. (3) Point out that $15 + 3$ is the product plus the numerator.
Complete Let's Practice on p. 270 in Math in Focus 4A. Then complete pp. 163–164 in Workbook 4A.

Today you learned how to rename mixed numbers as improper fractions.

\[
2 \frac{2}{3} = 2 + \frac{2}{3} \\
= \frac{6}{3} + \frac{2}{3} = \frac{8}{3}
\]

Please go online to view and submit this assessment.
Understanding Fractions and Mixed Numbers - Part 9

Books & Materials
- Math in Focus - Teacher Edition

Assignments
- Complete Interactive Activity.
- Complete Rate Your Enthusiasm.

LEARN

INTERACTIVE ACTIVITY

Follow these instructions for the activity shown below.

Click here if you would like to see the activity in a new window.

In the Improper Fractions and Mixed Numbers Gizmo, you can use area models shaped like pies to model fractions ranging in value from 0 to 4. Each pie in the Gizmo can be cut into 2 to 10 slices. The number of slices per pie can be changed by dragging the slider. You can also click in and highlight the text field next to the slider, type the number of slices, and hit Enter. To shade a slice, simply click it.

First set the Scale of measurement to Pies. Then set Number of slices to 8 and click on a slice to shade it. Click on Show calculation of total shaded pies. You have shaded \( \frac{1}{8} \) of the pie. Since the numerator is less than the denominator, this is a proper fraction. Notice its location on the number line in the middle of the screen. Each whole number on the line is divided into 8 sections. There is a dot on the first line to represent the fraction \( \frac{1}{8} \).

Now set Number of slices to 6. Shade 6 slices in 1 pie and 5 slices in a second pie. Click on Show calculation of total shaded pies. Now you see the fraction \( \frac{11}{6} \). This is an improper fraction because the numerator is greater than the denominator. Notice how the fraction is rewritten as the mixed number 1 \( \frac{5}{6} \) pies. Also study the number line in the middle of the screen to see where this fraction is located.

Now use the Gizmo to find the equivalent mixed number or improper fraction for each of the following:

1. \( \frac{11}{7} \)
2. \( \frac{23}{10} \)
3. \( 1\frac{4}{9} \)
4. \( 3\frac{5}{8} \)
Answers:

1. $1 \frac{4}{7}$  
2. $2 \frac{3}{10}$  
3. $\frac{13}{9}$  
4. $\frac{29}{8}$

If you would like, you can click on Lesson Info and download the Student Exploration Sheet and Exploration Sheet Answer Key to have your student try some other activities with the Gizmo.

RATE YOUR ENTHUSIASM

Please go online to view and submit this assessment.
Read the first Learn on p. 276 in Math in Focus 4A. How can you use a model to show a fraction of a set? There are 16 cups divided into 4 groups, and 12 are blue. You can draw a bar model to show the cups. The model shows a total of 16 divided into 4 sections. Since 16 divided by 4 is 4, there are 4 cups in each section. If 12 cups are blue, and 4 + 4 + 4 = 12, 3 of the 4 sections represent blue cups. So, of the cups are blue.

Read the second Learn. How can you find a fractional part of a number? To find of 16, you need to divide 16 into fourths. Each fourth is a unit. If you divide 16 into 4 units, each unit has 4 parts in it. If one unit has 4 parts, then 3 units have 3 × 4 = 12 parts, so of 16 is 12.

If your student has difficulty understanding how to draw a bar model to find a fraction of a set, have him work through this example. Ask your student to find of 18. Point out that if he is going to find 2 thirds of 18, he needs to divide 18 into thirds, or into 3 equal groups. Help your student draw a bar model as shown. Point out that 1 unit is 1 third. 18 ÷ 3 = 6, so there are 6 parts in each unit. Have your student label the model as shown. Then have her use the model to find the number of parts in 2 units. There are 6 parts in each unit, so 6 + 6 = 12, and of 18 is 12.

Your student can draw her bar models on grid paper to keep the sections equal.

Complete Guided Learning on p. 277 in Math in Focus 4A. Then complete problems 1–6 on pp. 167–169 in Workbook 4A.
INSTRUCTION

Read the first Learn on p. 276 in Math in Focus 4A. How can you use a model to show a fraction of a set? There are 16 cups divided into 4 groups, and 12 are blue. You can draw a bar model to show the cups. The model shows a total of 16 divided into 4 sections. Since 16 divided by 4 is 4, there are 4 cups in each section. If 12 cups are blue, and $4 + 4 + 4 = 12$, 3 of the 4 sections represent blue cups. So, $\frac{3}{4}$ of the cups are blue.

Read the second Learn. How can you find a fractional part of a number? To find $\frac{3}{4}$ of 16, you need to divide 16 into fourths. Each fourth is a unit. If you divide 16 into 4 units, each unit has 4 parts in it. If one unit has 4 parts, then 3 units have $3 \times 4 = 12$ parts, so $\frac{3}{4}$ of 16 is 12.

If your student has difficulty understanding how to draw a bar model to find a fraction of a set, have him work through this example. Ask your student to find $\frac{2}{3}$ of 18. Point out that if he is going to find 2 thirds of 18, he needs to divide 18 into thirds, or into 3 equal groups. Help your student draw a bar model as shown.

```
\begin{align*}
\text{18} & \quad ? \\
6 & \quad 6 \\
\text{?} & \\
\end{align*}
```

Point out that 1 unit is 1 third. $18 \div 3 = 6$, so there are 6 parts in each unit. Have your student label the model as shown.

Then have her use the model to find the number of parts in 2 units. There are 6 parts in each unit, so $6 + 6 = 12$, and $\frac{2}{3}$ of 18 is 12.

Your student can draw her bar models on grid paper to keep the sections equal.

PRACTICE

Complete Guided Learning on p. 277 in Math in Focus 4A. Then complete problems 1–6 on pp. 167–169 in Workbook 4A.
Today you learned how to find the fraction of a set.

Find $\frac{5}{7}$ of 28.

[Diagram: 28 units divided into 7 equal parts, with 5 parts shaded]

7 units → 28
1 unit → $28 \div 7 = 4$
5 units → $5 \times 4 = 20$

So, $\frac{5}{7}$ of 28 is 20.

Please go online to view and submit this assessment.
Understanding Fractions and Mixed Numbers - Part 11

**Objectives**
- Show part of a set with bar models.
- Determine a fraction of a whole number.

**Books & Materials**
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition
- grid paper (optional)

**Assignments**
- Complete Warm-Up.
- Read and complete pages in *Math in Focus 4A*.
- Complete pages in *Workbook 4A*.
- Complete Practice Questions.

---

**LEARN**

**WARM-UP**

Use the bar model to help you solve each problem.

\[ \frac{1}{2} \text{ of } 24 \]

\[ \frac{5}{8} \text{ of } 24 \]

\[ \frac{3}{8} \text{ of } 24 \]

---

**TEACHING NOTES**

**Warm-up Answer Key**

1. 12
2. 15
3. 9

---

**INSTRUCTION**

Read *Learn* on p. 278 in *Math in Focus 4A*. How can you use multiplication to find a fractional part of a number? Finding a fractional part of a number is the same as multiplying the fraction times the number.
You can think of the word of as a multiplication symbol. So, to find \( \frac{3}{4} \) of 16, multiply \( \frac{3}{4} \times 16 \). When you multiply a fraction by a whole number, multiply the numerators and denominators.

\[
\frac{3}{4} \times 16 = \frac{3}{4} \times \frac{16}{1} = \frac{3 \times 16}{4} = \frac{48}{4} = 12
\]

So \( \frac{3}{4} \) of 16 is 12.

Complete Guided Learning on p. 278.

**TEACHING NOTES**

 Allow your student to draw his bar models on grid paper. This will help keep the sections equal.

 If your student has difficulty understanding how to multiply a fraction by a whole number, have her work through this example. Have your student find \( \frac{3}{5} \) of 25 (or \( \frac{3}{5} \times 25 \)). Point out that \( \frac{3}{5} \) is the same as \( \frac{1}{5} + \frac{1}{5} + \frac{1}{5} \).

 If your student can find \( \frac{1}{5} \) of 25, he can multiply that amount by 3 to find \( \frac{3}{5} \) of 25. Have your student find \( \frac{1}{5} \) of 25. (5) Encourage him to use a bar model if he wishes. Point out that since \( \frac{1}{5} \) of 25 = 5, then \( \frac{3}{5} \) of 25 is 5 + 5 + 5 or 5 \times 3. Therefore, \( \frac{3}{5} \) of 25 is 15. Repeat with other problems, such as \( \frac{3}{4} \) of 32 (24), \( \frac{4}{7} \) of 35 (20), and \( \frac{7}{9} \) of 54 (42).

**WATCH FOR THESE COMMON ERRORS**

 Some students multiply both the numerator and denominator by the whole number when multiplying a whole number by a fraction. Reinforce that the whole number should be multiplied by the numerator of the fraction only. The numerator changes because the number of pieces changes. Since the size of the pieces stays the same, the denominator does not change.

 Some students leave the answer as an improper fraction. Remind your student that all answers should be written in simplest form. If the answer is an improper fraction, it should be changed to a mixed number or whole number.

**PRACTICE**

Complete Let's Practice on p. 280 #1-5 in Math in Focus 4A. Then complete pp. 169–170 in Workbook 4A.
Today you learned how to multiply to find a fractional part of a number.

Find \( \frac{3}{8} \) of 24.

\[
\frac{3}{8} \times 24 = \frac{3 \times 24}{8} = \frac{72}{8} = 9
\]

So \( \frac{3}{8} \) of 24 is 9.

Please go online to view and submit this assessment.
Understanding Fractions and Mixed Numbers - Part 12

**USE FOR MASTERY**

Which is greater, $\frac{4}{10}$ or $\frac{32}{10}$? Explain how you know.

**USE FOR MASTERY GUIDELINES & RUBRIC**

Did you:

- Show which of the 2 fractions is greater?
- Show all the steps you took to explain how you know your answer is correct?
Understanding Fractions and Mixed Numbers - Part 13

Books & Materials
- Math in Focus - Teacher Edition

Assignments
- Complete Show.
- Complete Rate Your Progress.

SHOW

You’ve decided to make breakfast for your family. You found a great recipe.

MORNING EGG CASSEROLE
- cooking spray
- 2 cups diced cooked ham
- 6 teaspoons butter
- 7 slices bread, crusts removed
- 1/2 pound American cheese, cubed
- 3 cups milk
- 6 eggs, beaten
- 3/4 teaspoon dry mustard
- 3/4 teaspoon salt

1. Spray a 9x13-inch casserole dish with cooking spray.
2. Spread ham into the bottom of prepared casserole dish.
3. Butter one side of each bread slice. Cut slices into cubes.
4. Arrange buttered bread cubes on top of the ham.
5. Layer American cheese over bread cubes.
6. Whisk milk, eggs, mustard powder, and salt together in a bowl. Pour over American cheese layer.
7. Cover dish with aluminum foil and refrigerate 8 hours or overnight.
8. Preheat oven to 350 degrees F (175 degrees C). Remove aluminum foil from casserole.
9. Bake in the preheated oven until cheese is melted and eggs are set in the middle, about 1 hour.

As you were gathering your tools to make the recipe, you noticed that you only have a 1/4 teaspoon measuring spoon and a measuring cup that holds 1/3 of a cup. In your notebook, rewrite the measurements for the ham, butter, milk, dry mustard, and salt for the tools you have. For example, if the recipe were to call for 2 teaspoons of oil, you would need to rewrite the measurement like this:

\[
\frac{2}{1} = \frac{?}{4}
\]
I need 8 1/4-teaspoons of oil.

Keep this information to send in with your final project.

RATE YOUR PROGRESS

How ready do you feel to complete this part of the project?

- I feel very ready to complete this part of the project; I have learned everything I need to know to do it.
- I feel somewhat ready to complete this part of the project but I am unsure that I have learned everything I need to know to do it.
- I do not feel ready to complete this part of the project.
- I feel very unprepared to complete this part of the project.

How excited do you feel to complete this part of the project?

- I feel very excited to complete this part of the project.
- I feel somewhat excited to complete this part of the project.
- I do not feel excited to complete this part of the project.
- I feel completing this part of the project will be very boring.

COLLABORATION

Share your findings with your peers. Reply to two other classmates.
LEARN

WARM-UP

There are 6 red balls, 3 yellow balls, and 2 orange balls in a bag.

1. Which color ball is most likely to be pulled out of the bag?

2. Which color ball is least likely to be pulled from the bag?

3. How many orange balls would need to be added to the bag to make it the most likely ball color to be pulled from the bag?

TEACHING NOTES

Warm-up Answer Key

1. red
2. orange
3. at least 5

INSTRUCTION

Today’s lesson covers important ideas you need to understand before beginning the lessons in this chapter. Read the cartoon on p. 239 in Math in Focus 4A. How much pizza is there? There is one whole pizza and one-half of a pizza, so there are $1 \frac{1}{2}$ pizzas in all. Each friend gets $\frac{1}{2}$ pizza. How can the
Friends decide how many carrots each gets? There are 11 carrots. Each friend gets 3 carrots, and there are 2 carrots left over.

Read Recall Prior Knowledge on p. 240–241 in Math in Focus 4A. Follow each example to remember how to represent fractions on a number line, write fractions in simplest form, add and subtract fractions with like denominators, and find the fraction of a number.

**TEACHING NOTES**

As you discuss these pages with your student, take note of the skills that seem to be familiar and those that may need review. Allow your student to use fraction strips to model the problems on the pages if he or she needs additional support. Do not provide detailed instruction at this point; simply preview the material to prepare for the Quick Check.

**SKILLS CHECK**

Complete Quick Check on p. 243 in Math in Focus 4A.

**TEACHING NOTES**

Review your student’s answers to the Quick Check, noting the problems that your student answered incorrectly. Access the appropriate Reteach activity that your student should complete for the remainder of this lesson.

**RETEACH**

After your student completes the Quick Check in the Recall Prior Knowledge lesson of this chapter, review the questions that were answered incorrectly. If, after the review, you feel that your student needs additional exposure to any of these skills, click on the title below that corresponds with the number of the incorrectly answered question(s) and have him or her complete the activity.

<table>
<thead>
<tr>
<th>Question(s)</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>9–10</td>
<td>Fractions and Sets (English)</td>
</tr>
<tr>
<td></td>
<td>Fractions and Sets (Spanish)</td>
</tr>
</tbody>
</table>
WRAP-UP

Today you reviewed important fraction concepts:

- showing fractions on a number line
- adding and subtracting like fractions with fraction strips
- using division to write a fraction in simplest form
- using a picture to find a fraction of a set

You will use these skills and learn more about fractions in this chapter.

PRACTICE QUESTIONS

Please go online to view and submit this assessment.
### Adding and Subtracting with Fractions - Part 2

#### Objectives
- Calculate equivalent fractions.
- Add fractions with unlike denominators.

#### Books & Materials
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition 4A
- fraction strips (optional)

#### Assignments
- Complete Warm-Up.
- Read and complete Math in Focus 4A.
- Complete Workbook 4A.
- Complete Practice Questions.

---

### WARM-UP

Find each sum and simplify.

1. \( \frac{2}{5} + \frac{1}{5} = \) ______
2. \( \frac{1}{4} + \frac{1}{4} = \) ______
3. \( \frac{4}{10} + \frac{3}{10} = \) ______
4. \( \frac{1}{9} + \frac{5}{9} = \) ______

---

### TEACHING NOTES

#### Warm-up Answer Key

1. \( \frac{3}{5} \)
2. \( \frac{1}{2} \)
3. \( \frac{7}{10} \)
4. \( \frac{2}{3} \)
**INSTRUCTION**

Read **Learn** on p. 245 in *Math in Focus 4A*. How can you add \( \frac{1}{3} \) and \( \frac{1}{6} \)? To add fractions with unlike denominators, write equivalent fractions with the same denominator. Since 6 is a multiple of 3, the least common multiple of 3 and 6 is 6. How can you write \( \frac{1}{3} \) as an equivalent fraction with a denominator of 6? Look at the denominators. Since \( 3 \times 2 = 6 \), multiply the numerator by 2.

\[
1 \times 2 = 2
\]

\[
\frac{1}{3} = \frac{2}{6}
\]

Once the fractions have the same denominator, you can add the numerators. What is \( \frac{2}{6} + \frac{1}{6} \)? \( \frac{3}{6} \)

How can you write the answer in simplest form? Since the greatest common factor of 3 and 6 is 3, divide the numerator and denominator of \( \frac{3}{6} \) by 3.

\[
\frac{3}{6} = \frac{1}{2}
\]

\[
\frac{1}{3} + \frac{1}{6} = \frac{1}{2}
\]

Complete **Guided Learning** on p. 246 and p. 247.

---

**TEACHING NOTES**

If your student has difficulty understanding why it is necessary to first change the fractions into equivalent fractions with the same denominator, give him this example. Have your student show 2 fifths fraction strips and 1 fifths strip. Ask him to tell you how much of a whole is represented by the strips. Since 2 fifths and 1 fifth is 3 fifths, \( \frac{3}{5} \) of a whole is represented. Point out that since the fractions \( \frac{2}{5} \) and \( \frac{1}{5} \) have the same denominator, each fraction is made up of the same size parts. When you add them, you add equal-sized pieces.

Now have your student show you 1 thirds strip and 3 sixths strips. Ask her to tell you how much of a whole is represented. Since thirds and sixths are different sizes, it is difficult to tell how much the fractions are together. The thirds are larger than the sixths. If she changes the fractions so the parts are the same, she can add them. Have your student exchange the thirds strip for 2 sixths strips. Be sure she lines up the sixths beneath the thirds so she can see that they are the same length. Now ask her to tell you how much of the whole is represented. Since 2 sixths and 1 sixth are now the same size, you can easily add them. There are 3 sixths, so \( \frac{1}{3} + \frac{1}{6} = \frac{3}{6} \) or \( \frac{1}{2} \).

---

**PRACTICE**

Complete **Let’s Practice** on p. 247 in *Math in Focus 4A*. Then complete pp. 147–148 in *Workbook 4A*. 
**WRAP-UP**

Today you learned how to add fractions with different denominators.

\[
\frac{4}{12} + \frac{1}{4} = \underline{\text{_______}}
\]

\[
\frac{1}{4} = \times 3 \times 3 \frac{3}{12}
\]

\[
\frac{4}{12} + \frac{1}{4} = \frac{4}{12} + \frac{3}{12} = \frac{7}{12}
\]

**✔️ PRACTICE QUESTIONS**

Please go online to view and submit this assessment.
Adding and Subtracting with Fractions - Part 3

LEARN

INTERACTIVE ACTIVITY

Follow these instructions for the activity shown below.

Click here if you would like to see the activity in a new window.

First click Clear. Then use the up and down arrows to set the numerator (top number) and denominator (bottom number) of the fraction to 7. Choose a color and click Make Tile to make a fraction tile. Drag your tile to the bottom line. What is the size of the tile you made? It is labeled \( \frac{7}{7} \), but it fits on the number line exactly in the space between 0 and 1. This means it is equal to 1 whole. You can see this when you click on Show sums.

Now click Clear and then make a fraction tile for \( \frac{3}{7} \). Move it to the bottom line so it is touching the left end. Now make a tile for \( \frac{2}{7} \). Move it so it is touching the \( \frac{3}{7} \) fraction tile. Click Show sums. You can see that \( \frac{3}{7} + \frac{2}{7} = \frac{5}{7} \). Switch the tiles so they are in reverse order. The sum is still \( \frac{5}{7} \). This is because you can add numbers in any order and get the same sum.

Find these sums in your Math Notebook. Use the Gizmo to check your answers.

1. \( \frac{2}{8} + \frac{3}{8} \)
2. \( \frac{5}{10} + \frac{3}{10} + \frac{1}{10} \)
3. \( \frac{1}{4} + \frac{5}{8} \)
4. \( \frac{3}{5} + \frac{1}{4} \)
Answers:

1 $\frac{5}{8}$  2 $\frac{9}{10}$  3 $\frac{7}{8}$  4 $\frac{17}{20}$

If you would like, you can click on Lesson Info and download the Student Exploration Sheet and Exploration Sheet Answer Key to have your student try some other activities with the Gizmo.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Adding and Subtracting with Fractions - Part 4

Objectives
- Calculate equivalent fractions.
- Subtract fractions with unlike denominators.

Books & Materials
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition
- fraction strips

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete pages in Workbook 4A.
- Complete Practice Questions.

LEARN

WARM-UP

Find each difference and simplify.

1. $\frac{3}{4} - \frac{1}{4} = \underline{\hspace{2cm}}$

2. $\frac{5}{6} - \frac{2}{6} = \underline{\hspace{2cm}}$

3. $\frac{5}{10} - \frac{3}{10} = \underline{\hspace{2cm}}$

4. $\frac{2}{3} - \frac{2}{3} = \underline{\hspace{2cm}}$

TEACHING NOTES

Warm-up Answer Key

1. $\frac{1}{2}$

2. $\frac{1}{2}$

3. $\frac{1}{5}$

4. 0
INSTRUCTION

Read Learn on p. 248 in Math in Focus 4A. How can you subtract \( \frac{3}{8} \) from \( \frac{1}{2} \)? To subtract fractions with unlike denominators, write equivalent fractions with the same denominator. Since 8 is a multiple of 2, the least common multiple of 2 and 8 is 8. How can you write \( \frac{1}{2} \) as an equivalent fraction with a denominator of 8? Look at the denominators: \( 2 \times 4 = 8 \). Multiply the numerator by 4.

\[
\frac{1 \times 4}{2} = \frac{4}{8}
\]

Once the fractions have the same denominator, you can subtract the numerators.

\[
\frac{4}{8} - \frac{3}{8} = \frac{1}{8}
\]

\[
\frac{1}{2} - \frac{3}{8} = \frac{1}{8}
\]

Complete Guided Learning on p. 249.

TEACHING NOTES

If your student has difficulty understanding equivalent fractions, give him paper and tell him the paper represents one whole. Then have him fold the paper in half and shade one half of the paper. Ask him to tell you how much of the paper is shaded. (\( \frac{1}{2} \)) Have your student write the fraction \( \frac{1}{2} \). Then have him fold the paper into 8 equal parts. Ask him to tell you how much of the paper is shaded (\( \frac{4}{8} \)). Have your student write \( \frac{4}{8} \). Now have him compare \( \frac{1}{2} \) and \( \frac{4}{8} \). He or she should realize that \( \frac{1}{2} \) of the whole is the same amount as \( \frac{4}{8} \) of the whole. Repeat with \( \frac{1}{2} \) and \( \frac{3}{6} \) and another sheet of paper.

If your student wants to learn more, have her subtract fractions when one denominator is not a multiple of the other, as in \( \frac{5}{6} \) and \( \frac{1}{4} \). Remind your student that, just as the greatest common factor can help her write fractions in simplest form, the least common multiple can help her write fractions as equivalent fractions with the same denominator. Point out that, although any common multiple of 4 and 6 can be used to write equivalent fractions (12, 24, 36, and so on), the least common multiple will give her the easiest fractions to work with. (\( \frac{\frac{5}{6} - \frac{1}{4}}{\frac{10}{12} - \frac{3}{12} = \frac{7}{12}} \))

PRACTICE

Complete Let's Practice on p. 250 in Math in Focus 4A. Then complete pp. 149–150 in Workbook 4A.
Today you learned how to subtract fractions with different denominators.

Subtract $\frac{1}{4}$ from $\frac{7}{12}$.

\[
\frac{1}{4} = \times 3 \times \frac{3}{12}
\]

\[
\frac{7}{12} - \frac{1}{4} = \frac{7}{12} - \frac{3}{12} = \frac{4}{12} = \frac{1}{3}
\]

**SUPPLEMENTAL**
- [BrainPOP: Adding and Subtracting Fractions](#)

**PRACTICE QUESTIONS**

Please go online to view and submit this assessment.
Adding and Subtracting with Fractions - Part 5

Objectives
- Add fractions to get mixed numbers.

Books & Materials
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition
- fraction strips
- Rewriting Whole Numbers When Adding Worksheet

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete pages in Workbook 4A.
- Complete Rewriting Whole Numbers When Adding Worksheet.
- Complete Practice Questions.

LEARN

Warm-up Answer Key

1. \( \frac{9}{7} \)
2. \( \frac{17}{5} \)
3. \( \frac{41}{9} \)
4. \( \frac{5}{9} \)

TEACHING NOTES

Warm-up Answer Key

1. \( \frac{9}{7} \)
2. \( \frac{17}{5} \)
3. \( \frac{41}{9} \)
4. \( \frac{5}{9} \)
INSTRUCTION

Read Learn on p. 271 in Math in Focus 4A. Sometimes when you add two fractions, you get an improper fraction as the sum. How do you add $\frac{7}{8}$ and $\frac{3}{4}$? The fractions have different denominators, so first find equivalent fractions with the same denominator. Since 8 is a multiple of 4, 8 is the least common denominator. Write an equivalent fraction for $\frac{3}{4}$ with the denominator 8:

$$\frac{3}{4} = \frac{6}{8}$$

Then add:

$$\frac{7}{8} + \frac{6}{8} = \frac{13}{8}$$

To write $\frac{13}{8}$ as a mixed number, think about how many wholes are in $\frac{13}{8}$. $\frac{8}{8}$ is equal to 1 whole.

$$\frac{8}{8} + \frac{5}{8} = \frac{13}{8}$$

$$\frac{13}{8} = 1 + \frac{5}{8} = 1\frac{5}{8}$$

Read Learn on p. 272. How can you add three fractions? If you know how to add two fractions, you can add three fractions. Write the fractions as equivalent fractions with the same denominator. Then add. If the sum is an improper fraction, rename the improper fraction as a mixed number. Complete Guided Learning on p. 272.

![FUN FACT](image)

In ancient times, the Egyptians used pictures called hieroglyphs to write fractions.

For example, $\frac{1}{3} + \frac{1}{15}$ would be represented as

![image]

TEACHING NOTES

Textbook Answer Key

If your student has difficulty understanding how to add unlike fractions and write the answer as a mixed number in simplest form, try the following example. Have your student use fraction strips to model $\frac{5}{6} + \frac{2}{3}$. Point out that he should use the least common multiple of the denominators to find the least common denominator. Then have him use the strips to find an equivalent fraction for $\frac{2}{3}$ with a denominator of 6. Since 4 sixths strips are the same length as 2 thirds strips, $\frac{4}{6} = \frac{2}{3}$.

Have your student put the strips end to end to add $\frac{5}{6}$ and $\frac{4}{6}$. Ask her to tell you the sum in sixths (9 sixths). Then put the 1 whole strip below the sixths strips. Point out that the sixths strip showing the sum is longer than the 1 whole strip, so the answer is an improper fraction.
Show your student that 6 sixths are the same length as 1 whole, so $\frac{6}{6} = 1$. There are 3 more sixths strips, so $\frac{9}{6} = 1$ whole and 3 sixths. Have your student write the sum as a mixed number: $\frac{9}{6} = 1\frac{3}{6}$. Then point out that 3 and 6 share a common factor, so $\frac{3}{6}$ is not in simplest form. Have your student use the fraction strips to show that 3 sixths strips is the same length as 1 half strip, so $\frac{3}{6} = \frac{1}{2}$. Therefore, $\frac{5}{6} + \frac{2}{3} = \frac{1}{2}$.

**PRACTICE**

Complete p.165 in **Workbook 4A**. Then download, print, and complete the **Rewriting Whole Numbers When Adding Worksheet**.

**TEACHING NOTES**

**Workbook Answer Key**

**Worksheet Answers:**

1. $\frac{4}{8} = 4\frac{1}{2}$  
2. $\frac{9}{9} = 9\frac{2}{3}$  
3. $17 + \frac{4}{8} = 18$  
4. $15 + \frac{10}{8} + \frac{2}{8} = 16\frac{2}{8} = 16\frac{1}{4}$  
5. $35 + \frac{12}{10} = 35 + \frac{10}{10} + \frac{2}{10} = 36\frac{2}{10} = 36\frac{1}{5}$  
6. $22 + \frac{16}{14} + \frac{2}{14} = 23\frac{2}{14} = 23\frac{1}{7}$

**WRAP-UP**

Today you learned how to add together fractions and rename the sum as a mixed number.

\[
\frac{7}{10} + \frac{3}{5} = \frac{7}{10} + \frac{6}{10} = \frac{13}{10} = \frac{10}{10} + \frac{3}{10} = 1 + \frac{3}{10} = 1\frac{3}{10}
\]
Please go online to view and submit this assessment.
Adding and Subtracting with Fractions - Part 6

**Objectives**
- Take fractions away from whole numbers.
- Add together fractions to get mixed numbers.

**Books & Materials**
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition
- fraction strips (optional)
- Rewriting Whole Numbers When Subtracting Worksheet

**Assignments**
- Complete Warm-Up.
- Read and complete pages in *Math in Focus 4A*.
- Complete pages in *Workbook 4A*.
- Complete Rewriting Whole Numbers When Subtracting Worksheet.
- Complete Practice Questions.

**LEARN**

**WARM-UP**
Add. Write your answer as a mixed number in simplest form.

1. \( \frac{6}{7} + \frac{9}{14} = \) __________
2. \( \frac{4}{5} + \frac{9}{10} = \) __________
3. \( \frac{3}{4} + \frac{1}{2} = \) __________

**TEACHING NOTES**

Warm-up Answer Key
1. \( 1 \frac{1}{2} \)
2. \( 1 \frac{7}{10} \)
3. \( 1 \frac{1}{4} \)

**INSTRUCTION**

Read Learn on p. 273 in *Math in Focus 4A*. How can you subtract a fraction from a whole number? There are different ways to subtract \( \frac{4}{9} \) from 3. Both ways require you to rename 3 wholes in terms of ninths. One way to subtract is to rename 3 as a combination of wholes and ninths. 3 is 2 wholes and 9 ninths.
3 = 2 + \frac{9}{9}, \text{ or } 2 \frac{9}{9}

Then you can subtract \frac{4}{9} from \frac{9}{9}:

$$2 \frac{9}{9} - \frac{4}{9} = 2 \frac{5}{9}$$

Another way to subtract is to rename 3 wholes using only ninths. Since there are 27 ninths in 3 wholes, \(3 = \frac{27}{9}\). Then you can subtract:

$$\frac{27}{9} - \frac{4}{9} = \frac{23}{9}$$

Since the answer is an improper fraction, rename it as a mixed number:

$$\frac{23}{9} = \frac{9}{9} + \frac{9}{9} + \frac{5}{9} = 1 + 1 + \frac{5}{9}$$

$$\frac{23}{9} = 2 \frac{5}{9}$$


**TEACHING NOTES**

If your student has difficulty understanding how to rename whole numbers, then have him use fourths strips to show 3 wholes. Ask him to explain why the model shows 3 wholes. (There are 4 fourths in 1 whole, and the model shows 3 sets of 4 fourths.) Then encourage your student to group the wholes in different ways to show different names for 3.

For example, have her separate 4 of the fourths strips. Point out that her model also shows 2 wholes and 4 fourths. Have her write: \(3 = 2 \frac{4}{4}\). Then have her separate 8 fourths. Ask her what the model shows. (1 whole and 8 fourths, or \(1 \frac{8}{4}\).) Then remind her that the model also shows 12 fourths or \(12 \frac{1}{4}\). Repeat with other sets of fraction strips, such as sixths and eighths.

**PRACTICE**

Complete Let’s Practice on p. 275 in Math in Focus 4A. Then complete p. 166 in Workbook 4A. Download, print, and complete the Rewriting Whole Numbers When Subtracting Worksheet.

**TEACHING NOTES**

Textbook Answer Key.
Today you learned how to subtract a fraction from a whole number.

**One way:**

\[
5 - \frac{4}{7} = \frac{35}{7} - \frac{4}{7} = \frac{31}{7} = 4 \frac{3}{7}
\]

**Another way:**

\[
5 - \frac{4}{7} = \frac{35}{7} - \frac{4}{7} = \frac{31}{7} = 4 \frac{3}{7}
\]

**PRACTICE QUESTIONS**

Please go online to view and submit this assessment.
Adding and Subtracting with Fractions - Part 7

Objectives
- Answer real-life problems involving fractions.

Books & Materials
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete pages in Workbook 4A.
- Complete Practice Questions.

LEARN

WARM-UP
Solve.

1. \( \frac{1}{2} + \frac{3}{8} = \) _______
2. \( 9 - \frac{3}{4} = \) _______
3. \( 5 \times \frac{3}{4} = \) _______

TEACHING NOTES

Warm-up Answer Key

1. \( \frac{7}{8} \)
2. \( 8 \frac{1}{4} \)
3. \( 3 \frac{3}{4} \)

INSTRUCTION
Read Learn on p. 281 in Math in Focus 4A. How can you find the fraction of the grapefruit the friends ate? Each friend ate a part of the grapefruit. If you add the fraction of the grapefruit each ate, you can find the fraction of the grapefruit they ate altogether. Add \( \frac{1}{3} + \frac{1}{9} + \frac{3}{9} \). Write \( \frac{1}{3} \) as an equivalent fraction with 9 in the denominator.
Then add the fractions.

\[
\frac{3}{9} + \frac{1}{9} + \frac{3}{9} = \frac{7}{9}
\]

The friends ate \(\frac{7}{9}\) of the grapefruit. Complete Guided Learning on pp. 281–282.

Read the first problem in Learn on p. 282. How can you find the fraction of the pie that was left? Subtract \(\frac{2}{5}\) and \(\frac{3}{10}\) from 1. Write \(\frac{2}{5}\) as an equivalent fraction with 10 as the denominator.

\[
\frac{2}{5} = \frac{4}{10}
\]

To subtract the fractions from 1, write 1 as \(\frac{10}{10}\). Then subtract.

\[
\frac{10}{10} - \frac{4}{10} - \frac{3}{10} = \frac{3}{10}, \text{ so } \frac{3}{10} \text{ of the pie is left.}
\]

Read the second problem. There are two ways to solve. You can solve it the way you solved the previous problem, by subtracting \(\frac{1}{5}\) and \(\frac{7}{10}\) from 9. You can also find the total amount of ribbon that was bought by adding \(\frac{1}{5}\) and \(\frac{7}{10}\). Then subtract the sum from 9. Complete Guided Learning on p. 283.

**TEACHING NOTES**

__Textbook Answer Key__

If your student has difficulty understanding how to use Method 2 to solve problems like the ones on p. 283, give him or her this problem.

Suppose you have 1 pound of cheese. You use \(\frac{2}{3}\) pound for one recipe and \(\frac{1}{6}\) pound for another recipe. How much cheese do you have left?

Help your student make bar models to show the problem. To use Method 2, the bar model should show combining the cheese used in both recipes.

(\(\frac{5}{6}\) pound)

---

Fun Fact

Gasoline prices are written in fractions of a dollar. A price such as $3.49\%$ is read 3 dollars and 49 and \(\frac{9}{10}\) cents.
Once your student has found the amount of cheese used, he or she can subtract that from the total amount of cheese. Help him or her as they make a model, which could be similar to the one shown to show this part of the solution.

The bar model shows that \( \frac{5}{6} \) pound of cheese is left.

**PRACTICE**
Complete pp.175–178 in *Workbook 4A*.

**TEACHING NOTES**
[Workbook Answer Key](#)

**WRAP-UP**
Today you learned how to use bar models to solve problems involving fractions. Sometimes you can add or subtract fractions to solve problems. Making a bar model can help you find the solution to problems involving fractions.

**PRACTICE QUESTIONS**
Please go online to view and submit this assessment.
Jason made the following calculations. Explain the errors Jason made. Give the correct answers.

\[ \frac{1}{3} + \frac{3}{5} = \frac{4}{8} \]
\[ \frac{11}{12} - \frac{5}{6} = \frac{6}{6} = 1 \]
USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Explain why Jason's answers to the problems shown are incorrect?
- Tell what did he do wrong?
- Give the correct answers?
- Show how you found the correct answer?
MORNING EGG CASSEROLE

- cooking spray
- 2 cups diced cooked ham
- 6 teaspoons butter
- 7 slices bread, crusts removed
- 1/2 pound American cheese, cubed
- 3 cups milk
- 6 eggs, beaten
- 3/4 teaspoon dry mustard
- 3/4 teaspoon salt

1. Spray a 9x13-inch casserole dish with cooking spray.
2. Spread ham into the bottom of prepared casserole dish.
3. Butter one side of each bread slice. Cut slices into cubes.
4. Arrange buttered bread cubes on top of the ham.
5. Layer American cheese over bread cubes.
6. Whisk milk, eggs, mustard powder, and salt together in a bowl. Pour over American cheese layer.
7. Cover dish with aluminum foil and refrigerate 8 hours or overnight.
8. Preheat oven to 350 degrees F (175 degrees C). Remove aluminum foil from casserole.
9. Bake in the preheated oven until cheese is melted and eggs are set in the middle, about 1 hour.

Now complete these two tasks. Record the information in your notebook.

1. You notice that you only have 1/3 pound of cheese and 3/4 cup of milk. How much more cheese and milk will you need to get? What if the store only sells the cheese in 1-pound packages and the milk in 4-cup cartons? How many of each would you need to buy, and how much would you have left over?
2. Now you decide to mix the dry mustard and salt ahead of time to make a seasoning mix. Add the two ingredients to show how much of the seasoning mix you have.

Keep all this information to send in with your final project.
COLLABORATION

Share your findings with your peers. Reply to two other classmates.

RATE YOUR PROGRESS

How ready do you feel to complete this part of the project?

- I feel very ready to complete this part of the project; I have learned everything I need to know to do it.
- I feel somewhat ready to complete this part of the project but I am unsure that I have learned everything I need to know to do it.
- I do not feel ready to complete this part of the project.
- I feel very unprepared to complete this part of the project.

How excited do you feel to complete this part of the project?

- I feel very excited to complete this part of the project.
- I feel somewhat excited to complete this part of the project.
- I do not feel excited to complete this part of the project.
- I feel completing this part of the project will be very boring.
Multiplication and Fractions - Part 1

Objectives
- Find the product of a whole number and a fraction.

Books & Materials
- Math in Focus 4A
- Math in Focus - Teacher Edition
- Multiplying by a Fraction Worksheet

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete Multiplying by a Fraction Worksheet.
- Complete Practice Questions.

LEARN

WARM-UP

Use the bar model to help you solve each problem.

36

1. \(\frac{1}{2}\) of 36
2. \(\frac{1}{4}\) of 36
3. \(\frac{3}{4}\) of 36

TEACHING NOTES

Warm-up Answer Key
- 1. 18
- 2. 9
- 3. 27

INSTRUCTION

Read Learn on p. 279 in Math in Focus 4A. Look at problem 1. How can you find the fraction of the pie that the family ate? If 4 people each ate \(\frac{1}{6}\) of the pie, you can multiply \(\frac{1}{6}\) by 4 to find the amount of pie they ate.
To multiply a whole number by a fraction, multiply the whole number by the numerator of the fraction. Because the size of the piece does not change, the denominator stays the same.

\[ 4 \times \frac{1}{6} = \frac{4 \times 1}{6} = \frac{4}{6} \]

Since 4 and 6 share a factor of 2, divide the numerator and denominator by 2 to write the answer in simplest form.

\[ \frac{4}{6} = \frac{2}{3} \]

Look at problem 2. How can you find the number of gallons of paint the class used? Since each bottle contained \( \frac{3}{4} \) of a gallon of paint and the class used 6 bottles, you can multiply 6 by \( \frac{3}{4} \) to find the gallons of paint used. To find \( 6 \times \frac{3}{4} \), multiply 6 by 3. Keep the same denominator. How can you write \( \frac{18}{4} \) as a mixed number?

\[ 18 \div 4 = 4 \text{ remainder } 2 \]

\[ \frac{18}{4} = 4 \frac{2}{4} = 4 \frac{1}{2} \]

---

**TEACHING NOTES**

If your student has difficulty understanding how to solve problems involving multiplication of a whole number by a fraction, explain that multiplication can be thought of in different ways. For example, you can think of multiplication as repeated addition.

For example, #8 on p. 290 in *Math in Focus 4A*, point out that you need to find \( 4 \times \frac{1}{7} \), or 4 groups of \( \frac{1}{7} \). You can think of this multiplication problem as \( \frac{1}{7} \) four times, or \( \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} \). Since this sum is \( \frac{4}{7} \), the solution to the problem is \( \frac{4}{7} \).

For problem #9 on p. 290, point out that multiplying \( 5 \times \frac{3}{5} \) is like adding \( \frac{3}{5} \) to itself 5 times. Have your student write the number sentence \( \frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} \) and find the sum (\( \frac{16}{5} = 3 \)). Have your student draw a bar model to check her work.

**WATCH FOR THESE COMMON ERRORS**

Some students have difficulty determining what numbers they need to multiply to solve problems involving multiplication of fractions and whole numbers. Encourage your student to draw a bar model to show what is happening in the problem. Then he or she should use the model to help them find a solution.


**PRACTICE**

Complete Let’s Practice p. 280 #6-9 in *Math in Focus 4A*. Then download, print, and complete the *Multiplying by a Fraction Worksheet*.

**TEACHING NOTES**

- **Textbook Answer Key**

  **Worksheet Answers:**

  1. \( \frac{5}{2} \times 2 = \frac{2}{2} \)
  2. \( \frac{28}{5} \times 5 = \frac{5}{5} \)
  3. \( \frac{5}{2} = 2 \)
  4. \( \frac{20}{10} = 2 \)
  5. \( \frac{15}{6} = 2 \frac{1}{2} \)
  6. \( \frac{2}{3} = 2 \frac{1}{3} \)
  7. \( \frac{20}{6} = 3 \frac{1}{3} \)
  8. \( \frac{16}{9} = 1 \frac{7}{9} \)
  9. \( \frac{7}{8} = 2 \frac{1}{8} \)
  10. \( \frac{18}{7} = 2 \frac{4}{7} \)
  12. Blake cut 4 \( \frac{3}{5} \) feet altogether.

**WRAP-UP**

Today you learned how to multiply a fraction and a whole number.

Find \( 5 \times \frac{2}{5} \).

\[
5 \times \frac{2}{5} = \frac{5 \times 2}{5} = \frac{10}{5} = 2
\]

So \( 5 \times 25 = 2 \).

**PRACTICE QUESTIONS**

Please go online to view and submit this assessment.
In this activity, you will use the brand-new TOY-O-MATIC machine to create stuffed monkeys, rabbits, and giraffes by clicking the buttons. The ANALYZER 3000 tells you what fraction of each toy you have.

Click each animal button once to produce a set of toys: 1 monkey, 1 rabbit, and 1 giraffe. Check that the ANALYZER 3000 is set to “What fraction of the toys are monkeys?” Check that Show fraction is on. Out of the set of 3 toys, 1 is a monkey. This means that $\frac{1}{3}$ of the toys are monkeys. Now click to change the type of toy to rabbits. Because there is one rabbit, $\frac{1}{3}$ of the toys are rabbits. Change the type of toy to giraffes. Again, $\frac{1}{3}$ of the toys are giraffes.

Copy this chart into your Math Notebook.

<table>
<thead>
<tr>
<th>Toy</th>
<th>Number</th>
<th>Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>monkey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>rabbit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>giraffe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>total animals</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Now use the TOY-O-MATIC machine to create a set of animals. Write down the number of each kind of animal. Then find the total. Now write the number of each animal as a fraction. Use the Gizmo to check your work.

Suppose you are asked to make a set of 6 toys, and $\frac{1}{2}$ of the toys must be rabbits. Start by making a group of 6 toys. Divide the set into 2 equal groups. Are all the toys in one group rabbits? If not, change the toys until all the toys in one group are rabbits and there are no rabbits in the other group. Now
choose rabbits as the animal and click on Show fraction. The machine will tell you that \( \frac{3}{6} \) of the toys are rabbits. Click on Simplify. The machine now says that \( \frac{1}{2} \) of the toys are rabbits. The fractions \( \frac{3}{6} \) and \( \frac{1}{2} \) are equivalent.

Now copy this chart into your Math Notebook.

<table>
<thead>
<tr>
<th>Toy</th>
<th>Number</th>
<th>Fraction</th>
<th>Simplified Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>monkey</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>rabbit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>giraffe</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>total animals</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Make a set of toys with 2 monkeys, 4 rabbits, and 6 giraffes. Use the Gizmo to help you complete the chart.

**TEACHING NOTES**

**Answers:**

Check your student's work in the first chart for accuracy.

Second chart:

<table>
<thead>
<tr>
<th>Toy</th>
<th>Number</th>
<th>Fraction</th>
<th>Simplified Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>monkey</td>
<td>2</td>
<td>( \frac{2}{12} )</td>
<td>( \frac{1}{6} )</td>
</tr>
<tr>
<td>rabbit</td>
<td>4</td>
<td>( \frac{4}{12} )</td>
<td>( \frac{1}{3} )</td>
</tr>
<tr>
<td>giraffe</td>
<td>6</td>
<td>( \frac{6}{12} )</td>
<td>( \frac{1}{2} )</td>
</tr>
<tr>
<td>total animals</td>
<td>12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If you would like, you can click on Lesson Info and download the Student Exploration Sheet and Exploration Sheet Answer Key to have your student try some other activities with the Gizmo.

**RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
Multiplication and Fractions - Part 3

**Objectives**
- Answer real-life problems involving fractions.

**Books & Materials**
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition 4A

**Assignments**
- Complete Warm-Up.
- Read and complete *Math in Focus 4A*.
- Complete *Workbook 4A*.
- Complete Quick Check.

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**LEARN**

**WARM-UP**

Solve.

1. What is $\frac{2}{5}$ of 24?
2. What is $\frac{3}{4}$ of 12?
3. What is $\frac{3}{7}$ of 28?

**TEACHING NOTES**

**Warm-up Answer Key**

1. 9 $\frac{3}{5}$
2. 9
3. 12

**INSTRUCTION**

Read **Learn** on p. 284 in *Math in Focus 4A*. How can you find the fraction of the roses that are yellow? If 6 of the 9 roses are red, and $\frac{6}{9} = \frac{2}{3}$, then $\frac{2}{3}$ of the roses are red. If $\frac{2}{3}$ of the roses are red and the rest are yellow, subtract $1 - \frac{2}{3} \cdot \frac{1}{3}$ of the roses are yellow. Complete **Guided Learning** on p. 284.
Read Learn on p. 285. How can you find the number of pieces of fruit Judy bought altogether? Look at the bar model. If 12 pears are $\frac{2}{5}$ of the fruit, then 2 units are 12. Two units equal 12, and $12 \div 2 = 6$. Since $5 \times 6 = 30$, Judy brought 30 pieces of fruit in all. Complete Guided Learning on p. 286.

Read Learn on p. 287. How can you find the stamps Sally has left? There are two ways to solve this problem. In Method 1, you subtract $\frac{1}{3}$ from 1 to find that Sally has $\frac{2}{3}$ of her stamps left. Then you multiply $\frac{2}{3}$ by 18 to find the number of stamps. In Method 2, think of 18 as 3 units. $18 \div 3 = 6$, so there are 6 stamps in 1 unit. Since $2 \times 6 = 12$, Sally has 12 stamps left.

Complete Guided Learning on p. 288.

If your student has difficulty understanding how to use a bar model to solve problems involving fractions, have him or her draw a model to solve the following problem.

Tim collects 30 leaves from outside. $\frac{3}{5}$ of the leaves are orange. How many orange leaves does he collect?

Explain each part of the model to your student. The model shows $\frac{5}{5}$, which represents 30 leaves in all. The items are divided into two groups. The shaded group represents $\frac{3}{5}$ of the leaves, and the white group shows $\frac{2}{5}$ of the leaves. Since the leaves are divided equally into fifths, each unit is one fifth of the whole. 30 leaves in all $\div 5$ units $= 6$. Each unit represents 6 leaves.

The problem states that $\frac{3}{5}$ of the leaves Tim collected are orange. You have determined that one unit (or $\frac{1}{5}$) of the total leaves is 6, so $\frac{3}{5}$ of the leaves would be 18. 18 of the leaves Tim collected are orange.

Point out to your student that this model can help them solve different problems, depending on what information is given. Your student should use this model as a guide when drawing the models to solve the problems in this lesson.
Complete Let's Practice on p. 289–290 in Math in Focus 4A. Then complete pp. 179–181; 188 in Workbook 4A.

Textbook Answer Key
Workbook Answer Key

WRAP-UP
Today you learned how to use a bar model to solve problems involving fractions of a set.

QUICK CHECK
Please go online to view and submit this assessment.

MORE TO EXPLORE
View the Discovery Education video Fractions and Sets. You can view the video in English or in Spanish.
Maggie has 20 ribbons. Of them, $\frac{2}{5}$ are polka-dotted ribbons. How many ribbons are NOT polka-dotted? Show your work.
MORNING EGG CASSEROLE

- cooking spray
- 2 cups diced cooked ham
- 6 teaspoons butter
- 7 slices bread, crusts removed
- 1/2 pound American cheese, cubed
- 3 cups milk
- 6 eggs, beaten
- 3/4 teaspoon dry mustard
- 3/4 teaspoon salt

1. Spray a 9x13-inch casserole dish with cooking spray.
2. Spread ham into the bottom of prepared casserole dish. Butter one side of each bread slice; cut slices into cubes. Arrange buttered bread cubes atop ham; layer American cheese over bread cubes.
3. Whisk milk, eggs, mustard powder, and salt together in a bowl; pour over American cheese layer. Cover dish with aluminum foil and refrigerate 8 hours or overnight.
4. Preheat oven to 350 degrees F (175 degrees C). Remove aluminum foil from casserole.
5. Bake in the preheated oven until cheese is melted and eggs are set in the middle, about 1 hour.

You are so excited about this breakfast that you decided to invite some additional friends and family to dinner. This means that you will need to triple the recipe.

COLLABORATION

Share your findings with your classmates. Reply to two other classmates.
How much of each ingredient will you need now? Type your answer in the box.

<table>
<thead>
<tr>
<th>B</th>
<th>I</th>
<th>U</th>
</tr>
</thead>
</table>

0 / 10000 Word Limit

Supported file formats: PDF, JPG, GIF, PNG, Word, Powerpoint

0 / 2 File Limit
Decimals - Part 1

Objectives
- Identify fraction tenths.
- Identify mixed number tenths.
- Use equivalent fractions to change fractions into tenths and simplify.
- Round numbers to the closest ten.

Books & Materials
- Math in Focus 4B
- Math in Focus - Teacher Edition 4B

Assignments
- Complete Warm-Up.
- Read and complete pages Math in Focus 4B.
- Complete Practice Questions.

LEARN

WARM-UP
Which fraction does each picture show?

1. 

2. 

TEACHING NOTES

Warm-up Answer Key

1. \(\frac{1}{5}\)

2. \(\frac{3}{4}\)

INSTRUCTION

Today's lesson covers important ideas you need to understand before beginning the lessons in this chapter. Read pp. 1–3 in Math in Focus 4B.

Look at the model of the fraction at the top of p. 2. The bar represents 1 whole. How many parts are there? There are 10 parts, so each part shows \(\frac{1}{10}\). In the next example, each square represents 1 whole. When a fraction is greater than 1, it can be written as a mixed number. Review the sections on equivalent fractions and rounding numbers.
As you discuss these pages with your student, take note of the skills that seem to be familiar and those that may need review. Do not provide detailed instruction at this point; simply preview the material to prepare for the Quick Check.

Complete Quick Check on p. 3 in Math in Focus 4B.

Textbook Answer Key

Review your student’s answers to the Quick Check, noting the problems that your student answered incorrectly. Then go online through your student’s portal to today’s lesson. Click on the link to access the appropriate Reteach activity that your student should complete for the remainder of this lesson.

RETEACH

After your student completes the Quick Check in the Recall Prior Knowledge lesson of this chapter, review the questions that were answered incorrectly.

If, after the review, you feel that your student needs additional exposure to any of these skills, click on the title below that corresponds with the number of the incorrectly answered question(s) and have him or her complete the activity.

Quick Check Question(s)          Activity
 1, 3–5                      Equivalent Fractions
 2                             Mixed Numbers
 6–7                             Rounding
WRAP-UP
Today you reviewed important skills that you will need for this chapter. As you begin work in Chapter 7 you should be able to:

- Understand models of fractions and mixed numbers.
- Rename fractions as equivalent fractions with a denominator of 10.
- Simplify fractions with a denominator of 10.
- Round numbers to the nearest ten.

PRACTICE QUESTIONS
Please go online to view and submit this assessment.
Decimals - Part 2

Objectives
- Say and express tenths as decimals and fractions.
- Show and explain decimal tenths with models.
- Show mixed numbers and improper fractions as decimals.

Books & Materials
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition 4B
- decimal place-value mat
counters

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete pages in Workbook 4B.
- Complete Practice Questions.

LEARN

WARM-UP
Write an equivalent fraction using tenths.

1. \( \frac{1}{2} \)
2. \( \frac{1}{5} \)
3. \( \frac{3}{5} \)
4. \( \frac{2}{5} \)

TEACHING NOTES

Warm-up Answer Key

1. \( \frac{5}{10} \)
2. \( \frac{2}{10} \)
3. \( \frac{6}{10} \)
4. \( \frac{4}{10} \)
**INSTRUCTION**

Read **Learn** on pp. 4–5 in *Math in Focus 4B*. Today you will learn a new way to write tenths. You can write a fraction of a number in decimal form. You can show decimals with a bar model or on a number line, just as you do with fractions. The only difference is in the way you write the number.

Complete **Guided Learning** on pp. 5–6. Read each of the **Learn** sections on p. 6. Model the problems with your decimal place-value mat and counters. You know how to group 10 ones to make ten. In the same way, you can group 10 tenths to make 1 whole. To read a decimal number greater than one, say and when you see the decimal point. To read 2.3, say two and three tenths.

Next read **Learn** on p. 7. Model the problems with your decimal place-value mat and counters. You can regroup 10 tenths in the numerator to make 1 whole.

Complete **Guided Learning** on pp. 7–9.

**TEACHING NOTES**

Explain that decimals provide a new way to write tenths. Have your student draw a number line from 0 to 1. Divide the number line into tenths. Below each tick write the value as a fraction. Above each tick write the equivalent decimal form. Your student should be comfortable with the idea that $\frac{5}{10} = \frac{1}{2}$. These expressions are equivalent. This means that both forms represent the same number. In this lesson, your student will come to understand that $\frac{5}{10} = 0.5$. These are equivalent expressions for the same number.

If your student has difficulty with the concepts presented on these pages, have him model the problems with the decimal place-value mat and counters. He may especially need the manipulatives when expressing improper fractions as decimals.

**WATCH FOR THESE COMMON ERRORS**

Some students fall into the habit of reading the decimal point as point. When reading 1.4, your student should not say 1 point 4. Encourage her to read the number correctly: one and four tenths. This will reinforce her understanding of the value of the number. Also, this is helpful when translating between word and number forms.

Have your student always write a 0 in the ones place to the left of the decimal point. This makes the decimal easier to read. The decimal point is often overlooked if there is no leading zero.
PRACTICE
Complete Let's Practice on p. 11 in Math in Focus 4B. Then complete pp. 1–2 in Workbook 4B.

TEACHING NOTES
Textbook Answer Key
Workbook Answer Key

WRAP-UP
Today you learned about the decimal form of a number. Decimals give you a new way to write fractions and mixed numbers.

seven tenths

\[
\frac{7}{10} = 0.7
\]

two and three tenths

\[
\frac{23}{10} = 2 \frac{3}{10} = 2.3
\]

PRACTICE QUESTIONS
Please go online to view and submit this assessment.
Decimals - Part 3

**Objectives**
- Use place value to represent decimal numbers.

**Books & Materials**
- Math in Focus 4B
- Workbook 4B
- *Math in Focus - Teacher Edition 4B*
- decimal place-value chart (optional)
- place-value mat (optional)
- counters (optional)

**Assignments**
- Complete Warm-up.
- Read and complete pages in *Math in Focus 4B*.
- Complete pages in Workbook 4B.
- Complete Practice Questions.

---

**LEARN**

---

**WARM-UP**

Write in expanded form.

1. 649
2. 25,481

---

**TEACHING NOTES**

**Warm-up Answer Key**

1. 600 + 40 + 9
2. 20,000 + 5,000 + 400 + 80 + 1

---

**INSTRUCTION**

Read **Learn** on p. 9 in *Math in Focus 4B*. Each digit in a number has ten times the value of the digit to its right. You know that 1 hundred = 10 tens and that 1 ten = 10 ones. You are now extending this pattern to expand your understanding of place value.

When you write a decimal number in expanded form, write the sum of the values of its digits. As always, the location of a digit in a number tells you its value. One digit in the place to the right of a decimal point represents the value in tenths.

Complete **Guided Learning** on p. 9.
Read Learn on p.10 and complete the Guided Learning on p.10.

### TEACHING NOTES

If necessary, review the decimal place-value chart with your student, emphasizing the relationship between the places. Point out that tenths can be shown by placing a number one place to the right, after the decimal point. You may want to have your student use counters and the place-value mat to model the problems in this lesson.

### PRACTICE

Complete Let's Practice pp.11–12 in Math in Focus 4B. Then complete pp.3–4 in Workbook 4B.

### TEACHING NOTES

- Textbook Answer Key
- Workbook Answer Key

### WRAP-UP

Today you learned how to use place value to understand whole number and decimal amounts.

<table>
<thead>
<tr>
<th>Tens</th>
<th>Ones</th>
<th>Tenths</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>9</td>
<td>1</td>
</tr>
</tbody>
</table>

The value of the digit 7 is 7 tens. The 9 shows 9 ones. The digit 1 stands for 1 tenth.
You can write this number in different ways:

- 7 tens + 9 ones + 1 tenth
- 70 + 9 + 0.1
- 70 + 9 + $\frac{1}{10}$
- 79.1

✔️ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Decimals - Part 4

Objectives
- Say and express hundredths as decimals and fractions.
- Use models to show and interpret hundredths.

Books & Materials
- Math in Focus 4B
- Math in Focus - Teacher Edition 4B
- decimal place-value mat
- counters
- collection of pennies and dimes (optional)
- Hundredths Worksheet

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete Hundredths Worksheet.
- Complete Quick Check.

LEARN

WARM-UP
Express each of these as a decimal.

1. 

2. seven tenths

3. \( \frac{3}{5} \)

TEACHING NOTES

Warm-up Answer Key

1. 0.4
2. 0.7
3. 0.6
INSTRUCTION

Read Learn on p. 13 in Math in Focus 4B. How could you write $\frac{7}{100}$ as a decimal? Write: 0.07. Say: seven hundredths. Complete Guided Learning on p. 14.

Then read Learn on p. 14. Notice the hundredths place on the place-value chart. Read each of the Learn sections on p. 15. Model each of the problems with your place-value mat and counters. You can regroup 10 hundredths to make 1 tenth.

How can you write $\frac{37}{100}$ as a decimal?

Write: 0.37. Say: thirty-seven hundredths.

Complete Guided Learning on p. 16.

TEACHING NOTES

Textbook Answer Key

Discuss the meaning of hundredths with your student. It takes 100 hundredths to make 1 whole. It takes 10 hundredths to make 1 tenth. Use the place-value mat and counters to guide your discussion. Ensure that your student understands the concept before discussing decimal notation.

Encourage your student to write values from $\frac{1}{100}$ to $\frac{20}{100}$ in decimal notation. Pay attention as he moves from $\frac{9}{100} = 0.09$ to $\frac{10}{100} = 0.10$.

For practice, provide a collection of pennies and dimes. Ask: How many pennies make one dollar? (100) A penny is 1 hundredth of a dollar. Think of a dollar as one whole. Write the value of a penny in decimal form: 0.01. What is the value of a dime? Ten dimes make one dollar, so a dime equals 0.1. How many pennies make 1 dime? (10)

Give your student a collection of pennies and ask her to write the decimal value of the collection. (For example, 37 pennies = 0.37) Challenge her to show the amount with pennies and dimes using the fewest coins possible. As your student demonstrates understanding, move to the place-value mat and counters. You can use pennies and dimes on the mat to emphasize the difference between hundredths and tenths.

WATCH FOR THESE COMMON ERRORS

Some students may think that hundredths always start in the second decimal place. They may write 0.08, 0.09, 0.010, 0.011, ... Remind your student that 10 hundredths is the same as 1 tenth; monitor his work to ensure correct notation.
Complete the **Hundredths Worksheet**.

### TEACHING NOTES

**Worksheet Answers:**

1. 0.45  
2. 0.09  
3. 0.04  
4. 0.19  
5. 0.36  
6. 0.07  
7. 0.39  
8. 0.18  
9. 0.67  
10. 0.04  
11. 0.05  
12. 0.70  
13. 0.09

### WRAP-UP

Today you learned how to express fraction hundredths as decimals and find the equivalent tenths and hundredths.

\[ \frac{53}{100} = 53 \text{ hundredths} = 5 \text{ tenths} + 3 \text{ hundredths} = 0.53 \]

### QUICK CHECK

Please go online to view and submit this assessment.

### MORE TO EXPLORE

View the video, *Math Antics - Decimal Place Value* (11:50), to learn more about decimal number places.

Please go online to view this video ▶
# Decimals - Part 5

## Objectives
- Say and express hundredths as decimals and fractions.
- Show mixed numbers and improper fractions as decimals.
- Use place value to represent decimal numbers.
- Use models to show and interpret hundredths.

## Books & Materials
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition 4B
- Decimal place-value mat (optional)
- Counters (optional)

## Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete pages in Workbook 4B.
- Complete Practice Questions.

## LEARN

### WARM-UP

Express each of the following fractions as a decimal.

1. \(\frac{31}{100}\)
2. \(\frac{7}{100}\)
3. \(\frac{69}{100}\)
4. \(\frac{3}{100}\)

### TEACHING NOTES

#### Warm-up Answer Key

1. 0.31
2. 0.07
3. 0.69
4. 0.03
INSTRUCTION
Read each of the Learn sections on p. 17 in Math in Focus 4B. Notice that 6 ones, 1 tenth, and 0 hundredths can be written as 6.10. This number has the same value as 6 ones and 1 tenth, which is written as 6.1. The zero at the end of the first number is a placeholder. It does not change the value of the number.

Complete Guided Learning on pp. 17–18.

Read each of the Learn sections on p. 18. Compare the examples shown to the examples on pp. 6–7. Complete Guided Learning at the top of p. 19.


TEACHING NOTES
If necessary, use the place-value mat and counters to reinforce the value of each digit in a number. Practice with your student until she is comfortable writing improper fractions and mixed numbers in decimal form.

\[
\begin{align*}
\frac{523}{100} &= 5.23 \\
7 \frac{31}{100} &= 7.31 \\
\frac{818}{100} &= 8.18 \\
4 \frac{62}{100} &= 4.62
\end{align*}
\]

PRACTICE
Complete Let's Practice #1-20 on pp. 21–23 in Math in Focus 4B. Then complete pp. 5–6 in Workbook 4B.

TEACHING NOTES
Textbook Answer Key
Workbook Answer Key
WRAP-UP

Today you learned about placeholder zeros and how to express improper fractions and mixed numbers as decimals. You also learned more about place values for decimals and writing decimals in expanded form.

<table>
<thead>
<tr>
<th>Tens</th>
<th>Ones</th>
<th>Tenths</th>
<th>Hundredths</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>7</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>

3 tens + 7 ones + 6 tenths + 2 hundredths

\[30 + 7 + \frac{6}{10} + \frac{2}{100}\]

37.62

\[37 \frac{62}{100}\]

-green approved-

PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Decimals - Part 6

Objectives
- Say and express hundredths as decimals and fractions.
- Use place value to represent decimal numbers.
- Write money amounts in decimal notation.
- Use models to show and interpret hundredths.

Books & Materials
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition 4B
- dollar bills, dimes, and pennies (optional)

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete pages in Workbook 4B.
- Complete Practice Questions.

LEARN

WARM-UP

Answer each question about the number 15.39.

1. Which digit is in the tens place?
2. What is the value of the digit 9?
3. The digit 5 is in which place?

TEACHING NOTES

Warm-up Answer Key

1. 1
2. 9 hundredths or 0.09 or \( \frac{9}{100} \)
3. ones

INSTRUCTION

Read the first Learn section on p. 20 in Math in Focus 4B. Use what you know about place value to complete Guided Learning on p. 20.

Then read the next Learn section on p. 20. Remember that 1 dollar is 1 whole when writing money amounts in decimal notation. Each penny is 1 hundredth of a dollar, so 1 penny is $0.01. Money
amounts written in decimal form always show 2 decimal places. One dime is 1 tenth of a dollar. Use a placeholder zero to write 1 dime as $0.10.

Complete Guided Learning on p. 21.

If your student needs additional practice using decimals to represent amounts of money, use dollar bills, dimes, and pennies to create various money amounts. Challenge your student to write each amount in decimal form. Ask him to identify the place value of each digit in the number or to write the number in expanded form.

Complete problems 21–30 from Let's Practice on p. 23 in Math in Focus 4B. Then complete pp. 7–8 in Workbook 4B.

Today you learned how to use place value to understand whole number and decimal amounts. You also learned how to use decimals to write dollars and cents.

- The digit 7 is in the ones place.
- The value of the digit 2 is 2 tenths or 0.2.
- The value of the digit 8 is 8 hundredths or 0.08.
SUPPLEMENTAL

- BrainPOP: Decimals

PRACTICE QUESTIONS

Please go online to view and submit this assessment.
LEARN

WARM-UP

Compare the numbers. Use < or >.

1. 991 ______ 1,010
2. 12,431 ______ 12,413

TEACHING NOTES

Warm-up Answer Key

1. <
2. >

INSTRUCTION

Read Learn on p. 24 in Math in Focus 4B and then read Learn on p. 25. How can you find 0.1 more than or less than a number? Use a bar model or number line. The square will help you find 0.01 more than or less than a number. Be careful to write each decimal number correctly and practice reading the numbers correctly as well.

Continue to use the models as you complete Guided Learning on p. 25.

Read Learn on p. 26. Read the first pattern shown:

2 tenths, 4 tenths, 6 tenths, 8 tenths, 10 tenths, ______

What is the next number? (12 tenths; \(\frac{12}{10} = 1.2\))

Encourage your student to use models as she completes pp. 24–25 in *Math in Focus 4B*. Throughout this lesson, ask your student to read each decimal correctly. For example, the decimal 0.2 should be read as *two tenths*, not *zero point two*.

Ask: What is 1 tenth more than 7 tenths? (Your student knows that 1 more than 7 is 8, so he can arrive at the answer 8 tenths once he understands this pattern.) After your student answers correctly, show him the problem with a number line or bar model.

For additional practice, ask your student to create a problem of his own. He can pick a starting decimal value and pattern rule. Then he can use models to write the first 5 to 6 numbers in the pattern.

**WRITE TO LEARN**

Today you learned how to use models to find 0.1 more than or 0.1 less than a number. You used models to find 0.01 more than or 0.01 less than a number. You also learned how to find the missing number in a pattern.

Find the missing number in the pattern:

0.35, 0.37, 0.39, 0.41, 0.43, 0.45, ______

Pattern rule: Add 0.02.
The missing number is 0.02 more than 0.45, or 0.47.

**PRACTICE QUESTIONS**

Please go online to view and submit this assessment.
Decimals - Part 8

Objectives
- Compare decimals and put them in order.

Books & Materials
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition 4B
decimal place-value chart
index cards (optional) (parent provided)
ten-sided die (optional)
Comparing and Ordering Decimals Worksheet

Assignments
- Complete Warm-Up.
- Read and complete Math in Focus 4B.
- Complete Workbook 4B.
- Complete Comparing and Ordering Decimals Worksheet.
- Complete Practice Questions.

LEARN

WARM-UP
Answer each question.

1. What number is 0.5 more than 6.2?
2. What number is 0.09 less than 7.36?
3. What number is 0.75 more than 5.32?

TEACHING NOTES

Warm-up Answer Key
1. 6.7
2. 7.27
3. 6.07

INSTRUCTION
Read Learn on p. 28 in Math in Focus 4B. Use the decimal place-value chart to compare decimal numbers. Always start with the greatest place value.

Read Learn on p. 29. Use the place-value chart to compare the numbers before you place them in order. In this example, 0.23 is the least number because 2 tenths is less than 6 tenths. The greatest number is
0.62 because 2 hundredths is greater than 0 hundredths.

Complete Guided Learning on p. 29. Then complete Let's Explore on p. 32 with your Learning Guide.

TEACHING NOTES

Encourage your student to use place-value charts to compare and order decimals. Discuss how the process for comparing decimals is the same as the process for comparing greater whole numbers.

You may play the optional Decimal Game! on p. 30 with your student. As you order the cards, be sure to explain your reasoning out loud. It may be helpful to make a deliberate mistake and see if your student spots it. Ask her to explain why the order of the cards is wrong and congratulate her on providing the correct rationale and catching the mistake.

The Hands-On Activity on p. 31 is also optional. You may play this game with your student if you have the necessary materials.

Complete Let's Explore on p. 32 with your student. Discuss how inserting a zero in different places changes its value.

If your student struggles with the concept, ask him to compare the whole numbers 534 and 541. Next, insert a decimal between the tens and ones places so that the numbers become 53.4 and 54.1. Ask your student to compare these new numbers. Then move the decimal again and ask your student to compare 5.34 and 5.41. Create two new 3-digit numbers and complete the activity again.

PRACTICE

Complete Math Journal on p. 33. Then complete Let's Practice on p. 34 in Math in Focus 4B. Complete pp. 11–12 in Workbook 4B. Finally, download, print, and complete Comparing and Ordering Decimals Worksheet.

TEACHING NOTES

Textbook Answer Key

Workbook Answer Key

Worksheet Answers:

1 > 2 > 3 < 4 < 5 > 6 < 7 = 8 > 9 > 10 < 11 2.54, 4.5, 4.67, 5.43 12 0.34, 0.43, 0.44, 3.4 13 0.01, 0.11, 1.01, 1.11 14 6.87, 5.67, 4.02, 3.98 15 0.32, 0.23, 0.2, 0.02 16 4.22, 4.21, 4.2, 4.02
WRAP-UP

Today you learned how to use place value to compare and order decimals.

<table>
<thead>
<tr>
<th>Ones</th>
<th>Tenths</th>
<th>Hundredths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>7</td>
</tr>
</tbody>
</table>

From least to greatest: 1.35, 1.37, and 2.30

SUPPLEMENTAL

- [Supplemental Math Activity: Ordering Decimal Game](#)

PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Decimals - Part 9

Follow these instructions for the activity shown below.

Click [here](#) if you would like to see the activity in a new window.

With the red model set to **Whole numbers**, shade one whole. (You can shade the model by clicking in it or by typing 1 in the text field and pressing Enter on your keyboard.

Now click **Reset**. Change to **Tenths**. Shade one whole again. The model shows you that there are ten tenths in a whole, and you will see the number 1.0 in the text field. Click **Reset** again. Change to **Hundredths** and shade one whole again. The model shows you that there are 100 hundredths in one whole, which is 1.00. Since you shaded the same area all three times, you know that 1 whole = 10 tenths = 100 hundredths, or 1 = 1.0 = 1.00.

Click **Reset**. Now set the red model to **Whole numbers**, the green model to **Tenths**, and the blue and purple models to **Hundredths**. Model the number 3 on the red grid, the number 0.3 on the green grid, the number 0.03 on the blue grid, and the number 0.33 on the purple grid. Compare the shaded areas. Since the most space is shaded in the red model, you know that 3 is the greatest number. Since the least amount of space is shaded in the blue model, you know that 0.03 is the least number. Can you use the models to put the numbers in order, from least to greatest? Check your answer by clicking on **Show number line** and **Compare numbers**. You can see that the numbers in order are 0.03, 0.3, 0.33, and 3.

Now, in your Math Notebook, compare and order each set of numbers from least to greatest. Use the Gizmo to check your work.

1. 0.68, 1.8, 0.8, 1.86
2. 0.6, 0.65, 0.50, 0.56
3. 2.28, 1.2, 2.1, 2.02
Answers:

1 0.68, 0.8, 1.8, 1.86  2 0.50, 0.56, 0.6, 0.65  3 1.2, 2.02, 2.1, 2.28

If you would like, you can click on Lesson Info and download the Student Exploration Sheet and Exploration Sheet Answer Key to have your student try some other activities with the Gizmo.

RATE YOUR ENTHUSIASM

Please go online to view and submit this assessment.
Decimals - Part 10

USE FOR MASTERY

Write the numbers as decimals.

Then order the numbers from greatest to least.

6 hundredths  \(\frac{5}{10}\)  4 tenths  \(\frac{3}{4}\)  \(\frac{33}{100}\)

Explain how to compare numbers that are expressed in different ways.
USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Write the numbers shown as decimals?
- Order the numbers from greatest to least?
- Explain how to compare numbers that are expressed in different ways?
In other parts of the world, ingredients are measured using decimals. Although different units of measure are used, for this project you will practice your skills with the customary units.

MORNING EGG CASSEROLE

- cooking spray
- 2 cups diced cooked ham
- 6 teaspoons butter
- 7 slices bread, crusts removed
- 1/2 pound American cheese, cubed
- 3 cups milk
- 6 eggs, beaten
- 3/4 teaspoon dry mustard
- 3/4 teaspoon salt

1. Spray a 9x13-inch casserole dish with cooking spray.
2. Spread ham into the bottom of prepared casserole dish.
3. Butter one side of each bread slice. Cut slices into cubes.
4. Arrange buttered bread cubes on top of the ham.
5. Layer American cheese over bread cubes.
6. Whisk milk, eggs, mustard powder, and salt together in a bowl. Pour over American cheese layer.
7. Cover dish with aluminum foil and refrigerate 8 hours or overnight.
8. Preheat oven to 350 degrees F (175 degrees C). Remove aluminum foil from casserole.
9. Bake in the preheated oven until cheese is melted and eggs are set in the middle, about 1 hour.

Find the list of ingredients you copied into your notebook. Look at the measurements you found when you tripled the recipe. Now write each of these amounts as decimals. Keep this information to send in with your final project.

COLLABORATION

Share all of these answers with your peers. Reply to two other classmates.
RATE YOUR PROGRESS

How ready do you feel to complete this part of the project?

- I feel very ready to complete this part of the project; I have learned everything I need to know to do it.

- I feel somewhat ready to complete this part of the project but I am unsure that I have learned everything I need to know to do it.

- I do not feel ready to complete this part of the project.

- I feel very unprepared to complete this part of the project.

How excited do you feel to complete this part of the project?

- I feel very excited to complete this part of the project.

- I feel somewhat excited to complete this part of the project.

- I do not feel excited to complete this part of the project.

- I feel completing this part of the project will be very boring.
Show: Cooking with Fractions

Books & Materials
- Math in Focus - Teacher Edition

Now put all your information together into your final project. Make sure to include all these items in a neat, organized presentation:

- the rewritten measurements for the ham, butter, milk, dry mustard, and salt, using just the ¼-teaspoon measure and the 1/3-cup measure
- your information about the amounts of milk and cheese you need to get at the store
- the amount of seasoning mix you have
- the list of ingredients, multiplied by 3
- the list of ingredients, written in decimal form

After you send in your project, it is time to cook! Try making the breakfast.

MORNING EGG CASSEROLE
- cooking spray
- 2 cups diced cooked ham
- 6 teaspoons butter
- 7 slices bread, crusts removed
- 1/2 pound American cheese, cubed
- 3 cups milk
- 6 eggs, beaten
- 3/4 teaspoon dry mustard
- 3/4 teaspoon salt

1. Spray a 9x13-inch casserole dish with cooking spray.
2. Spread ham into the bottom of prepared casserole dish.
3. Butter one side of each bread slice. Cut slices into cubes.
4. Arrange buttered bread cubes on top of the ham.
5. Layer American cheese over bread cubes.
6. Whisk milk, eggs, mustard powder, and salt together in a bowl. Pour over American cheese layer.
7. Cover dish with aluminum foil and refrigerate 8 hours or overnight.
8. Preheat oven to 350 degrees F (175 degrees C). Remove aluminum foil from casserole.
9. Bake in the preheated oven until cheese is melted and eggs are set in the middle, about 1 hour.
**FINAL PROJECT**

Upload and submit your project below.

![Upload files](image)

Supported file formats: PDF, JPG, GIF, PNG, XPS, ZIP, Word, Excel, Powerpoint, Publisher, Video

![Word Limit](image)

![File Limit](image)

**COLLABORATION**

Share all of these answers with your peers. Reply to two other classmates.
Unit Quiz: Numbers in Between

Books & Materials
- Math in Focus - Teacher Edition 4B

UNIT QUIZ

Please go online to view and submit this assessment.
Unit 3 – Show Me the Data!
Measurement - Part 1

Objectives
- Develop the concept of the size of each measurement unit.
- Convert metric units of length.

Books & Materials
- Math in Focus 4B
- Math in Focus - Teacher Edition
- centimeter ruler (Optional)
- Length in Metric Units Worksheet

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Read and complete Length in Metric Units Worksheet.
- Complete Practice Questions.

LEARN

WARM-UP
1. Which is longer, a crayon or a ruler?
2. Order these items from shortest to longest: ruler, crayon, drinking straw.

TEACHING NOTES
Warm-up Answer Key
1. ruler
2. crayon, drinking straw, ruler

INSTRUCTION

In prior lessons, you compared and ordered objects by length. Perhaps you know that a ruler is longer than your foot. However, if you want to buy new shoes you need more information than just comparing your foot to a ruler. You need a way to measure the length of your foot and describe the length to someone else. You need a standard system of measurement like the metric system.

Read and complete Learn on pp. 157–158 and on p. 159 of Math in Focus 4B. The table shows common measures of length that are used in the metric system and describes the relationships between them.

Multiply when you convert from a large unit to a smaller one, like meters to centimeters or kilometers to meters.

FUN FACT
The meter was originally defined as one ten-millionth of the distance from the equator to the North Pole.
Review the relationships between measures shown in the table on p. 157 with your student. There are 100 centimeters in 1 meter. Help your student recognize that if she is given a distance in meters, she should multiply by 100 to find the equivalent distance in centimeters. She can also divide by 100 to convert from centimeters to meters.

The same principle applies when converting between meters and kilometers. Multiply a measure in kilometers by 1,000 to convert to meters. Divide by 1,000 to convert from meters to kilometers.

Reinforce that centimeters are used for small lengths and kilometers are useful for long distances.

If your student needs extra practice with the concept, try the following activity.

Use a centimeter ruler to measure common items that are found in a home. Help your student develop a personal reference for centimeter, meter, and kilometer. For example, her arm span and a baseball bat are each about 1 meter in length.

Complete Guided Learning on p. 159 and 160 in Math in Focus 4B. Then complete Let's Practice on pp. 163–164, #1 -2. Then read and complete Length in Metric Units Worksheet.

Textbook Answer Key

Worksheet Answers:

1 1,200 cm 2 25 km 3 41,000 m 4 200 cm 5 300,000 cm

<table>
<thead>
<tr>
<th>Kilometers</th>
<th>Meters</th>
<th>Centimeters</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.75</td>
<td>3,750</td>
<td>375,000</td>
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<tr>
<td>6.5</td>
<td>6,500</td>
<td>650,000</td>
</tr>
<tr>
<td>2.5</td>
<td>2,500</td>
<td>250,000</td>
</tr>
<tr>
<td>4.29</td>
<td>4,290</td>
<td>429,000</td>
</tr>
</tbody>
</table>
WRAP-UP

Today you learned to use metric units of length and to convert between units.

- To convert from meters to centimeters, multiply by 100: 3 m = 300 cm
- To convert from centimeters to meters, divide by 100: 500 cm = 5 m
- To convert from kilometers to meters, multiply by 1,000: 2 km = 2,000 m
- To convert from meters to kilometers, divide by 1,000: 8,000 m = 8 km

✅ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Measurement - Part 2

Objectives
- Develop the concept of the size of each measurement unit.
- Convert customary units of length.

Books & Materials
- Math in Focus 4B
- Math in Focus - Teacher Edition
- inch ruler (Optional)
- Length in Customary Units Worksheet

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Read and complete Length in Customary Units Worksheet.
- Complete Practice Questions.

LEARN

WARM-UP

1. Which is longer, a foot or an inch?
2. Order these measures from greatest to least: 10 centimeters, 1 meter, 0.01 kilometer.

Warm-up Answer Key

1. a foot
2. 0.01 km, 1 m, 10 cm

TEACHING NOTES

INSTRUCTION

The primary system of measure used in the United States is the customary system. In the customary system, length is measured in inches, feet, yards, and miles. Read the Learn on p. 160, both on p. 161, and on p. 162, in Math in Focus 4B for a description of these measures and their basic conversions. To convert from yards to inches, first convert yards to feet. Then convert feet to inches.

FUN FACT

The United States, Liberia, and Myanmar are the only three countries that have not adopted the metric system as the official system of weights and measures.
LEARN
1. Which is longer, a foot or an inch?
2. Order these measures from greatest to least: 10 centimeters, 1 meter, 0.01 kilometer.

Warm-up Answer Key
1. a foot
2. 0.01 km, 1 m, 10 cm

The primary system of measure used in the United States is the customary system. In the customary system, length is measured in inches, feet, yards, and miles. Read the Learn on p. 160, both on p. 161, and on p. 162, in Math in Focus 4B for a description of these measures and their basic conversions. To convert from yards to inches, first convert yards to feet. Then convert feet to inches.

Objectives
- Develop the concept of the size of each measurement unit.
- Convert customary units of length.

Books & Materials
- Math in Focus 4B
- Math in Focus - Teacher Edition
- inch ruler (Optional)
- Length in Customary Units Worksheet

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Read and complete Length in Customary Units Worksheet.
- Complete Practice Questions.

PRACTICE
Complete Guided Learning pp. 162 and 163 on in Math in Focus 4B. Then complete Let's Practice p. 164–165, #3 - 10. Then download, print, read, and complete Length in Customary Units Worksheet.

TEACHING NOTES
To solve the second problem in the Warm-up, guide your student to convert each measure into centimeters.

Review the equivalent measures on p. 160 with your student. While the metric system is a base-ten system, the customary system is quite different. Even so, your student may find the customary system easier to understand because it is more familiar.

If your student needs extra practice, ask her to use a ruler and measure the width of a large table in inches. Point out that an inch is a small unit, so her measurement in inches will be greater than if she measured in feet or yards. Help your student recognize that this is why she will multiply to convert from a larger unit to a smaller one.

You can ask your student to measure the table with both a ruler and a yardstick. Additionally, the next time you and your student drive or walk a mile, discuss how many yards or feet it represents.

PRACTICE QUESTIONS

Textbook Answer Key

Worksheet Answers:
1. 96 inches
2. 27 feet
3. 5,280 feet
4. 7 feet
5. 18 yards
6. 144 inches
7. 8,800 yards

Monitor your student’s progress as she completes the Length in Customary Units Worksheet. First, she must convert from miles to yards and then convert from yards to feet.
WRAP-UP

Today you learned to use customary units of length and convert between these units.

- To convert from feet to inches, multiply by 12: 2 ft = 24 in.
- To convert from yards to feet, multiply by 3: 5 yd = 15 ft.
- To convert from miles to yards, multiply by 1,760: 2 mi = 3,520 yd.

PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Measurement - Part 3

Objectives
- Develop the concept of the size of each measurement unit.
- Convert metric units of mass.

Books & Materials
- Math in Focus 4B
- Math in Focus - Teacher Edition
- Metric Units of Mass Worksheet
- Math Notebook

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Read and complete Metric Units of Mass Worksheet.
- Complete Practice Questions.

LEARN

WARM-UP
1. How many meters are in 5 kilometers?
2. 7,500 meters = _______ km

TEACHING NOTES

Warm-up Answer Key
1. 5,000 m
2. 7.5

INSTRUCTION
Read Learn on p. 166 in Math in Focus 4B. The most common metric units of mass are the gram and kilogram. A gram is used for small measures of mass. For example, a paperclip has a mass of about 1 gram. Larger items have masses that are measured in kilograms. Your mass is measured in kilograms, for example, while the mass of a kitten would be expressed in grams.

The same metric prefixes are used for metric measures of length, mass, and capacity. For example, 1 kilometer is equivalent to 1,000 meters in the same way that 1 kilogram is equivalent to 1,000 grams.

TEACHING NOTES

Mass measures the amount of matter in an object. It does not measure how much space something occupies or the size of an object. For example, compare an empty box to a box filled
with toys. Both boxes occupy the same amount of space and are equal in size, but the box that is filled with toys has more matter, or mass, than the empty box. Metric units of mass include grams and kilograms.

If your student wants to learn more, discuss metric prefixes and help her recognize that the same prefixes are used across the metric system.

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>kilo-</td>
<td>1,000</td>
</tr>
<tr>
<td>hecto-</td>
<td>100</td>
</tr>
<tr>
<td>deka-</td>
<td>10</td>
</tr>
<tr>
<td>deci-</td>
<td>(\frac{1}{10})</td>
</tr>
<tr>
<td>centi-</td>
<td>(\frac{1}{100})</td>
</tr>
<tr>
<td>milli-</td>
<td>(\frac{1}{1,000})</td>
</tr>
</tbody>
</table>

---

**PRACTICE**

Complete Guided Learning on p.167 in *Math in Focus 4B*. Then download, print, read, and complete **Metric Units of Mass Worksheet**.

**TEACHING NOTES**

**Textbook Answer Key**

**Worksheet Answers:**

1 15,000 g 2 30 kg 3 9,820 4 4.25 5 Yes, 1,235 g = 1.235 kg 6 285 g = 0.285 kg

**INTERACTIVE ACTIVITY**

Follow these instructions for the activity below.

Click [here](#) to see the activity in a new window.

In this activity, you will be using a virtual triple beam balance to find mass. An object with an unknown mass is placed on the measurement tray. On the other side, a set of sliding weights, called riders, slide
on beams to balance the object. The riders have masses of 10 grams (top), 100 grams (middle), and 1 gram (bottom).

Start by setting all the riders to 0.

Place the light bulb on the tray. Move the 100-gram rider to the right, one notch at a time, until the pointer sinks. Now move the 100-gram rider back to the left one notch. (The pointer should lift up.) Move the 10-gram rider to the right, one notch at a time, until the pointer sinks below the zero mark. Now move the rider back to the left one notch. Slowly move the 1-gram rider until the pointer lines up with the zero mark. To get a magnified view of the 1-gram rider, place the cursor over that rider. (Each tick mark represents 0.1 g.) The mass of the light bulb is the sum of the values on each rider. Add the values and write their sum in your Math Notebook.

Now use the triple beam balance to find the masses of the other three objects. Perform your calculations and write the masses in your Math Notebook.

### Answers:

NOTE: Accept any answer that is close.

- paper clips: about 5.5 g
- cone: about 542 g
- light bulb: about 245.5 g
- cube: about 429 g

You may also wish to click on Lesson Info in the upper right of the screen to access some valuable teaching resources.

### WRAP-UP

Today you learned how to use and convert metric measures of mass.
 Shard PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Measurement - Part 4

**Objectives**
- Develop the concept of the size of each measurement unit.
- Convert customary units of weight.

**Books & Materials**
- Math in Focus 4B
- Math in Focus - Teacher Edition
- Customary Units of Weight Worksheet

**Assignments**
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Read and complete Customary Units of Weight Worksheet.
- Complete Quick Check.

**LEARN**

**WARM-UP**

1. Amber is 5 ft tall. How tall is that in inches?
2. 36 ft = _____ yd

**TEACHING NOTES**

**Warm-up Answer Key**

1. 60 in.
2. 12 yd

**INSTRUCTION**

Read the first Learn on p. 167 in Math in Focus 4B. The table shows the common units of weight in the customary system: ounce, pound, and ton. The ounce is used to measure the weight of small items. Have you ever mailed a letter? The weight of a letter is typically measured in ounces. A large package is measured in pounds. The trucks used to deliver letters and packages are typically weighed in tons.

Pay careful attention to the conversions in the table. Unlike the metric system, which is a base-ten system, measurements using the customary system are converted using specific factors. For example, there are 16 ounces in 1 pound, so you need to memorize this conversion factor.

**FUN FACT**

Ever wonder why the abbreviation for pound is lb? It originates from the Latin words *libra pondo*, which means “pound weight.”
1 lb = 16 oz

This is different than the metric system because the prefixes in the metric system (like centi- or mili-) tell you how to convert its units.

Read the second Learn on p.168 to practice converting larger units of weight to smaller units of weight. For example, the pound is a larger unit of weight than the ounce. To convert pounds to ounces, multiply the number of larger units (2 pounds) by the conversion factor for the smaller unit (16 ounces). So, 2 pounds is the same as 32 ounces.

Next read the following Learn on p. 169 on converting smaller units to larger ones.

**TEACHING NOTES**

Your student may notice that the previous lesson discusses units of mass, while today's lesson teaches units of weight. Mass is a measure of how much matter something has, while weight is a measure of how heavy something is. For example, an astronaut in space has the same amount of matter, or mass, on Earth, but has a different weight in space than on Earth. The weight of an object changes as gravitational forces change, while mass is constant. However, mass and weight are essentially the same on Earth. This is why you can convert between metric units of mass and customary units of weight. In this lesson, the main concept is to convert units of measure within the customary system.

Help your student recognize that she will multiply to convert from larger units of measure to smaller units and that division is used to convert from smaller units of measures to larger units. For example,

5 pounds = 80 ounces (5 \times 16)

64 ounces = 4 pounds (64 \div 16)

**PRACTICE**

Complete Guided Learning on 169–170 in Math in Focus 4B. Then download, print, read, and complete Customary Units of Weight Worksheet.

**TEACHING NOTES**

Textbook Answer Key

Worksheet Answers:

1 20,000 pounds 2 64 ounces 3 5,000 pounds 4 5.5 5 32,000 ounces 6 3 7 $1.76
Monitor your student’s work as she completes **Guided Learning** and the **Customary Units of Weight Worksheet**. Help her recognize that the process to convert weight or mass is similar to the process of converting length.

**WRAP-UP**
Today you learned about customary units of weight and how to change units using conversion factors.

- 16 ounces is the same as 1 pound.
- 2,000 pounds is the same as 1 ton.

Multiply to convert from a large unit of measure to a smaller unit. Divide to convert a smaller unit of measure to a large unit.

**QUICK CHECK**
Please go online to view and submit this assessment.

**MORE TO EXPLORE**
If you answered the Quick Check incorrectly, review the metric units for mass. Remember that every kilogram is equal to 1,000 grams.
Measurement - Part 5

Objectives
- Develop the concept of the size of each measurement unit.
- Convert between units of time.

Books & Materials
- Math in Focus 4B
- Math in Focus - Teacher Edition
- Convert Units of Time Worksheet

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Read and complete Convert Units of Time Worksheet.
- Complete Practice Questions.

WARM-UP

Use the picture of the clock to answer the question.

1. What time does the clock show?
2. How many minutes are there until the next hour?

Warm-up Answer Key
1. 10:38
2. 22 minutes

TEACHING NOTES
INSTRUCTION

Read Learn on pp.179–180 in Math in Focus 4B. The table shows equivalent units of time. The smallest common unit is the second. There are 60 seconds in 1 minute and 60 minutes in 1 hour.

TEACHING NOTES

In problem 2, instruct your student to substitute a familiar location for traveling to school. Depending on the location, she can determine if minutes or hours is appropriate.

Remind your student that she will multiply when converting from a larger unit to a smaller unit, and that she will divide when converting from a smaller unit to a larger unit.

- 2 hours = 120 minutes (2 × 60)
- 180 minutes = 3 hours (180 ÷ 60)

WATCH FOR THESE COMMON ERRORS

Your student may be confused by fractions of an hour and the number of minutes in an hour. Help her recognize that 2.5 minutes is equivalent to 2 minutes and 30 seconds.

PRACTICE

Complete Guided Learning p. 180 in Math in Focus 4B. Download, print, read, and complete Convert Units of Time Worksheet.

TEACHING NOTES

Textbook Answer Key

Worksheet Answers:

1 3 2 660 3 6 4 540 5 2 hours 6 60 minutes 7 300 minutes 8 420 seconds
On the worksheet, your student will practice converting measures and work with decimal measures of time. Help your student recognize that \( \frac{1}{2} \) minute is equivalent to 30 seconds. Monitor your student’s work to ensure she understands the difference between 2.5 minutes and 2 minutes, 50 seconds. (150 seconds versus 170 seconds)

Today you learned how to convert units of time and recognize the size of each unit of measure for time. For example:

- It takes about 1 second to sneeze.
- It takes about 1 minute to make your bed.
- It takes about 1 hour to prepare, bake, cool, and put frosting on a birthday cake.

There are 60 seconds in 1 minute, and there are 60 minutes in 1 hour.

Please go online to view and submit this assessment.
Measurement - Part 6

Objectives
- Develop the concept of the size of each measurement unit.
- Convert between units of time.

Books & Materials
- Math in Focus 4B
- Math in Focus - Teacher Edition
- Working with Units of Time Worksheet

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Read and Complete Working with Units of Time Worksheet.
- Complete Practice Questions.

---

LEARN

WARM-UP
1. $7 \times 60 = \underline{420}$
2. $240 \div 60 = \underline{4}$
3. $\frac{1}{2} \times 60 = \underline{30}$

TEACHING NOTES

Warm-up Answer Key
1. 420
2. 4
3. 30

INSTRUCTION

Revisit the conversion table on p.179 in Math in Focus 4B. To convert 3 minutes to an equivalent amount of time in seconds, multiply by 60.

$$3 \text{ minutes} \times 60 = 180 \text{ seconds}$$

There are 180 seconds in 3 minutes.

To convert 60 minutes to an equal number of hours, divide by 60.
60 minutes ÷ 60 = 1 hour

There are 60 minutes in 1 hour.

1. How many minutes equal \(\frac{1}{2}\) hour? (\(\frac{1}{2} \times 60\) minutes = 30 minutes)
2. How many minutes equal \(\frac{1}{4}\) hour? (\(\frac{1}{4} \times 60\) minutes = 15 minutes)

Now review Learn on p. 181 in Math in Focus 4B.

You can use this conversion as a model to convert units of time:

\[1.5 \text{ hours} = 1 \text{ hour} + 0.5 \text{ hour} = 60 \text{ minutes} + 30 \text{ minutes} = 90 \text{ minutes}\]

You can also use multiplication to convert units of time:

\[1.5 \times 60 = 90 \text{ minutes}\]

---

**PRACTICE**

Complete Let's Practice on p. 182 in Math in Focus 4B. Then download, print, read, and complete Working with Units of Time Worksheet.

---

**TEACHING NOTES**

Textbook Answer Key

Worksheet Answers:

1 180 2 30 3 210 4 135 5 105 minutes 6 45 minutes

Practice converting units of time with your student. Help her recognize the pattern in the Let's Practice tables. Point out that the same process is used to complete each table. Once your student completes the tables, ask her questions about converting from smaller units to larger ones. How many hours are equal to 360 minutes? (6 hours) How many minutes are equal to 480 seconds? (8 minutes) Continue to practice until she is comfortable converting units of time.

As your student completes the Working with Units of Time Worksheet, she will learn to convert decimal measures of time. Guide her to recognize that \(\frac{1}{2}\) hour is equivalent to 30 minutes, and that \(\frac{1}{4}\) hour is equivalent to 15 minutes. In the same way, 0.5 minute is the same as 30 seconds, and 0.25 minute is the same as 15 seconds.
WRAP-UP

Today you converted measures of time, including fractions of an hour or minute.

5.25 minutes $\rightarrow$ $5.25 \times 60 \rightarrow 315$ seconds

✅ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Measurement - Part 7

Objectives
- Solve real-life problems involving measurement concepts.
- Employ number lines to show measurement amounts.

Books & Materials
- Math in Focus 4B
- Math in Focus - Teacher Edition
- Real-life Measurement Worksheet

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Read and complete Real-life Measurement Worksheet.
- Complete Practice Questions.

LEARN

WARM-UP
Solve each problem.

1. How many minutes are in 1 1/4 hours?
2. How many seconds are in 3 minutes?

Warm-up Answers
1. 75 minutes
2. 180 seconds

TEACHING NOTES

INSTRUCTION
Read Learn on p. 183 in Math in Focus 4B. Use the line diagram to visualize and solve the word problems.

Read the Learn on p. 184. A timeline helps you visualize and solve word problems in the same way a line diagram does. However, a timeline is labeled in hours and minutes. You can use the timeline to determine what time Samantha ended her softball game because you are told the times the game started and how long it lasted, and that she finished all of her activities at 9:30 P.M.

Next, read the second Learn on p. 186. Practice using the timeline to determine how long it took Louisa to walk the dogs and what she earned by walking the dogs. First mark the time required to walk all 6 dogs. Then label the timeline in minutes per dog. Finally, to calculate how much money Louisa earned, label the number of hours she spent walking dogs to show how much she made each hour.
Read **Learn** at the bottom of p. 187 and **Learn** on p. 188. Notice how the line diagrams are used to answer these questions. Remember to use line diagrams and timelines as you complete the assignment for this lesson.

---

**TEACHING NOTES**

The main emphasis of this lesson is for your student to create and use line diagrams and timelines based on information given in multi-step word problems. These tools will help her visualize the information in the problems. Monitor how she creates and applies line diagrams and timelines to determine a solution for each part of the word problem. Ensure she understands how to create and label these tools (minutes, hours, dollars, miles, etc.) to solve many types of problems (addition, subtraction, multiplication, etc.).

---

**PRACTICE**

Complete **Guided Learning** on pp. 184, 185, 187, and 188 in **Math in Focus 4B**. Then download, print, read, and complete **Real-life Measurement Worksheet**.

---

**TEACHING NOTES**

**Textbook Answer Key**

**Worksheet Answers:**

Check your student’s line diagrams or timelines for accuracy.  
1 a $210 b $30 2 a $200 b 4 vouchers 3 a 3:00 P.M. b $20

If your student needs extra practice with this concept, guide your student through the solution of this problem from the worksheet:

Mark's basketball team is raising money for a local charity. Each player raises $20. For every $50 donation, the team will receive a voucher for new equipment from a local sponsor. There are 10 players on the team.

- How much money does Mark's team raise?
- How many vouchers will they receive?

Assist your student as she draws and labels a line diagram. Ask:

1. How will you label your diagram? (in increments of $20 to represent the amount each player raised)
2. How many increments of $20 should be included? (10 increments of $20)
3. Use this information to determine how much money Mark's team raises. ($200)
4. How will you use the line diagram to solve the second part of the problem? (Use it to indicate $50 increments on the number line and determine how many vouchers Mark's team will receive: 4 vouchers.)

WRAP-UP

Today you learned how to use number lines and timelines to solve real-life problems.

✔ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
A pail contains a certain amount of water. After Peter used it to fill a 1.5 liter can, a 750 milliliter bottle, and a 2 liter 250 milliliter tin, he realized that he had a liter of water left in the pail. How much water was in the pail at first? Write your answer in liters and milliliters. Show your work.
# Data Gathering and Graphing - Part 1

## Objectives
- Find numbers on a number line.
- Calculate parts and wholes.
- Read and use data in a tally chart to answer questions.
- Read and use data in a picture graph to answer questions.
- Read and use data in a bar graph to answer questions.

## Books & Materials
- Math in Focus 4A
- Math in Focus - Teacher Edition
- small objects for counting

## Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete Practice Questions.

## LEARN

### WARM-UP

Draw bar models to solve the problems.

1. A shop owner has a business on a beach.  
   He rents beach umbrellas and chairs by the day.  
   On Saturday, the owner rented 16 beach chairs and 20 beach umbrellas.  
   How many items did the owner rent?  
2. On Sunday, the owner rented 40 items.  
   He rented the same number of beach chairs as he did on Saturday.  
   How many beach umbrellas did he rent?

### TEACHING NOTES

**Warm-up Answer Key**

1. 36 items
2. 24 umbrellas

### INSTRUCTION

Today's lesson covers important ideas you need to understand before beginning the lessons in this chapter. Read pp. 139–142 in Math in Focus 4A. Review how to read a number line. You may want to use counting objects to help you review how to find parts and wholes.
As you discuss these pages with your student, take note of the skills that seem to be familiar and those that may need review. Do not provide detailed instruction at this point; simply preview the material to prepare for the Quick Check.

Have your student use simple objects, such as dried beans or uncooked macaroni, as counters to solve problems and check answers.

If your student struggles with addition while finding parts and wholes, draw tables like problems 2 and 3 on p. 143. Ask her to separate a set of counters into two groups, count each group, and then write the numbers in the table. Then have her write and solve an addition problem to find and record the total. Have your student use the counters to check the answer.

Modify the activity if your student struggles with subtraction. Ask her to count all of the objects in a set of counters and write the total in the table. Have her remove a handful of objects and write and solve the subtraction problem shown.

If your student wants to learn more about graphing, find a newspaper or a magazine that includes advertisements. Have her examine the advertisements and put them in categories, such as such as transportation, food, clothing, and health and beauty. Ask her to use the categories to create a tally chart, make a tally mark for each advertisement within each category, and then translate the tallies into a bar graph.

**SKILLS CHECK**

Complete the Quick Check on pp. 142–144 in Math in Focus 4A.

**Textbook Answer Key**

Review your student’s answers to the Quick Check, noting the problems that your student answered incorrectly. Access the appropriate Reteach activity that your student should complete for the remainder of this lesson.

**RETEACH**

After your student completes the Quick Check in the Recall Prior Knowledge lesson of this chapter, review the questions that were answered incorrectly. If, after the review, you feel that your student needs additional exposure to any of these skills, click on the title below that corresponds with the number of the incorrectly answered question(s) and have him complete the activity.
Quick Check
Question(s) Activity
4–7 Tally Charts and Bar Graphs

WRAP-UP

Today you reviewed ordering numbers on a number line, determining parts and wholes, reading and creating tally charts, and interpreting data in graphs. The following tally chart shows the colors of beach umbrellas. Each tally mark represents one umbrella.

<table>
<thead>
<tr>
<th>Color</th>
<th>Number of Beach Umbrellas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>🟠برامج 🟠برامج 🟠برامج</td>
</tr>
<tr>
<td>Blue</td>
<td>🟣برامج 🟣برامج 🟣برامج</td>
</tr>
<tr>
<td>Yellow</td>
<td>🟢برامج 🟢برامج 🟢برامج</td>
</tr>
<tr>
<td>Green</td>
<td>🟡برامج 🟡برامج 🟡برامج</td>
</tr>
<tr>
<td>Orange</td>
<td>🟤برامج 🟤برامج 🟤برامج</td>
</tr>
</tbody>
</table>

✔️ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Data Gathering and Graphing - Part 2

Objectives
- Gather, organize, and analyze data in data tables.
- Complete data tables to reflect data in tally charts and graphs.

Books & Materials
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition
- coins (Optional)
- small paper bag (Optional)

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete pages in Workbook 4A.
- Complete Practice Questions.

LEARN

WARM-UP

Draw tables that show the parts and whole to solve the problems.

1. Mia and her twin sister are planning their birthday party. Mia wrote 23 invitations. Her sister wrote 19 invitations. How many people are invited to their party?
2. The girls have 30 stamps. How many more stamps do they need to mail all of the invitations?

TEACHING NOTES

Warm-up Answer Key

1. 42 people
2. 12 stamps

INSTRUCTION

Read Learn on pp. 145–146 in Math in Focus 4A. What can Raul do to make the data in the chart easier to read? He could organize his friends by their birthday months.

Then read p.147 to see how Raul organizes his data. What does he do first? He makes a tally chart to show how many friends were born in each month. What does he do next? He counts the tallies and makes a table.

If your student struggles with how to draw a tally chart, practice with actual objects, such as coins.
Draw a tally chart with two columns and four rows. Write the words *penny, nickel, dime*, and *quarter* in the first column. Make the rows large enough to hold real coins.

Put a handful of coins in a paper bag. Have your student pull out one coin at a time and put it in the corresponding row in the chart. When all of the coins are in the chart, have her remove one coin at a time and make one tally mark in its place.

You may also want to have her use the bar graph on p. 149 in *Math in Focus 4A* as an example of how to build and label a bar graph. She can use the information in the tally chart to make a bar graph titled *Total Number of Coins*.

**WATCH FOR THESE COMMON ERRORS**
Some students have difficulty determining intervals on a bar graph. Reinforce the idea that it is the range of numbers that determines the intervals on a graph. If the range between least and greatest numbers is large, it is possible to use intervals of 5, 10, 25, 50, 100, or more to represent the information in a bar graph. Remind your student that the interval must remain constant.

**PRACTICE**
Complete Let’s Practice on pp. 151–152 in *Math in Focus 4A*. Then complete pp. 77–80 in *Workbook 4A*.

**WRAP-UP**
Today you reviewed how to represent information in tally charts, tables, and bar graphs. This bar graph shows the destinations of passengers on earlybird flights from an airport.
The most passengers boarded an early flight to Chicago.

The fewest passengers boarded an early flight to San Francisco.

How many more passengers flew to Boston than to Dallas?

\[ 220 - 195 = 25 \text{ passengers} \]

PRACTICE QUESTIONS

Please go online to view and submit this assessment.
LEARN

WARM-UP
Use the table that shows the parts and whole to solve each problem.

<table>
<thead>
<tr>
<th>Snacks Served on a Flight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salty</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>317</td>
</tr>
</tbody>
</table>

1. How many snacks were served in all?
2. How many sweet snacks were served?

TEACHING NOTES

Warm-up Answer Key

1. 503 snacks
2. 186 sweet snacks

INSTRUCTION

Read Learn on p. 153 in Math in Focus 4A. Help Mrs. Sanchez schedule a flight. Begin by reading the names of the columns in the data table. The first column is labeled Destination. Move down the column until you find Orange County in the third row. Put your finger on the words. Then move to the right. Now you are in the column labeled Departure 9:00 A.M. This is the only column with morning flights. The flight in the intersection where Orange County meets the morning flights is Flight 74.
Complete **Guided Learning** on pp. 154–157. Read the parts of each data table before answering the questions.

**FUN FACT**
A data miner is a person or a piece of software that analyzes data to find new patterns.

**TEACHING NOTES**
Encourage your student to read the parts of each data table before answering the questions.

For more practice, ask your student to find examples of data tables in a printed or online version of a local newspaper. Have your student check the sports pages, movie schedules, and weather forecasts, all sections that often include tables. Ask your student to explain how the data in each table is organized. Challenge her to suggest questions that could be answered using data from the tables.

If your student enjoys collecting and organizing data, then allow her to collect data to assemble into data tables. The data may come from indoors, such as classifying and counting art supplies, or outdoors, such as classifying and counting different kinds of plants and animals found in a garden.

**PRACTICE**
Complete **Let’s Practice** on p. 158 in *Math in Focus 4A*. Then complete pp. 81–84 in *Workbook 4A*.

**TEACHING NOTES**
- Textbook Answer Key
- Workbook Answer Key

**WRAP-UP**
Today you reviewed how to read a data table. This data table shows temperatures at different times of the day in different locations around the house.
The highest temperature was recorded in Location 3 at 3:00 P.M.

What is the difference between the highest and lowest temperatures recorded in all locations?

95° – 74° = 21°

### SUPPLEMENTAL
- BrainPOP: Problem Solving Using Tables

### QUICK CHECK
Please go online to view and submit this assessment.

### MORE TO EXPLORE
If you answered the Quick Check incorrectly, review how to read a bar graph. Try writing each bar’s value.
**Data Gathering and Graphing - Part 4**

**Objectives**
- Create, read, and analyze line graphs.

**Books & Materials**
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition
- grid paper (Optional)
- clock (Optional)

**Assignments**
- Complete Warm-Up.
- Read and complete pages in *Math in Focus 4A*.
- Complete pages in *Workbook 4A*.
- Complete Practice Questions.

---

**LEARN**

**WARM-UP**

Use the data table to solve each problem.

**Favorite Band Instruments**

<table>
<thead>
<tr>
<th>Kinds of Instruments</th>
<th>Girls</th>
<th>Boys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind</td>
<td>18</td>
<td>19</td>
</tr>
<tr>
<td>Horns</td>
<td>16</td>
<td>19</td>
</tr>
<tr>
<td>Drums</td>
<td>22</td>
<td>20</td>
</tr>
</tbody>
</table>

1. How many more girls than boys like drums the most?

2. How many children chose a favorite band instrument?

---

**TEACHING NOTES**

**Warm-up Answer Key**

1. 2 girls
2. 114 children

---

**INSTRUCTION**

Read Learn on pp. 159–160 in *Math in Focus 4A*. Keep in mind that a line graph shows how data change over time. To read the line graph on p. 159, use your finger to find 11:00 A.M. on the horizontal axis. Then move your finger upward until you meet the point on the line graph. When you reach the point, move left to the vertical axis. There you will find the temperature at 11:00 A.M. to be 88°F.
Complete **Guided Learning** on pp. 161–163 and the **Hands-On Activity** on p. 164. Examine each line graph carefully before answering questions. For this activity, pick a room in your house. Copy the table onto a piece of paper.

**Textbook Answer Key**

With each new line graph, encourage your student to ask the question: What kind of data does this line graph show? Knowing the answer will make it easier to answer the questions that follow the graph.

For more practice, ask your student to draw a table with one column for each day of the week. Then have her think about one activity she does every day, such as watch television, listen to music, practice an instrument, play sports, or read. Have your student record in minutes how much time she usually spends on the activity each day of the week. Ask her to show the data in the table in a line graph. Encourage your student to explain any patterns that appear in the graph.

Another practice option is to have your student use a local or online newspaper to collect daily weather data for one week. Data may include precipitation amounts, wind speed, or temperature. Have your student make line graphs to show the data and explain any patterns or trends in the data.

**WATCH FOR THESE COMMON ERRORS**

Some students may not understand that line graphs show how data change over time. Reinforce this understanding as your student explains examples of line graphs.

**PRACTICE**

Complete pp. 85–87 in **Workbook 4A**.
Today you reviewed how to create and read a line graph. This line graph shows a kitten's growth over time.

At 10 weeks, the kitten had a mass of 750 grams. How much more was the kitten's mass at 22 weeks than at 10 weeks?

2,000 grams – 750 grams = 1,250 grams

Please go online to view and submit this assessment.
Data Gathering and Graphing - Part 5

Objectives
- Create, read, and analyze line graphs.
- Choose a suitable graph to represent data.

Books & Materials
- Math in Focus 4A
- Workbook 4A
- Math in Focus - Teacher Edition
- grid paper

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete pages in Workbook 4A.
- Complete Practice Questions.

LEARN

WARM-UP
Use the picture graph to solve each problem.

Number of Games Won

<table>
<thead>
<tr>
<th>Team A</th>
<th>Team B</th>
<th>Team C</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Basketballs" /></td>
<td><img src="image2.png" alt="Basketballs" /></td>
<td><img src="image3.png" alt="Basketballs" /></td>
</tr>
</tbody>
</table>

Key: 🏀 = 2 games

1. What is the greatest number of games a team has won?
2. How many more games did Team A win than Team B?

TEACHING NOTES

Warm-up Answer Key
1. 10 games
2. 6 games
INSTRUCTION

Read Learn on pp. 165–167 in Math in Focus 4A. The purpose of graphs is to show data. You must think about the kind of data you have to determine which kind of graph will show it best.

Complete Guided Learning on pp. 167–168. Think about the kinds of data you see in each table before completing the statements.

TEACHING NOTES

Encourage your student to ask these questions while analyzing the data in each table:

- What is the purpose of these data?
- What kind of graph shows these data best?

Knowing the answers will make it easier to solve the problems.

Use the examples in Math in Focus 4A to determine which kind or kinds of graphs your student has difficulty understanding. Depending on your student's needs, help your student find other images of those specific kinds of graphs. Allow your student to select graphs. Then ask her to describe the data presented in each graph and explain what makes that graph a good way to show the data.

PRACTICE

Complete Let's Practice on pp. 168–169 in Math in Focus 4A. Then complete pp. 88–90 in Workbook 4A.

TEACHING NOTES

Textbook Answer Key
Workbook Answer Key
INTERACTIVE ACTIVITY

Follow these instructions for the activity shown below.

Click here to see the activity in a new window.

In this activity you will operate an elevator in an old apartment building. A line graph will show where your elevator goes over time. 1. Click the up button (^) to start the elevator and then click Pause. Notice how the graph goes up toward the right as the elevator is moving. Click Continue and then click the stop button (·). Notice how the graph moves in a straight line. After a few seconds, click down (v). You can see how the graph goes down, along with the elevator.

The dots on the graph show the floor the elevator is on at any given second. Study this graph carefully.

![Graph Image]

Notice that it takes 5 seconds for the elevator to go from one floor to the next. The dot at point A shows that the elevator was on the third floor after 10 seconds. Tell your Learning Guide what dots B, C, and D mean.

Use a piece of grid paper for the next activity. First click Reset. Then click on Show people and make sure the time is set for Morning.

Every morning, the residents of the apartment building have the same schedule. For example, Mr. McCready on the third floor always goes to the first floor to get the morning paper. On your grid paper, sketch what you think the graph will look like as Mr. McCready travels in the elevator.

Now use the elevator buttons to pick up Mr. McCready (the orange man) on the third floor and drop him off on the first floor. Be sure to click the stop button to open the elevator doors. Compare the line graph on the screen with your sketch on the grid paper. Do they look the same? Why or why not? Discuss this with your Learning Guide.

Mrs. Spinelli on the fifth floor (pink) needs to go the basement to do her laundry. First sketch a graph to predict what her trip in the elevator will look like. Then use the buttons to pick her up and take her to the basement. Compare your graph with the one shown on the screen.

If you would like, you can make up a scenario for the green person on the second floor. Share the scenario and your graph with your Learning Guide.

Answers:
- B fourth floor after 20 seconds
- C fifth floor after 30 seconds
- D sixth floor after 35 seconds

Mr. McCready's trip:

Mrs. Spinelli's trip:
**TEACHING NOTES**

**Answers:**

B fourth floor after 20 seconds  C fifth floor after 30 seconds  D sixth floor after 35 seconds

**Mr. McCready’s trip:**

The horizontal part of your student’s graphs may differ from the graphs shown, depending on how long the elevator door was open. However, the ascents and descents should be the same.

If you would like, you can click on **Lesson Info** and download the **Student Exploration Sheet** and **Exploration Sheet Answer Key** to have your student try some other activities with the Gizmo.
WRAP-UP

Today you reviewed the purposes of different kinds of graphs. Read the data in the table.

<table>
<thead>
<tr>
<th>Month</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>302</td>
<td>458</td>
<td>564</td>
<td>198</td>
</tr>
</tbody>
</table>

City planners want to know how the use of the city pool changes over the summer.

What kind of graph would display the data best? (a line graph because it shows change over time)

✔ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Data Gathering and Graphing - Part 6

The bar graph shows Ms. Lisa's yearly income from 2000 to 2008.

Part A:
Her yearly income in 1999 was half her yearly income in 2000.
What was her yearly income in 1999?

$\underline{\phantom{000}}$

Part B:
Use the data in the bar graph to complete the table.  (*Remember to use a comma when entering your answers.*)

<table>
<thead>
<tr>
<th>Year</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yearly Income ($)</td>
<td>10,000</td>
<td>6,000</td>
<td>18,000</td>
<td>\underline{\phantom{000}}</td>
<td>\underline{\phantom{000}}</td>
<td>\underline{\phantom{000}}</td>
<td>\underline{\phantom{000}}</td>
<td>\underline{\phantom{000}}</td>
<td>\underline{\phantom{000}}</td>
</tr>
</tbody>
</table>
USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Use the information in the bar graph to find Ms. Lisa's yearly income in 1999?
- Use the data in the bar graph to complete the table shown?
Plots - Part 1

**Objectives**
- Use a fractional scale on a line plot.

**Books & Materials**
- Math in Focus 4A
- Math in Focus - Teacher Edition
- grid paper (Optional)
- Creating Line Plots with Fractions Worksheet

**Assignments**
- Complete Warm-Up.
- Read and complete pages in *Math in Focus 4A*.
- Complete Creating Line Plots with Fractions Worksheet.
- Complete Practice Questions.

**LEARN**

**WARM-UP**
Solve.

1. $1 - 45 = ______$
2. $34 + 58 = ______$
3. $4 - 37 = ______$

**TEACHING NOTES**

Warm-up Answer Key

1. 15
2. 138
3. 347

**INSTRUCTION**
Read Learn on p. 291 in *Math in Focus 4A*. How can you organize the information to make it easier to interpret? You can make a line plot to show the fractional lengths of the beetles on a number line. One $X$ represents 1 beetle. Since the lengths range from 18 inch to 1 inch, place eighths on the number line from 18 to 1. How many $X$s are there for 58? Since there are 4 beetles that are 58 inch long, there are 4 $X$s. Look at 68 on the line plot. Why are there no $X$s above 68? Since there are 0 beetles that are 68 inch long, there are no $X$s above 68.
You can use the line plot to answer questions about the data. For example, how many beetles are there in all? To answer this question, you can count the total number of Xs. There are 18 Xs, so a total of 18 beetles were measured.

### TEACHING NOTES

If your student wants to learn more about the concept, have her collect her own fractional data and make a line plot to display it. For example, she could measure the length of the fingers of every person in the household, or she could measure the height of plants in the garden. She could measure in feet or inches, depending on how small the items are. Allow your student to choose her own topic if she wishes.

### PRACTICE

Complete Guided Learning on p. 293 in Math in Focus 4A. Then download, print, and complete the Creating Line Plots with Fractions Worksheet.

### TEACHING NOTES

Textbook Answer Key

Worksheet Answers:

2 Ann needs to cut 18 pieces in all. 3 They will total 1 inch in length. 4 The difference is 5/8 inch.

If your student has difficulty making a line plot, use grid paper to help her draw the number line and Xs in an organized and neat way. Remind your student that each X stands for one plant. If there are 4 plants that are 12 foot high, there should be 4 Xs above the 12 mark. Point out that if the height of a plant is 0, it did not grow.
WRAP-UP

Today you learned how to make a line plot to display data.

PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Plots - Part 2

Objectives
- Add and subtract fractions from line plot data.

Books & Materials
- Math in Focus 4A
- Math in Focus - Teacher Edition
- Analyzing Line Plots with Fractions Worksheet

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4A.
- Complete Analyzing Line Plots with Fractions Worksheet.
- Complete Practice Questions.

LEARN

WARM-UP
Solve.

1. $15 + 45 + 310 = \underline{451}$
2. $6 - 59 = \underline{-53}$
3. $710 - 35 = \underline{675}$

TEACHING NOTES
Warm-up Answer Key
1. 1310
2. 549
3. 110

INSTRUCTION
Look at the line plot on page 292 in Math in Focus 4A. The line plot shows data about the lengths of beetles.

Look at problem 1 on page 293. How can you use the line plot to find the difference in length between the shortest and longest beetles? The shortest beetle is 18 inch long. The longest beetle is 1 inch long. To find the difference, subtract 1 – 18. The difference is 78 inch.

Look at problem 2. How can you find the sum of the lengths of the beetles that are 48 inch long? There are 2 beetles that are 48 inch long, so you can add 48 and 48 to find the total length. Since $48 + 48 = 88$ and $88 + 1 = 1$, the length of the two beetles together is 1 inch.
If your student has difficulty answering questions using a line plot, suggest that she copy the line plot on a sheet of paper. Then have her circle each fraction and write the number of Xs for each value below the number line. Your student can also count the total number of Xs to find the total number of items in the data set. If your student has difficulty adding and subtracting fractions, have her use bar models to show each problem.

If your student wants to learn more about the concept, have her use the line plot she made in the previous lesson, or make a new line plot using the fractional data she gathers. Then challenge her to write a few questions about her data for you to answer.

**WATCH FOR THESE COMMON ERRORS**

Some students may think that values of 0 should not be displayed on a line plot. Remind your student that if a value appears in the table, it should be reflected on the line plot. It is just as important to know, for example, that no beetles were a particular height as it is to know that 2 beetles were another height.

Some students may not correctly count the number of Xs above a fractional value. Encourage your student to put a dot next to each X as she counts it to be sure that she counts all the Xs exactly once.

**PRACTICE**

Complete Let's Practice problems 2–5 on p. 294 in Math in Focus 4A. Then download, print, and complete the Analyzing Line Plots with Fractions Worksheet.

**TEACHING NOTES**

Worksheet Answers:

1

2 Kathy will draw 37 line segments in all. 3 They will total 5 feet in length. 4 The difference is 9/12 foot.
WRAP-UP

Today you learned how to solve problems by adding and subtracting fractions from data on a line plot. The line plot shows how long students took to finish their math assignment.

The line plot shows that the difference between the shortest and longest time is 56 hours.

The line plot shows that 5 students took 46 hours to finish their math assignment.

✓ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Plots - Part 3

**Books & Materials**
- Math in Focus - Teacher Edition

**Assignments**
- Complete Interactive Activity.
- Complete Rate Your Enthusiasm.

**LEARN**

**INTERACTIVE ACTIVITY**

Play [Junk Plot 3](#) to practice working with line plots.

**RATE YOUR ENTHUSIASM**

Please go online to view and submit this assessment.
THE TEACHER GAVE EACH STUDENT A PACKAGE OF CRACKERS. THE TABLE SHOWS THE AMOUNT EATEN.

<table>
<thead>
<tr>
<th>Fraction of a Package</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/6</td>
<td>1</td>
</tr>
<tr>
<td>2/6</td>
<td>3</td>
</tr>
<tr>
<td>3/6</td>
<td>3</td>
</tr>
<tr>
<td>4/6</td>
<td>4</td>
</tr>
<tr>
<td>5/6</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Part A: Make a line plot to show the data.
Part B:

How many packages of crackers were eaten?

\[
\text{packages}
\]

USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Use the table shown to make a line plot of the data?
- Answer how many packages of crackers were eaten?
- Show your work?
Unit Quiz: Show Me the Data!

Books & Materials
- Math in Focus - Teacher Edition

☑️ UNIT QUIZ

Please go online to view and submit this assessment.
Unit 4 – Geometry Basics
What is your dream neighborhood? Would it have waterslides instead of sidewalks? Trees made of cotton candy? Lazy rivers to float in instead of roads? Brainstorm some ideas for the coolest neighborhood you can think of! Draw a picture.

PROJECT DETAILS

In this project you will plan your dream neighborhood.

To complete this project you will need to:

- Sketch the streets of a local map
- Identify and categorize each angle between the streets
- Create a map of the neighborhood that you design
- Identify parallel and perpendicular streets
- Design landmarks in the shapes various shapes
- Draw lines of symmetry for the landmarks that are symmetrical

You will work on the project throughout the unit. Remember to use a straightedge to draw lines. Make sure that your work is neat. You want it to be an impressive neighborhood!

PROJECT RUBRIC

The Project Rubric will help you understand how your project will be scored. Your goals should be to earn all points for each part.
COLLABORATION

What features would be in an ideal neighborhood? Share your ideas with your classmates. Then respond to two of your peers.

RATE YOUR EXCITEMENT

Please go online to view and submit this assessment.
Angles - Part 1

Objectives
- Describe points, lines, and line segments.
- Describe angles.
- Draw right angles.
- Compare angle sizes to right angles.

Books & Materials
- Math in Focus 4B
- Math in Focus - Teacher Edition

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete Practice Questions.

LEARN

WARM-UP
Identify each shape.

1.  

2.  

3.  

INSTRUCTION

Today’s lesson covers important ideas you need to understand before beginning the lessons in this chapter. Read pp. 80–82 in Math in Focus 4B.

Look at the tower on p. 80. What do you notice? The Leaning Tower of Pisa is a famous bell tower in Italy that is tilted.

A right angle forms a square corner. Some angles measure less than a right angle and some angles measure more than a right angle. Now look back at the tower on p. 80. Trace the right side of the tower and the ground with your finger. The side of a tower and the ground should make a right angle, but because the tower is leaning, the angle measures less than a right angle. What about the angle of the left side? When you trace the left side of the tower and the ground you will notice the angle measures more than a right angle.

FUN FACT

In 1990, the Leaning Tower of Pisa leaned at an angle of a little less than 5 degrees. After restoration work in 2001, the tower tilts at an angle of about 4 degrees.
Today's lesson covers important ideas you need to understand before beginning the lessons in this chapter. Read pp. 80–82 in Math in Focus 4B.

Look at the tower on p. 80. What do you notice? The Leaning Tower of Pisa is a famous bell tower in Italy that is tilted. A right angle forms a square corner. Some angles measure less than a right angle and some angles measure more than a right angle. Now look back at the tower on p. 80. Trace the right side of the tower and the ground with your finger. The side of a tower and the ground should make a right angle, but because the tower is leaning, the angle measures less than a right angle. What about the angle of the left side? When you trace the left side of the tower and the ground you will notice the angle measures more than a right angle.

As you discuss these pages with your student, take note of the skills that are familiar and those that may need review. Do not provide detailed instruction at this point. Simply preview the materials to prepare for the Quick Check.

Complete the Quick Check on pp. 83–84 in Math in Focus 4B.

Review your student’s answers to the Quick Check, noting the problems that your student answered incorrectly.

Today you reviewed how to identify points, line segments, lines, and angles. You also distinguished angles that are right angles from those that measure less than right angles and greater than right angles.

You will use these skills and learn more about geometric figures in this chapter.

Please go online to view and submit this assessment.
Angles - Part 2

Objectives
- Describe angles.
- Compare angle sizes to right angles.

Books & Materials
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition
- 2 paper strips
- fastener
- 2 sheets of drawing paper
- colored pencils or markers
- highlighter (Optional)

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete pages in Workbook 4B.
- Complete Practice Questions.

LEARN

WARM-UP
Write right angle, less than a right angle, or greater than a right angle to describe each angle. Use the corner of a sheet of paper to help you.

1. 

2. 

3. 

Warm-up Answer Key
1. greater than a right angle
2. right angle
3. less than a right angle
Warm-up Answer Key

1. greater than a right angle
2. right angle
3. less than a right angle

INSTRUCTION

Read Learn on p. 85 in Math in Focus 4B. A ray is part of a line that has an endpoint and continues without end in one direction. Rays are named with two letters. When naming rays, the letter of the endpoint is always written first. This is different than naming segments and lines.

When you name segments and lines, the letters can be written in either order.

An angle is made with two rays. The point at which the two rays meet is called the vertex of the angle. When naming an angle with three letters, the first letter is a point on one ray, the second letter is always the vertex, and the third letter is the point on the other ray.

Complete Guided Learning on p. 86.

Then complete Hands-On Activity on p. 87. Use the fastener to attach the two paper strips. The fastener represents the vertex of the angle. Glue one paper strip, but not the other. The second paper strip should be free to move.

Complete Guided Learning problems 12–13 on p. 89.

TEACHING NOTES

If your student has difficulty naming geometric figures, suggest he draw each figure on paper and use a highlighter to indicate the letters that name the points in the figures.
If your student has difficulty naming angles that are part of shapes, try this activity. Give your student the shape shown. Ask him to trace the rays of each angle in a different color. Then have him circle the vertex of each angle and write the name of the angle with the same color. Remind your student that the circled letter (the vertex of the angle) is always the middle letter in the name of the angle.

**PRACTICE**

Complete Let's Practice problem 1 on p. 93 in *Math in Focus 4B*. Then complete pp. 45–46 in *Workbook 4B*.

**TEACHING NOTES**

- Textbook Answer Key
- Workbook Answer Key

**WRAP-UP**

Today you learned how to name rays, lines, line segments, and angles. You also associated angle measures with fractions.
PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Angles - Part 3

Objectives
- Estimate and determine an angle's measure with a protractor.
- Compare angle sizes to right angles.

Books & Materials
- Math in Focus 4B
- Workbook 4B
- Math Journal
- Math in Focus - Teacher Edition
- protractor
- index card

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete pages in Workbook 4B.
- Complete Quick Check.

LEARN

WARM-UP
Name the figures.

1. RS
2. ∠CDE
3. KL

TEACHING NOTES

Warm-up Answer Key

1. RS
2. ∠CDE
3. KL
INSTRUCTION

Read Learn on p. 88 in Math in Focus 4B. You can use a protractor to measure an angle. Be sure to align one ray of the angle with the 0-degree mark and the vertex of the angle with the center of the protractor.

Complete Guided Learning problems 14–17 on pp. 89–90. An acute angle is an angle whose measure is less than 90°. So, an acute angle is smaller than a right angle. An obtuse angle is an angle whose measure is greater than 90°. So, an obtuse angle is larger than a right angle.

Complete Hands-On Activity on p. 91.

Complete Math Journal on p. 92. Measure each angle to help you order the steps.

TEACHING NOTES

As your student works through the problems, encourage him to trace the angles on a separate sheet of paper and use a protractor to measure the angles. Remember to check your student’s work to determine if extra practice is needed.

If your student needs extra practice, help her use an index card to determine if an angle is acute or obtuse. Point out that the corner of an index card is a right angle. Remind her that an acute angle is smaller and an obtuse angle is bigger than a right angle. Show your student how to align the corner of an index card with the vertex and one ray of an angle. If the angle is acute, the index card will cover the other ray of the angle. If the angle is obtuse, the index card will not cover the other ray. Allow her to use the index card to decide if an angle is right, acute, or obtuse.

Additionally, your student can look for angles in objects around your home. Ask him to first estimate and then measure the angles he discovers. Then have your student identify each angle as right, acute, or obtuse. He can keep track of his work in a table.

WATCH FOR THESE COMMON ERRORS

Your student may have difficulty determining which scale to use when measuring angles. Have her use her finger to point to the 0-degree mark that aligns with one ray of the angle. Then have her follow that scale, counting 10°, 20°, 30°, and so on, as she moves around the protractor to the other ray of the angle.
Today you learned how to estimate and measure angles with a protractor. You now know how to identify angles as right, acute, or obtuse.

∠LKJ is bigger than a right angle. The measure of ∠LKJ is 110°. It is an obtuse angle because 110° > 90°.

Please go online to view and submit this assessment.

If you answered incorrectly, remember that right angles form square corners. Ask your Learning Guide to demonstrate what an obtuse angle should look like.

If you answered incorrectly, remember that right angles form square corners. Ask your Learning Guide to demonstrate what an obtuse angle should look like.

Additionally, your student can look for angles in objects around your home. Ask him to first estimate and then measure the angles he discovers. Then have your student identify each angle as right, acute, or obtuse. He can keep track of his work in a table.

WATCH FOR THESE COMMON ERRORS

Your student may have difficulty determining which scale to use when measuring angles. Have her use her finger to point to the 0-degree mark that aligns with one ray of the angle. Then have her follow that scale, counting 10°, 20°, 30°, and so on, as she moves around the protractor to the other ray of the angle.
Angles - Part 4

Objectives
- Draw angles of given measures with a protractor.
- Identify acute and obtuse angles.

Books & Materials
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition
- protractor

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete pages in Workbook 4B.
- Complete Practice Questions.

LEARN

WARM-UP

Write acute, obtuse, or right to identify each angle.

1.

2.

3.
**INSTRUCTION**

Read **Learn** on pp. 94–95 in *Math in Focus 4B*. In the previous lesson you learned how to use a protractor to measure angles. Now you will learn how to use the protractor to draw angles with a certain measure.

Follow the steps to draw angles. Notice in Step 3 that you can use the inner or outer scale to draw an angle. As you draw each angle, be sure you start at the 0° mark and follow that scale to the measure you want. When you draw a point at the correct measure, you can use the straight side of the protractor as a straightedge to draw the second ray. After you draw the angle, compare it to a right angle to estimate its measure and check your work.

Complete **Hands-On Activity** on p. 96.

Read **Learn** on p. 96. What is different about the 45° angles in a and b? The positions of the second rays are different. If you place the protractor upside down, with the straight edge on top and the curved edge on the bottom, you can draw an angle like the one in b. Complete **Guided Learning** on p. 97.

---

**TEACHING NOTES**

As your student works through each problem, be sure he traces the lines on a separate sheet of paper and uses a protractor to draw each angle. Point out that the outer scale is used for angles opening to the left of the vertex and the inner scale is used for angles opening to the right of the vertex.

During the **Hands on Activity** encourage your student to draw many different angles for each problem. If your student is having difficulty, it may be helpful to have him put a point at the two given measurements to be sure his angle is between them.
If your student needs extra practice drawing angles that are acute, obtuse, or right, have him draw $\overline{XY}$ on a sheet of paper and label a point $Z$ in the middle of the line as shown. Have him label point $Y$ as 0° and point $X$ as 180°. Then place the protractor with its center on $Z$ and draw a ray through 90°. Have him shade and label the area to the right of the line acute, to the left of the line obtuse, and have him write right above the 90°.

Encourage your student to refer to this drawing as he works through the lesson. Remind him that the position of the acute and obtuse angles in this drawing are determined by where he places 0° and 180°.

**PRACTICE**

Complete Let's Practice on p. 97 in Math in Focus 4B. Then complete pp. 51–54 in Workbook 4B.

**TEACHING NOTES**

- Textbook Answer Key
- Workbook Answer Key

**WRAP-UP**

Today you learned how to use a protractor to draw angles of given measures.

- Draw a line and mark a point on the line for the vertex.
- Place the protractor on the line with its center on the vertex.
- Mark a point at the desired measure.
- Draw a ray from the vertex to the point.

**PRACTICE QUESTIONS**

Please go online to view and submit this assessment.
LEARN

Angles - Part 5

Objectives
- Connect quarter turns to right angles.

Books & Materials
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition
- pair of angle strips
- paper plate (Optional)
- analog clock (Optional)
- protractor

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete pages in Workbook 4B.
- Complete Practice Questions.

WARM-UP

Use a protractor to measure each angle to the nearest 5°.

1.

2.

3.
INSTRUCTION

Read Learn on p. 98 in Math in Focus 4B. An angle is a fraction of a turn around a point. You can think of the point as the vertex of an angle. Each quarter turn around the point is a 90° turn. If two rays of an angle lie one on top of the other, the angle is 0°. A full turn around the vertex is 360°.

Complete Hands-On Activity on p. 99. For Step 3, form and draw an acute angle, an obtuse angle, and a straight angle. Compare each angle to turns using greater than, less than, or the same as. For example, an obtuse angle is greater than a 14-turn and less than a 12-turn. Complete Guided Learning on p. 100.

TEACHING NOTES

As your student works through the problems, have him use the angle strips from the Hands-On Activity to ensure he can visualize how turns and right angles are related.

If your student needs extra practice with this concept, try the following activity:

Have your student fasten his angle strips to a big paper plate and draw lines and labels as shown. He should use the paper plate as he works through the problems in the lesson. If your student wants to learn more about the concept, have him relate times on an analog clock in terms of the angles the hands make and how the angles relate to fractions of a turn. Determine the angle formed between the two hands. For example, 3:00 is a 14-turn; 10:10 is greater than 34-turn; and 1:55 is less than 14-turn.

PRACTICE

Complete Let’s Practice on p. 104 in Math in Focus 4B. Then complete pp. 57–59 in Workbook 4B.
If your student wants to learn more about the concept, have him relate times on an analog clock in terms of the angles the hands make and how the angles relate to fractions of a turn. Determine the angle formed between the two hands. For example, 3:00 is a $\frac{1}{4}$-turn; 10:10 is greater than $\frac{3}{4}$-turn; and 1:55 is less than $\frac{1}{4}$-turn.

Today you learned how to relate angles to fractions of a turn.

Please go online to view and submit this assessment.
Angles - Part 6

Objectives
- Recognize that 1/360 of a circle is a one degree angle.

Books & Materials
- Math in Focus 4B
- Math in Focus - Teacher Edition
- protractor
- drawing paper
- Connecting Angles and Circles Worksheet

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete Connecting Angles and Circles Worksheet.
- Complete Practice Questions.

LEARN

WARM-UP

Identify the fraction of turn each angle represents. Write 14 turn, 12 turn, 34 turn, or 1 whole turn.

1.

2.

3.
INSTRUCTION

Read Learn on pp. 101 in Math in Focus 4B. Look at the circle on p. 100. The circle is divided into 360 equal parts. There is no mark for 1, but there is a mark for 10. There are 9 small ticks between 0 and 10, so each tick is 1 part.

TEACHING NOTES

Encourage your student to use the straightedge of the protractor to draw his rays.

If your student needs extra practice relating angles to a circle, have him place the protractor on a sheet of drawing paper and trace it. Have him label 0°, 90°, and 180° as shown. Then have him flip the protractor so that the curved side is on the bottom and the straight side aligns with the straight line in his protractor drawing. Have your student trace the upside down protractor and label 270° at 90°.

Now have him compare the drawing with the circle on p. 101. Point out that the circle is divided into 360 parts, and that the circle created by the protractor is divided into 360 degrees. Since both circles are divided equally into 360 parts, 1 part is the same as 1° and 1° is 1/360 of the whole circle. If 1° is 1360 of the circle, then 2° is 2360 = 1180 of the circle, 3° is 3360 = 1120 of the circle, and so on until you reach 360° which is 360360 = 1 whole circle.

PRACTICE

Complete the Connecting Angles and Circles Worksheet.
**WRAP-UP**

Today you learned that an angle that turns through 1360 of a circle is a 1° angle. For example, 120° is 120/360 = 1/3 of the circle.

![Diagram of a circle with angles]

**PRACTICE QUESTIONS**

Please go online to view and submit this assessment.
Angles - Part 7

Objectives
- Add or subtract to find the measure of angles that are not known.

Books & Materials
- Math in Focus 4B
- Math in Focus - Teacher Edition
- protractor
- paper
- Adding Angle Parts Worksheet

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete Adding Angle Parts Worksheet.
- Complete Practice Questions.

LEARN

WARM-UP
What fraction of a circle is represented by each angle?

1. 90°
2. 10°
3. 180°
4. 100°

TEACHING NOTES

Warm-up Answer Keys

1. 14
2. 136
3. 12
4. 58

INSTRUCTION
Read Learn on p. 101–102 in Math in Focus 4B. All angles can be divided into smaller angles. Look at the angles on the protractor. \( \angle AOC \) is made up of two smaller angles, \( \angle AOB \) and \( \angle BOC \). When you add the measure of these smaller angles together, you get the measure of the larger angle. An \( m \) is written next to the name of an angle to represent measure. So \( m \angle AOC \) is read "the measure of \( \angle AOC \)."

\[
m \angle AOB + m \angle BOC = m \angle AOC \text{ because } 30° + 50° = 80°
\]
Read **Learn** on pp. 102 and 103 in *Math in Focus 4B*. Look at part **b** on p. 102. Two angles are put together to make a larger angle. The sum of the measures of the smaller angles is equal to the measure of the larger angle. So, if you know the measure of one smaller angle and the measure of the large angle, you can subtract to find the measure of the other smaller angle. Since 98° - 56° is 42°, the measure of $\angle y$ is 42°. You can check your answer by adding the measures of the smaller angles: 56° + 42° = 98°. Since the large angle is 98°, you know your answer is correct.

**TEACHING NOTES**

Encourage your student to sketch the angles on paper and use a protractor to measure them.

If your student needs extra practice adding and subtracting angles, have him write the following sentence on a sheet of paper:

\[
\text{measure of small angle 1} + \text{measure of small angle 2} = \text{measure of large angle}
\]

As your student works through the lesson, have him replace values in the sentence and solve to find each angle measure.

If your student wants to learn more about adding and subtracting angles, try this activity: Give your student clues and have him sketch the angles. For example, **find two angles whose sum is 90°; find two angles whose sum is 180°; find the sum of two angles in which the measure of one angle is twice the measure of the other angle**. To further challenge your student, give him clues that include the combination of three angles.

**PRACTICE**

Complete **Let's Practice** on pp. 104–105 in *Math in Focus 4B*. Then download, print, and complete *Adding Angle Parts Worksheet*.

**TEACHING NOTES**

**Textbook Answer Key**

**Worksheet Answers:**

1 93° 2 172° 3 108° 4 58° 5 Check your student’s drawing. $\angle ABC$ should be an obtuse angle with a measure of 155° made up of two smaller angles that have measures that add to 155°. 6 Check your student’s drawing. $\angle XYZ$ should be an obtuse angle with a measure that is greater than 90° and less than 180° made up of two smaller angles, one that has a measure of 68° and the other that has a measure greater than 22° and less than 112°.
WRAP-UP

Today you learned how to use addition and subtraction to find angle measures.

\[ m_\angle RYP = m_\angle RYQ + m_\angle QYP \]
\[ m_\angle RYP = 33^\circ + 40^\circ \]
\[ m_\angle RYP = 73^\circ \]

\[ m_\angle AXC + m_\angle AXB = 123^\circ \]
\[ m_\angle BXC + 18^\circ = 123^\circ \]
\[ m_\angle BXC = 105^\circ \]

✅ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Angles - Part 8

**Objectives**
- Apply mathematical concepts and skills to solve problems.

**Books & Materials**
- Math in Focus 4B
- Workbook 4B
- *Math in Focus - Teacher Edition*
- colored pencils or markers (Optional)
- masking tape (Optional)
- paper
- protractor

**Assignments**
- Complete Warm-Up.
- Read and Complete Put On Your Thinking Cap! in *Math in Focus 4B*.
- Complete pages in *Workbook 4B*.
- Complete Practice Questions.

---

**LEARN**

**WARM-UP**

1. \( m \angle ABC \) is 90°. What is the measure of \( \angle ABD \)?

![Diagram of angle ABC]

2. What is the measure of \( \angle XYZ \)?

![Diagram of angle XYZ]
### INSTRUCTION

Read and complete **Put On Your Thinking Cap!** on p. 106 in *Math in Focus 4B*. Think about placing a protractor with its center on Joshua. Wherever Joshua is looking, that would be 0°. As he turns to look, think of recording his turn on the protractor. For example, if Joshua looks at Perry and turns to Blake, he will turn 90°. Use a protractor as you answer the questions.

### TEACHING NOTES

**Textbook Answer Key**

If your student has difficulty deciding the angles that represent Joshua’s movements, have him sketch the children on a sheet of paper. He should draw a line through Joshua from Perry to Ian. Then he should draw a line through Joshua from Blake to Roy.

As your student solves each problem, have him place the straightedge of the protractor on one of the lines with Joshua as the center point. The 0°-mark should be aligned with the child Joshua is looking at first. For example, in problem 1, Joshua is looking at Blake so the protractor should be placed with Joshua as the center point, the straightedge on the line from Blake to Roy, and the 0°-mark aligned with Blake.

If your student wants to learn more about the concept, add four more children to the picture. The children should be halfway between Blake and Perry, Perry and Roy, Roy and Ian, and Ian and Blake. Have your student make up problems like the ones on p. 101 about Joshua looking at the children and tell you his process as he solves each new problem.

### PRACTICE

Complete pp. 65–66 in *Workbook 4B*.
Warm-up Answer Key

1. 55°
2. 103°

Read and complete Put On Your Thinking Cap! on p. 106 in Math in Focus 4B. Think about placing a protractor with its center on Joshua. Wherever Joshua is looking, that would be 0°. As he turns to look, think of recording his turn on the protractor. For example, if Joshua looks at Perry and turns to Blake, he will turn 90°. Use a protractor as you answer the questions.

Textbook Answer Key

If your student has difficulty deciding the angles that represent Joshua’s movements, have him sketch the children on a sheet of paper. He should draw a line through Joshua from Perry to Ian. Then he should draw a line through Joshua from Blake to Roy.

As your student solves each problem, have him place the straightedge of the protractor on one of the lines with Joshua as the center point. The 0°-mark should be aligned with the child Joshua is looking at first. For example, in problem 1, Joshua is looking at Blake so the protractor should be placed with Joshua as the center point, the straightedge on the line from Blake to Roy, and the 0°-mark aligned with Blake.

If your student wants to learn more about the concept, add four more children to the picture. The children should be halfway between Blake and Perry, Perry and Roy, Roy and Ian, and Ian and Blake. Have your student make up problems like the ones on p. 101 about Joshua looking at the children and tell you his process as he solves each new problem.

Workbook Answer Key

When completing the problems in Workbook 4B, have your student draw diagrams on paper to help him solve each problem. For the problem on p. 65, encourage your student to sketch the clocks on paper. Then have him place a protractor so that the 0°-mark aligns with the hour hand and the minute hand points to the 90°-mark. Help your student notice that the minute hand moves 90° and 90° is a 14-turn, so the minute hand moves a 14-turn.

For the problem on p. 66, have your student use colored pencils or markers to trace Tom’s path on the grid. Help him keep track of whether Tom turns to the right or left. It may be helpful to have your student actually walk Tom’s path and mark each point on the ground with masking tape.

Interactive Activity

Play the Brainpop game Sortify to practice identifying types of angles.

Wrap-up

Today you learned how to solve problems involving angles. Relating angles to fractions of a circle can help you solve these problems.

Practice Questions

Please go online to view and submit this assessment.
Find the measure of the unknown angle with the help of a protractor. Describe the method you used to find the angle measure.
USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Use a protractor to find the measure of the unknown angle?
- Describe the method you used to find the angle measure?
SHOW

Look at some local maps that show neighborhoods such as your own. Make a sketch of the main streets and highways of your dream neighborhood on a sheet of blank paper. Identify angles formed by the streets. Classify the angles as acute, obtuse, or right. Make some observations. For example, what kinds of angles appear most? Save your sketch and your notes to work on later.

☑️ PROJECT PROGRESS

How ready do you feel to complete this part of the project?

- I feel very ready to complete this part of the project; I have learned everything I need to know to do it.
- I feel somewhat ready to complete this part of the project but I am unsure that I have learned everything I need to know to do it.
- I do not feel ready to complete this part of the project.
- I feel very unprepared to complete this part of the project.

How excited do you feel to complete this part of the project?

- I feel very excited to complete this part of the project.
- I feel somewhat excited to complete this part of the project.
- I do not feel excited to complete this part of the project.
- I feel completing this part of the project will be very boring.
In which of the following clocks are the hands at a right angle?

A. 
B. 
C. 
D. 

Warm-up Answer Key
C

Today's lesson covers important ideas you need to understand before beginning the lessons in this chapter. Read p.111 in Math in Focus 4B. Can you find parallel line segments in the picture? The blue posts make parallel lines. Can you find perpendicular line segments in the picture? The yellow posts are perpendicular to the blue posts.

Read Recall Prior Knowledge on p.112 in Math in Focus 4B. Practice using a folded piece of paper to check for perpendicular lines.
Next read p. 113. Think about the parallel and perpendicular lines you see every day. Remember that parallel lines will never cross.

Review p. 114. Use a sheet of grid paper to copy the perpendicular and parallel lines and draw other examples of each type of line for extra practice.

**TEACHING NOTES**

As you discuss these pages with your student, take note of the skills that seem familiar and those that may need review. Do not provide detailed instruction at this point; simply preview the material to prepare for the Quick Check.

**PRACTICE**

Complete the Quick Check on pp. 115–116 in Math in Focus 4B.

**TEACHING NOTES**

Textbook Answer Key

Review your student’s answers to the Quick Check, noting the problems that your student answered incorrectly.

**WRAP-UP**

Today you reviewed the concepts of parallel and perpendicular lines. Before you begin the lessons in this chapter, you should be able to do the following:

- Determine whether two lines are parallel, perpendicular, or neither.
• Find examples of perpendicular and parallel lines in objects you see every day.
• Sketch sets of parallel and perpendicular lines on grid paper.

SUPPLEMENTAL

• BrainPOP: Parallel and Perpendicular Lines

PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Lines - Part 2

Objectives
- Utilize measurement tools to draw perpendicular line segments.

Books & Materials
- Math in Focus 4B
- Math in Focus - Teacher Edition
- protractor
- straight edge
- drawing triangle
- 2 sheets grid paper

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete Practice Questions.

LEARN

WARM-UP

Use the picture to answer the questions.

1. Which points could you connect to draw a line segment parallel to line segment $\overline{AB}$?
2. Which points could you connect to draw a line segment perpendicular to line segment $\overline{AB}$?

Warm-up Answer Key
1. $D$ and $E$
2. $C$ and $F$

TEACHING NOTES

INSTRUCTION

Read Learn on p. 117 in Math in Focus 4B. Draw $\overline{AB}$ on a sheet of paper. Follow the steps to draw a line segment perpendicular to $\overline{AB}$. 
Then read Learn on p. 118. Again follow the steps in the lesson to draw a pair of perpendicular line segments. After you draw your perpendicular segments, remember to mark your right angle with a small square to show that it is a right angle.

Recall that a right angle measures 90°. Look at your drawing triangle. One of the angles in your drawing triangle is a right angle. Any triangle that has a right angle is called a right triangle.

Complete Hands-On Activity on p. 119. In Step 1, you can complete both roles if a partner is not available. Next complete Guided Learning on p. 119.

TEACHING NOTES

Invite your student to look at the protractor. Ask: Which measure is the same on both the outer and inner scales? (90°) Watch your student as she uses the protractor to sketch perpendicular line segments to ensure she is using it correctly. Make sure she is comfortable using each method for sketching perpendicular line segments. Point out the proper notation.

\[
\overline{AB} \perp \overline{CD}
\]

is read “\(\overline{AB}\) is perpendicular to \(\overline{CD}\)."

Sketch several triangles and challenge your student to identify the right triangles. A triangle is called a right triangle when one of its angles measures 90°. Explain that a right angle can be in any position.

In the sketch below, there are two right triangles (2 and 4). Look at Triangle 2. The right angle is at the top in this orientation.

WATCH FOR THESE COMMON ERRORS

Some students may not use the protractor correctly. Monitor your student’s work to ensure she is lining up the protractor correctly. Point out that 90° can be found at the top of the scale.
PRACTICE
Complete Let’s Practice on p. 120 in Math in Focus 4B.

TEACHING NOTES
Textbook Answer Key

WRAP-UP
Today you learned how to draw perpendicular line segments using a protractor, straightedge, and drawing triangle.

PRACTICE QUESTIONS
Please go online to view and submit this assessment.
Lines - Part 3

Objectives
- Utilize measurement tools to draw perpendicular line segments.

Books & Materials
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition
- drawing triangle
- More Perpendicular Line Segments Worksheet

Assignments
- Complete Warm-Up.
- Review the skills and concepts in Math in Focus 4B.
- Complete More Perpendicular Line Segments Worksheet.
- Complete pages in Workbook 4B.
- Complete Quick Check.

LEARN

WARM-UP

Draw the following line segments.

1. \( AB \perp CF \)
2. \( JK \) is perpendicular to \( JK \)

TEACHING NOTES

Warm-up Answer Key

1. Answers will vary.
2. Answers will vary.

INSTRUCTION

Review the skills and concepts on pp. 117–118 in Math in Focus 4B. Then download, print, and complete the More Perpendicular Line Segments Worksheet.

TEACHING NOTES

Textbook Answer Key

Worksheet Answers:

Answers will vary.
Review your student’s work to ensure she correctly identifies perpendicular lines and right triangles. Make sure she uses correct terminology. Work with her as needed to create clear, concise explanations.

Complete pp. 67–68 in *Workbook 4B*.

Workbook Answer Key

Today you learned how to recognize perpendicular lines and right triangles in real life.

\[ \overline{AE} \perp \overline{BD} \]

Triangle $ABC$ is a right triangle.

Quick Check

Please go online to view and submit this assessment.
MORE TO EXPLORE

If you answered the Quick Check incorrectly, review the definition of perpendicular. Did you notice that the shelf is flat? How would a book have to be oriented to be perpendicular to the flat shelf?
**Lines - Part 4**

**Objectives**
- Utilize measurement tools to draw parallel line segments.

**Books & Materials**
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition
- straightedge
- drawing triangle

**Assignments**
- Complete Warm-Up.
- Read and review pages in *Math in Focus 4B*.
- Complete pages in *Workbook 4B*.
- Complete Practice Questions.

---

**WARM-UP**

Identify parallel and perpendicular lines in the picture. Can you find any shapes that appear to be right triangles?

---

**TEACHING NOTES**

Warm-up Answer Key

Check your student's work for accuracy.

---

**INSTRUCTION**

Read Learn on p. 121 in *Math in Focus 4B*. Draw line segment $\overline{PQ}$ on a sheet of paper. Follow the steps to draw a line segment parallel to line segment $PQ$.

Then read Learn on p. 122 and follow the steps to construct a pair of parallel line segments. Complete Guided Learning on p. 122.

Complete Hands-On Activity on p. 123 with your Learning Guide.

---

**FUN FACT**

Nepal is the only nation whose flag has opposite sides that are not parallel.
Watch your student as she uses the drawing triangle to sketch a pair of parallel lines. Ask: How can you tell if two lines are parallel? Be sure her response includes the main concept of parallel lines, that they are always the same distance apart and never cross no matter how far each line is extended. Continue to monitor her work as she draws a parallel line segment through a given point. It is very important that the straightedge does not move as she slides the drawing triangle to a new position. In this lesson, it is more important to check your student's processes than her final results.

Challenge your student to be patient as he learns this new process. Work with him to ensure he is drawing line segments that are parallel.

**WATCH FOR THESE COMMON ERRORS**

Some students struggle with sketching parallel lines. In general, it seems to be more difficult for students to draw parallel lines than to draw perpendicular ones. Encourage your student to follow the processes carefully. Guide him through several examples until she has mastered the skill.

Complete Let’s Practice on p. 124 in *Math in Focus 4B*. Then complete pp. 69–70 in *Workbook 4B*.

**TEXTBOOK ANSWER KEY**

**WORKBOOK ANSWER KEY**

Today you learned how to draw parallel line segments. You also learned how to draw a parallel line segment that goes through a given point.

Please go online to view and submit this assessment.
## Lines - Part 5

### Objectives
- Recognize horizontal and vertical lines.

### Books & Materials
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition

### Assignments
- Complete Warm-Up.
- Read and complete pages in *Math in Focus 4B*.
- Complete pages in *Workbook 4B*.
- Complete Practice Questions

### LEARN

#### WARM-UP
Draw a picture to illustrate each sentence.

1. The pencil is parallel to the desktop.
2. The arrow is perpendicular to the desktop.

#### TEACHING NOTES

##### Warm-up Answer Key

1. The pencil should be drawn horizontally above or below the desk.
2. The arrow should be drawn making a 90-degree angle with the desk.

#### INSTRUCTION

Read Learn on p. 125 in *Math in Focus 4B*. Notice that $\overline{AB}$ labels a line segment through points $A$ and $B$, while $\overrightarrow{AB}$ labels a line through the same points.

*Horizontal* lines are parallel to the ground. *Vertical* lines go up and down. *Horizontal* lines are always perpendicular to vertical lines.

Complete **Guided Learning** on p. 126.
LEARN
Draw a picture to illustrate each sentence.

1. The pencil is parallel to the desktop.
2. The arrow is perpendicular to the desktop.

Warm-up Answer Key

1. The pencil should be drawn horizontally above or below the desk.
2. The arrow should be drawn making a 90-degree angle with the desk.

Read Learn on p. 125 in Math in Focus 4B. Notice that \( \overline{AB} \) labels a line segment through points \( A \) and \( B \), while \( AB \) labels a line through the same points.

Horizontal lines are parallel to the ground.
Vertical lines go up and down.
Horizontal lines are always perpendicular to vertical lines.

Complete Guided Learning on p. 126.

Objectives
Recognize horizontal and vertical lines.

Books & Materials
Math in Focus 4B Workbook 4B
Math in Focus - Teacher Edition

Assignments
Complete Warm-Up.
Read and complete pages in Math in Focus 4B.
Complete pages in Workbook 4B.
Complete Practice Questions

Textbook Answer Key
Workbook Answer Key

Today you learned how to identify horizontal and vertical lines.

Please go online to view and submit this assessment.

WATCH FOR THESE COMMON ERRORS
Some students have a difficult time distinguishing between horizontal and vertical. Explain to your student that the sun sets on the horizon. The horizon runs side to side, and so do horizontal lines.

Complete Let's Practice on p. 127 in Math in Focus 4B. Then complete pp. 71–74 in Workbook 4B.

WRAP-UP
Today you learned how to identify horizontal and vertical lines.

PRACTICE QUESTIONS
Please go online to view and submit this assessment.
**LEARN**

**WARM-UP**

Draw a picture to solve each problem.

1. \(\overline{PQ}\) is horizontal. \(\overline{PQ}\) is perpendicular to \(\overline{RS}\). Is \(\overline{RS}\) horizontal or vertical?
2. \(\overline{ST}\) is parallel to a line segment that is vertical. Is \(\overline{ST}\) horizontal or vertical?

**TEACHING NOTES**

**Warm-up Answer Key**

1. \(\overline{RS}\) is vertical.
2. \(\overline{ST}\) is vertical.

**INSTRUCTION**

Read **Put On Your Thinking Cap!** on p.127 in *Math in Focus 4B* and complete the problem solving activity.

**TEACHING NOTES**

**Textbook Answer Key**

Monitor your student’s work to ensure she is following proper procedures. Encourage her to check her drawing. Insist that she use the tools to draw all three line segments accurately, not just the first one. Ask her to verify that two line segments are perpendicular by using a folded piece of paper or a straightedge. Additionally, ask her to verify that two line segments are parallel by...
measuring the distance between the lines at different points. Parallel line segments are always the same distance apart.

**PRACTICE**

Complete pp. 75–78 in *Workbook 4B*.

**TEACHING NOTES**

For the activity on p. 75 in *Workbook 4B*, encourage your student to explore the relationship between different measurements in the diagram. Lead him to see that Danie's and Alicia's paths are the same length, which demonstrates that the curbs are parallel. Similarly, have him measure the distance along the curbs between the girls' paths. Lead him to see that, since this distance is also the same, the girls' paths must also be parallel.

The problem on p. 76 will encourage your student to think in three dimensions. If he needs help answering question 4, encourage him to consider the angles made by the pole and the lines on the ground. Suggest that he follow the same line of reasoning to answer the questions on p. 78.

**WRAP-UP**

Today you learned how to solve problems involving parallel, perpendicular, horizontal, and vertical line segments.

\[
\begin{align*}
A & \quad B \\
C & \quad D \\
E & \\
F &
\end{align*}
\]

- \(AB\) is parallel to \(CD\).
- \(AB\) is perpendicular to \(EF\).
- \(CD\) is perpendicular to \(EF\).
$\overline{AB}$ and $\overline{CD}$ are horizontal line segments.

$\overline{EF}$ is a vertical line segment.

✅ RATE YOUR ENTHUSIASM

Please go online to view and submit this assessment.
Use a protractor and a straightedge.

Print or draw right angle $ABC$.

Part A:

1. Draw a line segment perpendicular to $\overline{AB}$ passing through point $A$. Name the endpoint of this line $D$.

2. Draw a line segment parallel to $\overline{AB}$ that passes through point $C$ and intersects $\overline{BC}$.
Part B:

What do you notice about the two lines that you have drawn?

Part C:

What is the name of the shape that you formed?

USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Print or draw a right angle $ABC$ similar to the one shown?
- Draw a line segment perpendicular to $AB$ passing through point $A$.
- Name the endpoint of this line $D$?
- Draw a line segment parallel to $AB$ that passes through point $C$ and intersects $BC$?
- Tell what you notice about the two lines that you have drawn?
- Tell the name of the shape you have drawn in this exercise?
Show

Design the map of your dream neighborhood. Be sure to include parallel and perpendicular streets. Keep your map and your notes for the Final Show.

Project Progress

How ready do you feel to complete this part of the project?

- I feel very ready to complete this part of the project; I have learned everything I need to know to do it.
- I feel somewhat ready to complete this part of the project but I am unsure that I have learned everything I need to know to do it.
- I do not feel ready to complete this part of the project.
- I feel very unprepared to complete this part of the project.

How excited do you feel to complete this part of the project?

- I feel very excited to complete this part of the project.
- I feel somewhat excited to complete this part of the project.
- I do not feel excited to complete this part of the project.
- I feel completing this part of the project will be very boring.
Symmetry - Part 1

Objectives
- Recognize polygons.
- Find figures that are congruent.
- Recognize figures that are symmetric.

Books & Materials
- Math in Focus 4B
- Math in Focus - Teacher Edition

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete Practice Questions.

LEARN

WARM-UP

Draw a picture for each instruction.

1. Draw a polygon.
2. Draw two congruent figures.

Warm-up Answer Key

1. Sample answer: Student should draw any closed figure framed from line segments; like a rectangle, triangle, or square.
2. Sample answer: Student should draw any two polygons that are the same size and shape.

INSTRUCTION

Today’s lesson covers important ideas you need to understand before beginning the lessons in this chapter. Read p. 242 in Math in Focus 4B. The picture shows organisms with one or more lines of symmetry. Look closely at the picture of the butterfly. If a line is drawn that divides the butterfly into two equal parts, then that line is a line of symmetry. If you could fold the butterfly in half along the line of symmetry, the two halves would match. Now, look at each of the other pictures. Decide if each animal is symmetric or not.

Read Recall Prior Knowledge on p. 243 in Math in Focus 4B. Look at the figures in the top box. Polygons are closed figures formed by line segments that meet only at their endpoints. Polygons with certain attributes and properties have special names. Now, look at the figures in the middle box. Figures that have the same size and shape are congruent. Look at the figures in the bottom box and determine which are symmetric.
As you discuss these pages with your student, take note of the skills that seem familiar and those that may need review. Do not provide detailed instruction at this point; simply preview the material to prepare for the Quick Check.

Complete the Quick Check on p. 244 in Math in Focus 4B.

Textbook Answer Key

Review your student’s answers to the Quick Check, noting the problems that your student answered incorrectly. Access the appropriate Reteach activity that your student should complete for the remainder of this lesson.

Today you learned that polygons are closed figures formed by line segments that meet only at their endpoints. You also learned that figures that have the same size and shape are congruent. Finally, you learned that figures are symmetric if they have halves that match exactly when the figures are folded along the line of symmetry.

Please go online to view and submit this assessment.
Symmetry - Part 2

**Objectives**
- Recognize lines of symmetry in figures.

**Books & Materials**
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition
- 2 blank pieces of paper
- scissors
- colored pencils
- a computer drawing tool (Optional)
- Hexagon Cut-Outs
- Shape Cut-Outs
- Finding Lines of Symmetry Worksheet

**Assignments**
- Complete Warm-Up.
- Read and complete pages in *Math in Focus 4B*.
- Complete pages in *Workbook 4B*.
- Complete Finding Lines of Symmetry Worksheet.
- Complete Practice Questions.

---

**LEARN**

**WARM-UP**

Answer the questions.

1. If two figures are congruent, they have the same _____ and ______.
2. Can a square and a triangle be congruent? Why or why not?

---

**TEACHING NOTES**

**Warm-up Answer Key**

1. size, shape
2. No, because they are not the same shape.

---

**INSTRUCTION**

Read Learn on pp. 245–246 in *Math in Focus 4B*. Today you will identify a line of symmetry in a figure. Fold a rectangular piece of paper in half as shown in the first example. The fold line on your paper is the same as the dotted line on the figure in the first example. The dotted line is a line of symmetry because the halves match exactly in shape and size. The two halves are congruent. Now fold a rectangular piece of paper as shown in the second example. The dotted line is another line of symmetry because it divides the rectangle into two equal parts that match exactly.
Some figures can have more than one line of symmetry. A rectangle, for example, has two lines of symmetry. Look at p. 246. Fold a rectangular piece of paper as shown in each example. Notice that, once folded, the resulting parts must be congruent in order for the fold to be a line of symmetry.

Complete Hands-On Activities on p. 247 and p. 249. For p. 247, make at least three different shapes. For p. 249, use the Shape Cut-Outs to complete this activity. Then complete Guided Learning on p. 248. Use Hexagon Cut-Outs to complete the practice.

**TEACHING NOTES**

The Hands-On Activity on p. 247 will reinforce your student’s understanding of symmetric figures. Have your student create three different figures using paper and scissors. Lead your student to conclude that each fold line is a line of symmetry for that figure.

The Hands-On Activity on p. 249 will reinforce your student’s understanding of lines of symmetry. Ask your student to explain his answers to the questions to check his understanding. For exercise 2, if your student is using the drawing software, he may also draw the dotted lines on his figures before printing them.

**PRACTICE**

Complete Let’s Practice on p. 250 in Math in Focus 4B. Then complete pp. 163–164 in Workbook 4B. Finally, download, print, and complete the Finding Lines of Symmetry Worksheet.

**TEACHING NOTES**

Workbook Answer Key.

Worksheet Answers:

1 no; 0 lines of symmetry 2 yes; 4 lines of symmetry
3 yes; 1 line of symmetry 4 yes; 1 line of symmetry
5 no; 0 lines of symmetry 6 yes; 6 lines of symmetry
7 yes; 1 line of symmetry 8 yes; 1 line of symmetry
9 yes; 2 lines of symmetry 10 yes; 2 lines of symmetry

**WRAP-UP**

Today you learned how to identify a line of symmetry in a figure. You learned that a line of symmetry is a line that divides a figure into two congruent parts. These two parts match exactly when the figure is
folded along this line. You also learned that a figure with two congruent parts that match when the figure is folded along the line of symmetry is called a *symmetric figure*.

✅ **PRACTICE QUESTIONS**

Please go online to view and submit this assessment.
Symmetry - Part 3

**Books & Materials**
- Math in Focus - Teacher Edition
- grid paper (optional)

**Assignments**
- Complete Interactive Activity.
- Complete Rate Your Enthusiasm.

**LEARN**

**INTERACTIVE ACTIVITY**

Follow these instructions for the activity below.

Click [here](#) to see the activity in a new window.

This activity will allow you to explore symmetry by creating, folding, and rotating quilts. On the screen, you see a quilt that looks like a person with a face. Does this quilt show symmetry? You can find out. There are 4 lines of symmetry drawn on the screen. At one end of each line are fold and unfold buttons. Click on the fold button to see if the quilt is symmetric along that line. If it is, the two halves of the quilt will line up on top of each other perfectly. After you fold and unfold the quilt along all 4 lines, you will see that the quilt only has symmetry along the vertical line ( | ).

Now click [Clear](#). Go to the Quilt gallery and click on 7. Fold and unfold the quilt to see if it has symmetry. You should see that this quilt is symmetric along 2 lines: the horizontal line (―) and the vertical line ( | ). Can you find a quilt in the gallery that is symmetric along 3 lines? Can you find one that is symmetric along all 4 lines? No lines? Share your discoveries with your Learning Guide.

Now experiment with making your own quilts. First click [Clear](#). You can also choose Show grid if you would like to see smaller spaces. Fill in the quilt with different colors to make your pattern. Try to make quilts with 1 line of symmetry, 2 lines of symmetry, and 4 lines of symmetry. You can sketch your designs on [grid paper](#) first, if you would like. Show your finished quilt designs to your Learning Guide.

**TEACHING NOTES**

**Answers:**

- 3 lines: none
- 4 lines: Quilts 1, 16, 18
- 0 lines: Quilts 2, 4, 5, 8, 10, 13, 14, 20
If you would like, you can click on Lesson Info and download the Student Exploration Sheet and Exploration Sheet Answer Key to have your student try some other activities with the Gizmo.

RATE YOUR ENTHUSIASM

Please go online to view and submit this assessment.
The figure shows a symmetric shape. Describe how you would find a line of symmetry.
USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Write 2–3 sentences to explain a strategy that will always find the line of symmetry?
Symmetry - Part 5

**Books & Materials**
- *Math in Focus - Teacher Edition*

**Assignments**
- Complete Rate Your Progress.

---

**SHOW**

Add landmarks on the map. Label different places such as Pizza Park or Jelly Jungle Gym. Make sure that at least 5 of these landmarks are symmetrical and include lines of symmetry.

---

**☑ RATE YOUR PROGRESS**

Please go online to view and submit this assessment.
Show: Dream Neighborhood

Books & Materials
- Math in Focus - Teacher Edition

SHOW

It's time to show off your hard work. Put the finishing touches on your neighborhood. Show everyone why it would be such a great place to live. Make sure to include plenty of fun attractions, where you would live, and include plenty of colors.

Make sure that you include all of the details that you have worked on throughout the project. Label the streets and list the ones that are parallel and perpendicular. If the streets are not perpendicular, state whether the angles created are acute or obtuse. Make sure that you have at least 3 landmarks with accurate lines of symmetry.

All of your work should be neat and clear using straight edges and your best handwriting.

FINAL PROJECT

Make sure to upload your an image of your final map as well as all of your notes, calculations, and details.

Supported file formats: PDF, JPG, GIF, PNG, RTF, Word, Powerpoint

0 / 5 File Limit
Unit Quiz: Geometry Basics

Books & Materials
- Math in Focus - Teacher Edition

✓ UNIT QUIZ

Please go online to view and submit this assessment.
Unit 5 – Shapes and Sizes
Project: Design a Tourist Attraction

Books & Materials
- Math in Focus - Teacher Edition

PROJECT DESCRIPTION

Have you ever been to a science center or aquarium? These are fun places to visit and learn new and exciting things! Think of a brand new type of building that you would like to visit. It could exist already, or you could make up your own. Examples include a frozen yogurt factory, pizza museum, or soccer hall of fame.

PROJECT DETAILS

In this project you will plan and describe a tourist attraction. To complete this project you will need to:

- Sketch a blueprint of the building and the rooms that include squares, rectangles, and composite shapes
- Calculate the area and the perimeter of each room
- Identify composite shapes around your house
- Design the outside of the building and calculate the area and perimeter

PROJECT RUBRIC

The Project Rubric will help you understand how your project will be scored. Your goal should be to earn all 4 points for each part.

TEACHING NOTES

Open the unit by having your student brainstorm different ideas for tourist attractions. Have him draw a picture that would be included on the website.
COLLABORATION

Think about a tourist attraction you have visited. What did you like about it? What would you change? Share your ideas with your classmates. Then respond to two of your peers.

RATE YOUR EXCITEMENT

Please go online to view and submit this assessment.
### LEARN

#### WARM-UP

Solve.

1. $8 + 8 + 7 + 7 = \underline{\hspace{2cm}}$
2. $4 + 5 + 5 + 4 = \underline{\hspace{2cm}}$
3. $9 + 9 + 7 + 7 = \underline{\hspace{2cm}}$
4. $3 + 3 + 3 + 3 = \underline{\hspace{2cm}}$

#### WARM-UP Answer Key

1. 30
2. 18
3. 32
4. 12

### INSTRUCTION

Today's lesson covers important ideas you need to understand before beginning the lessons in this chapter.

Read the cartoon on p. 131 in *Math in Focus 4B*. Look around the picture and point to objects that have...
the shapes of squares or rectangles. For example, the windows and checkerboard are squares. The door and toy box are rectangles.

Read Recall Prior Knowledge on pp. 132–133. What are the properties of a rectangle? The opposite sides of a rectangle are parallel and the same length. All of the corners of a rectangle measure 90°. Next, look at the square. The properties of a square are the same as the properties of a rectangle, except all of the sides are the same length. A square is a special kind of rectangle.

You can break up some figures into squares and rectangles. Look at the top of p. 133. Notice that the perimeter of a figure is the distance around the figure. Each side of the square is 3 cm.

The perimeter is $3 + 3 + 3 + 3$, or 12 cm.

Two sides of the rectangle each measure 5 cm, and two sides each measure 2 cm. The perimeter of the rectangle is $2 + 5 + 2 + 5$, or 14 cm.
Recall Prior Knowledge on pp. 132–133. What are the properties of a rectangle? The opposite sides of a rectangle are parallel and the same length. All of the corners of a rectangle measure 90°.

Next, look at the square. The properties of a square are the same as the properties of a rectangle, except all of the sides are the same length. A square is a special kind of rectangle.

You can break up some figures into squares and rectangles. Look at the top of p. 133. Notice that the perimeter of a figure is the distance around the figure. Each side of the square is 3 cm. The perimeter is 3 + 3 + 3 + 3, or 12 cm.

Two sides of the rectangle each measure 5 cm, and two sides each measure 2 cm. The perimeter of the rectangle is 2 + 5 + 2 + 5, or 14 cm.

As you discuss these pages with your student, take note of the skills that seem to be familiar and those that may need review. Do not provide detailed instruction at this point; simply preview the material to prepare for the Quick Check.

Complete Quick Check on pp. 133–134 in Math in Focus 4B.

Textbook Answer Key

Review your student's answers to the Quick Check, noting the problems that your student answered incorrectly. Access the appropriate Reteach activity that your student should complete for the remainder of this lesson.

RETEACH

After your student completes the Quick Check in the Recall Prior Knowledge lesson of this chapter, review the questions that were answered incorrectly. If, after the review, you feel that your student needs additional exposure to any of these skills, click on the title below that corresponds with the number of the incorrectly answered question(s) and have him complete the activity.

QUICK CHECK

<table>
<thead>
<tr>
<th>Question(s)</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1–4, 8–9</td>
<td>Quadrilaterals</td>
</tr>
<tr>
<td>5–7</td>
<td>Draw composite figures and have your student determine which shapes make up the figure.</td>
</tr>
</tbody>
</table>

WRAP-UP

Today you reviewed important geometry and measurement concepts:

- properties of squares and rectangles
- breaking up shapes into squares and rectangles
- finding the perimeter of a figure by adding the lengths of its sides

You will use these skills as you learn more about squares, rectangles, and perimeter in this chapter.

☐ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Triangles, Squares, and Rectangles - Part 2

**Objectives**
- Identify and use the properties of squares and rectangles.

**Books & Materials**
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition
- geoboard
- 4 rubber bands
- grid paper

**Assignments**
- Complete Warm-Up.
- Read and complete pages in *Math in Focus 4B*.
- Complete pages in *Workbook 4B*.
- Complete Practice Questions.

---

**LEARN**

On grid paper, draw two rectangles that are not squares and two rectangles that are squares. Find the perimeter of each figure.

**TEACHING NOTES**

**Warm-up Answer Key**

Check student’s drawing and measurements.

**INSTRUCTION**

Read **Learn** on p. 135 in *Math in Focus 4B*. A square is a special kind of rectangle in which all four sides are the same length. The angles of a square are all right angles. What do the dashes, or tick marks, on the square mean? The tick marks are used to indicate sides that are the same length. Since all of the sides of the square are the same length, there is one matching tick mark on each side.

Look at the symbol between \(AB\) and \(DC\). That symbol means “parallel to.”

\(AB \parallel DC\) is read: line segment \(AB\) is parallel to line segment \(DC\).

Then read **Learn** on p. 136. A rectangle shares all the same properties of a square, except that its sides do not need to be equal in length. A rectangle can be a square, long and skinny, or short and fat. Notice that, in the rectangle on p. 136, \(EH\) is parallel to \(FG\) and the two sides are the same length. They are both 12 cm long. \(EF\) is parallel to \(HG\), and both sides are 30 cm long.

Complete **Guided Learning** on pp. 137–138 and the top of p. 140.
Complete **Hands-On Activity** on p. 139. Use the geoboard to identify squares and rectangles. Remember that all squares are rectangles.

**Textbook Answer Key**

As your student works through the problems, encourage him to refer to the properties of each type of figure. Remember to check your student’s work to determine if extra practice is needed.

If your student needs extra practice with the notation for marking rectangles and squares, give him grid paper and ask him to draw two figures. Figure $ABCD$ should be a rectangle with two sides 5 units long and two sides 3 units long. Figure $EFGH$ should be a square with each side 4 units long.

Have your student label the one figure *rectangle* and the other figure *square*. Ask him to label each side with its length. Point out that sides with the same length have the same number of tick marks. Have your student mark the sides with the appropriate tick marks.

Then have him use symbols to write pairs of parallel sides, for example, $AB \parallel DC$. Ask your student to describe what the rectangle and square have in common. Point out that a square is both a square and a rectangle. Allow your student to refer to his drawing as he progresses through the lesson and the chapter.

**WRAP-UP**

**Practice**

Complete pp. 79–81 in *Workbook 4B*.

Today you learned about the properties of squares and rectangles.
Complete Math Checkpoint

- **Square**
  - ST || VU
  - SV || TU

- **Rectangle**
  - WX || ZY
  - WZ || XY

- Teasing Notes
  - Workbook Answer Key

- Practice Questions
  - Please go online to view and submit this assessment.
Follow these instructions for the activity shown below.

Click here if you would like to see the activity in a new window.

In this activity, you will explore rectangles and squares. In the dropdown menu under Choose a shape, click on Square. Practice dragging one of the corners to make squares of different sizes. You can turn the square, too!

Now click on the red bar, Show ruler. Put one circle of the ruler tool on point A and the other circle on point B. Read the length of side AB at the bottom of the screen and write it in your Math Notebook. Then click on the blue Show ruler. Connect the circles to points B and C. What do you notice about the lengths? Click off the check marks in both Length bars. Now use the red Show ruler tool to measure side CD and the blue one to measure side DA. Write a statement in your Math Notebook about the 4 sides of a square.

You can do the same thing with the Show angle measure tool. Click on the green tool and place the middle circle on point A. Put one of the other circles on point B and the other on point D. Read the measure of this angle and record it in your Math Notebook. Use the purple Show angle measure tool to measure angle ABC. Clear the tools and then use them to measure the other two angles. Write a statement in your Math Notebook about the 4 angles of a square.

Try one more activity with the square. Click on the green Show angle measure tool and place the middle circle on point A. Place one of the other circles on point B and the other on point C. Write the measure of this angle in your Math Notebook. Notice that line segment AC is the diagonal of the square, which means it connects opposite corners. Use the Show angle measure tools to find the measures of the other angles formed by a diagonal. Write a statement in your Math Notebook about your discovery.

Now change the shape by choosing Rectangle from the dropdown menu. Click on the green Show angle measure tool and place the center circle on point A. Put the other two circles on points B and C. Notice that, once again, you have created a diagonal, line segment AC. Write the measure of line segment AC in your Math Notebook. Notice that it is different than the measure of an angle created by
a diagonal in a square. Drag a corner of the rectangle to change its size. What happens to the measure of the angle? Write about your discovery in your Math Notebook.

Now click on the purple **Show angle measure tool** and place the center circle on point A. Place the other circles on points C and D. Write this measure in your Math Notebook. Add the measures of the two angles. What is their sum? Change the size of the rectangle and write the two measures in your Math Notebook. What is their sum? Write a statement in your Math Notebook about what happens when a diagonal divides one of the angles in a rectangle.

Now clear the purple **Show angle measure tool**. Change the size of the rectangle. Write the new measure of angle BAC in your Math Notebook. Without measuring, find the measure of angle CAD. In your Math Notebook, write a rule for finding the missing angle formed by the diagonal and side AD.

Feel free to continue exploring the square and the rectangle. Tell your Learning Guide about any other interesting discoveries you make.

---

**INTERACTIVE ACTIVITY**

**TEACHING NOTES**

**Sample Answers:**

**Square:** The 4 sides of a square all have the same length. The 4 angles of a square all measure 90°. Angles formed by the sides of a square and a diagonal are all 45°, which is half of 90°.

**Rectangle:** Angles formed by the sides of a rectangle and a diagonal are different, depending on the size of the rectangle. The two angles formed when a diagonal divides an angle of a rectangle add up to 90°. If you do not know the measure of one of these angles, you can subtract the measure you do know from 90° to find the measure of the missing angle.

If your student would like to explore other quadrilaterals, you can click on **Lesson Info** and download the **Student Exploration Sheet** and **Exploration Sheet Answer Key**.

---

**RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
Triangles, Squares, and Rectangles - Part 4

Objectives
- Identify and use the properties of squares and rectangles.
- Decompose composite figures.

Books & Materials
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition
- grid paper
- geoboard
- rubber bands
- scissors
- tape (optional)
- drawing software (optional)

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete pages in Workbook 4B.
- Complete Practice Questions.

LEARN

WARM-UP

Find each missing measure.

1.

![Diagram of a rectangle with sides labeled 14 ft and 10 ft, and one side missing]

2.

![Diagram of a rectangle with sides labeled 29 cm and 15 cm, and one side missing]
INSTRUCTION

Read Learn on the bottom of p. 140 in Math in Focus 4B. Notice how the figure is broken into a square and a rectangle. There is often more than one way to break apart a shape into squares and rectangles. Can you see how this shape can also be broken up into 2 squares and 2 rectangles? Think about some other ways to break up this figure. Then complete Guided Learning on p. 141.

Complete Hands-On Activity on p. 141. Use your rubber bands to make the figures described in the activity. Recall that squares have sides that are all the same length. Make sure your figures do not overlap.

Complete Hands-On Activity on p. 142. Cut grid paper to make the strips listed. Put together different combinations of strips to make as many different-sized squares and rectangles as you can. In step 3, compare and describe the different shapes you formed. You may choose to use the computer to make the shapes shown in problem 4.

As your student works through the problems, ask him to trace the shapes on grid paper. Remember to check your student's work to determine if extra practice is needed.
If your student needs extra practice recognizing how to break figures apart into squares and rectangles, ask him to try this activity:

1. Draw three 2-by-2 squares and three 2-by-4 rectangles on grid paper, and cut each figure out.
2. Arrange two of the shapes to create a new shape.
3. Trace the new shape on grid paper.
4. Put the shapes he used to create the new shape on top of the traced shape and draw a line between the shapes.

Point out how the new shape is made of the smaller shapes. Have your student repeat the activity with different combinations of squares and rectangles. Each time, he should arrange the shapes, trace the new shape, and draw lines on the new shape to show how the old shapes were used to create the new one.

If your student wants to learn more about breaking shapes up into squares and rectangles, have him trace a shape on grid paper. Then challenge him to break up the shape into as many different combinations of squares and rectangles as he can. Have a contest with your student to see who can break up the shape in the greater number of ways.

PRACTICE
Complete Let's Practice on pp. 143–144 in Math in Focus 4B. Then complete p. 82 in Workbook 4B.

WRAP-UP
Today you learned how to break up figures into squares and rectangles.
✅ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Divide the figure into squares and rectangles in two ways.

Warm-up Answer Key

Check student’s figures.

INSTRUCTION

Read Learn on p.145 in Math in Focus 4B. Recall that the angles in a rectangle and a square are always right angles. The measure of a right angle is 90°. If a 90° angle is divided into two angles, and you know the measure of one angle, you can find the measure of the other by subtracting the known measure from 90°.

Look at the rectangle. The two marked angles together form a 90° angle. The measure of one angle is known, and the measure of the other is unknown. Subtract the known angle, 30°, from 90° to find the measure of the unknown angle.
90 – 30 = 60

The measure of ∠a is 60°.

Complete Guided Learning on pp. 145–146.

Read Learn on p. 146. Look at the first figure. You can see that, because the sides are parallel, BC¯ and DE¯ together are as long as AF¯. Since line segment AF is 10 yards long, the sum of the lengths of BC¯ and DE¯ is also 10 yards. Since the length of DE¯ is 6 yards, the length of BC¯ is 10 – 6, or 4 yards.

Look at the second shape. Because the sides are parallel, the length of line segments GH and IJ together is the same as the length of LK¯. Since GH¯ is 5 inches long, IJ¯ has a length of 12 – 5, or 7 inches. Complete Guided Learning on p. 147.

TEACHING NOTES

As your student works through the problems, encourage him to trace shapes on grid paper. Check your student’s work to determine if extra practice is needed.

If your student needs practice finding missing measures, have him draw a large rectangle on grid paper. Point out that the angles in a rectangle always measure 90°. Then have him draw dashed line segments from each corner of the rectangle to another point in the rectangle and mark each angle as shown. Have your student measure to the nearest degree the two angles in each corner created by the segment. Then have him add the angles in each corner. Point out that, since the corner angle is 90°, the sum of the angles is also 90°.

Have your student draw a figure made up of a square and a rectangle, as shown. Have him label the length of each side and use colored pencils or markers to mark the lengths that are the same. For example, AB¯ and CD¯ together are the same length as EF¯, and BC¯ and DF¯ together are the same length as AE¯.
Today you learned that you can use properties of rectangles and squares to find missing angle measures and side lengths.

90 - 65 = 25

x = 25°
Please go online to view and submit this assessment.
Part A:

Name the shape and describe how you know.
Part B:

What is the measure of angle $a$? Explain how you found the answer.

Did you:

- Name the shape and describe how you know?
- Give the measurement of angle $a$ and explain how you found the answer?
Think of a tourist attraction that you would like to visit. Pick a place that you would love to visit or love to be a part of creating. Once you have your idea, it is time to start bringing it to life.

Begin sketching the building onto graph paper with a straightedge. Define rooms or sections by outlining squares and rectangles. The construction team will use this information to help build the structure. You should have at least six rooms. Save your sketch for the Final Show.

Students will need to draw on their knowledge of 4-sided figures and their properties.

Please go online to view and submit this assessment.
Perimeter and Area of Squares and Rectangles - Part 1

**Objectives**
- Represent multiplication facts with an area model.
- Define area.
- Determine the area of a figure.
- Define perimeter.
- Determine the perimeter of a figure.

**Books & Materials**
- Math in Focus 4B
- Math in Focus - Teacher Edition
- grid paper (optional)

**Assignments**
- Complete Warm-Up.
- Read and complete pages in *Math in Focus 4B*.
- Complete Practice Questions.

**LEARN**

**WARM-UP**
How many coins does each child have?

1. John has 6 groups of coins with 9 coins in each group.
2. Gwyneth has 3 groups of coins with 12 coins in each group.

**TEACHING NOTES**

**Warm-up Answer Key**
1. 54 coins
2. 36 coins

**INSTRUCTION**

Today's lesson covers important ideas you need to understand before beginning the lessons in this chapter. Read pp. 196–198 in *Math in Focus 4B*. In the cartoon on p. 196, the students need to find the area of the room to find out how much carpet they need. They need to find the perimeter to know the length of the wall border. In this lesson, you will learn how to compute area and perimeter for different shapes.
As you discuss these pages with your student, take note of the skills that seem familiar and those that may need review. Do not provide detailed instruction at this point; simply preview the material to prepare for the Quick Check.

If your student needs extra practice with the concept, use grid paper to sketch a rectangle that is 5 units long and 2 units wide. Invite your student to count how many squares are inside the rectangle. Explain that this number represents the area of the figure, or 10 square units. Ask your student to count the number of segments that were traced to make the figure. Explain that this number represents the perimeter of the figure, or 14 units.

Draw additional figures of different shapes on the grid paper. Challenge your student to find the area and perimeter of each figure until she is comfortable with the concepts.

SKILLS CHECK
Complete the Quick Check on pp. 198–199 in Math in Focus 4B.

Textbook Answer Key
Review your student's answers to the Quick Check, noting the problems that your student answered incorrectly. Access the appropriate Reteach activity that your student should complete for the remainder of this lesson.

RETEACH
After your student completes the Quick Check in the Recall Prior Knowledge lesson of this chapter, review the questions that were answered incorrectly. If, after the review, you feel that your student needs additional exposure to any of these skills, click on the title below that corresponds with the number of the incorrectly answered question(s) and have him complete the activity.

<table>
<thead>
<tr>
<th>Quick Check Question(s)</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1–7</td>
<td>Brain Pop Jr.: Area</td>
</tr>
<tr>
<td>1–7</td>
<td>Brain Pop Jr.: Perimeter</td>
</tr>
</tbody>
</table>
WRAP-UP

Today you reviewed the area model to show multiplication. You also reviewed area and perimeter.

\[ 4 \times 8 = 32 \]

Area: 32 square units

\[ 4 + 8 + 4 + 8 = 24 \]

Perimeter: 24 units

✔️ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Perimeter and Area of Squares and Rectangles - Part 2

Objectives
- Determine the unknown angle and side of squares and rectangles.
- Find the perimeter of a figure.

Books & Materials
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition
- grid paper
- colored pencils or markers

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete pages in Workbook 4B.
- Complete Practice Questions.

LEARN

WARM-UP

Find the missing measures.

1. Rectangle

![Rectangle Diagram]

2. Square

![Square Diagram]
TEACHING NOTES

Warm-up Answer Key

1. 63°
2. 23°
3. 8 in.

INSTRUCTION

Read Hands-On Activity on p. 148 in Math in Focus 4B. Be sure that the lines of the figures you draw follow the lines on the grid paper. You may want to color your figure to help you visualize it. If you use grid paper, each length will be in centimeters.

In Step 3, the lines you draw can be dashed to distinguish them from the sides of the figure. Your lines should intersect with as much of your figure as possible and still make a rectangle or square. How do the perimeters compare? Sometimes the perimeter of your figure will be more than the perimeter of the rectangle or square that encloses it, and sometimes it will be the same. The perimeter of your figure will never be less than the perimeter of the square or rectangle that encloses it.

FUN FACT

The Pentagon in Washington, DC, is a building with 5 equal sides. Each side is about 921 feet long. To find the perimeter of the pentagon, you can add the length of each side: $921 + 921 + 921 + 921 + 921 = 4,605$ feet.
**TEACHING NOTES**

**Textbook Answer Key**

Check your student’s work to determine if extra practice is needed. If he has difficulty finding the lengths of the sides, have him put a tick mark on each grid square segment that makes up the perimeter of the figure. Then he can count the tick marks to find the perimeter.

If he has difficulty drawing lines to form the smallest possible rectangle to enclose the figure, have him count the total length and width of the figure. Point out that the total length and width of the figure should match the rectangle that encloses it.

If your student wants to learn more about perimeter relationships, have him draw five 4-by-5 rectangles and find the perimeter of one of the rectangles (18 units). In the other rectangles, have him draw lines to make other figures that have the same total length and width but look different, such as the ones shown. Then ask your student to find the perimeters of each of these shapes. Ask him to compare the perimeters and try to predict when the perimeter will be the same as the perimeter of the rectangle and when it will be greater.

**Workbook Answer Key**

Complete p. 89 in *Workbook 4B*.

**TEACHING NOTES**

**Workbook Answer Key**
WRAP-UP

Today you learned to add the lengths of the sides to find the perimeter of figures that are made up of squares and rectangles.

Perimeter = 4 + 6 + 3 + 5 + 7 + 11 = 36 cm

✅ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Perimeter and Area of Squares and Rectangles - Part 3

Books & Materials
- Math in Focus - Teacher Edition
- Math Notebook

Assignments
- Complete Interactive Activity.
- Complete Rate Your Enthusiasm.

LEARN

INTERACTIVE ACTIVITY

Follow these instructions for the activity shown below.

Click here if you would like to see the activity in a new window.

First experiment with making rectangles and squares of different sizes. There are three different ways to change the lengths of the sides: drag the vertices, drag the sliders, or click on the number in the text field next to a slider, type a new value, and hit Enter. When you click on the Square tab at the top left, you will notice that you only need to enter the length of one side.

Make sure you have selected the Rectangle tab. Set Base $b$ to 7.0 (7 units) and Height $h$ to 2.0 (2 units). In your Math Notebook, find the perimeter of this rectangle. Now click on Show perimeter info to check your work. Did you add the measurements of both bases and the measurements of both heights to find the perimeter?

You can write two different equations to find the perimeter of a rectangle. Use the measurements of this rectangle to fill in these equations. Write them in your Math Notebook:

- perimeter = _____ + _____ + _____ + _____
- perimeter = 2 × _____ + 2 × _____

Now answer these questions in your Math Notebook. Use the Gizmo to help you.

1. What is the perimeter of a rectangle with a base of 4.5 in. and a height of 6.0 in.?
2. What is the perimeter of a square with a side that measures 2.6 m?
3. What would be the side length of a square with a perimeter of 36 cm?
4. What could be the base and height of a rectangle with a perimeter of 14 ft?

Books & Materials
- Math in Focus - Teacher Edition
- Math Notebook

Assignments
- Complete Interactive Activity.
- Complete Rate Your Enthusiasm.
Answers:

Perimeter: 18 units; \( 7 + 2 + 7 + 2 \) (or equivalent); \( 2 \times 7 + 2 \times 2 \)

1 21 in. 2 10.4 m 3 9 cm 4 1 ft and 6 ft, 2 ft and 5 ft, or 3 ft and 4 ft

You may also wish to go to Lesson Info to explore the other teaching resources in the activity.

RATE YOUR ENTHUSIASM

Please go online to view and submit this assessment.
Perimeter and Area of Squares and Rectangles - Part 4

Objectives
- Determine area of a rectangle on a grid.
- Utilize the formula to find the area of a rectangle.

Books & Materials
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition
- ruler (optional)
- grid paper

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete pages in Workbook 4B.
- Complete Quick Check.

LEARN

WARM-UP
Complete the following conversions.

1. 3 feet = _______ inches
2. 4 meters = _______ centimeters
3. 6,000 meters = _______ kilometers
4. 2 miles = _______ yards

TEACHING NOTES

Warm-up Answer Key
1. 36
2. 400
3. 6
4. 3,520
INSTRUCTION
Read Learn on p. 200 in Math in Focus 4B. Area is a measure of the amount of surface an object occupies or covers. When you see a rectangle on a grid, you can find its area by counting the number of squares the rectangle covers. You can also multiply the length by the width to find the area of a rectangle.

Complete Guided Learning on pp. 201–203.

FUN FACT
Morro Bay, California, is home to a giant outdoor chess set. The chessboard is made from concrete and has an area of 256 square feet.

TEACHING NOTES
Textbook Answer Key

Review Learn on p. 200 with your student. Explain that each square in the figure has sides that are 1 centimeter long, so the area of each square is 1 square centimeter. Emphasize that area is always measured in square units: square centimeters (cm²), square inches (in.²), etc.

If your student needs extra practice with this concept, try this activity. Ask your student to draw a variety of rectangles on grid paper. Then ask her to find the area of each rectangle by counting the number of squares her figure occupies on the grid paper.

Once she has mastered this concept, ask him to place a plain sheet of paper on top of grid paper and trace each rectangle. Have him remove the grid paper and measure the length and width of each rectangle with a ruler in inches or centimeters. Challenge your student to find the area of the rectangle.

WATCH FOR THESE COMMON ERRORS
Your student may confuse perimeter and area. Remind your student that perimeter measures the distance around an object. Area measures how much space it occupies, or covers.

Your student may not label area measures appropriately. Remind her to use square units when she measures an area.

PRACTICE
Complete pp. 133–134 in Workbook 4B.
WRAP-UP

Today you learned how to find the area of a rectangle by counting squares and by applying the formula for area: area = length × width.

6 rows and 5 columns
30 squares
area = 30 cm²

length × width
2 ft × 9 ft
area = 18 ft²

QUICK CHECK

Please go online to view and submit this assessment.

MORE TO EXPLORE

Play the game, Area Blocks: Arrays, Area, Perimeter, to see if you can create shapes with certain areas at
Perimeter and Area of Squares and Rectangles - Part 5

Objectives
- Determine area of a rectangle on a grid.
- Estimate area of a figure on a grid.
- Utilize the formula to find the area of a rectangle.
- Estimate area of a figure on a grid.
- Utilize the formula to find the area of a rectangle.

Books & Materials
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition
- geoboard
- 4 rubber bands
- square dot paper
- grid paper

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete pages in Workbook 4B.
- Complete Practice Questions.

LEARN

WARM-UP
Use the figure to solve each problem. Each square represents 1 in.².

1. What is the perimeter of the rectangle?
2. What is the area of the rectangle?

TEACHING NOTES
Warm-up Answer Key
1. 22 inches
2. 28 square inches
INSTRUCTION

Read **Hands-On Activity** on p. 204 in *Math in Focus 4B*. Use rubber bands and a geoboard to make four different-sized rectangles. Follow the directions carefully. Sketch your rectangles on dot paper and complete parts a, b, and c. Use dot paper to complete the second part of the activity.

Complete **Guided Learning** on p. 205.

Read **Learn** on p. 206. Use the green table as a guide for estimation. Round as described in the table to approximate the area.


TEACHING NOTES

Encourage your student to use models and grids as she develops an understanding of the concept of area. Help her recognize that area is a measure of how much space something occupies, or covers. If your student associates the formula to find the area of a figure with its meaning, she can more easily apply the formula to solve problems. She will also be better prepared when she is asked to find the area of more complicated shapes, like the ones introduced in the BrainPOP video.

Monitor your student’s work to check that she labels perimeter measurements with units that measure length, (cm, inch, etc.) and labels area with square units (cm², in.², etc.).

Discuss the **Guided Practice** problems on p. 205 with your student. Ask her to describe what she thinks is the reasoning behind the outlined solution. For example, in question 10, ask: Why did you calculate 36 ÷ 4? Her description should explain that the distance around the edge of the frame is 36 inches, and that there are 4 equal sides to the frame. Her explanation should indicate that, once she knows the length of the sides, she is able to apply the formula and calculate the area of the figure.

When your student works on pp. 206–207, explain that estimation can be used to determine the area of an object, such as a room and a floor rug. So, if she estimates that the area of a room is approximately 100 ft², she would not purchase a floor rug that occupies, or covers, 125 ft². In this example, a precise measurement is not needed. An estimate is sufficient to make sure the floor rug fits the size of the room.
WRAP-UP

Today you found the area of a rectangle on a grid by using a formula and estimated the area of a figure on a grid.

![Figure](image)

This figure covers approximately 32 square units.

SUPPLEMENTAL

- BrainPOP: Area of Polygons

PRACTICE QUESTIONS

Please go online to view and submit this assessment.
## Perimeter and Area of Squares and Rectangles - Part 6

### Objectives
- Determine the area of a rectangle on a grid.
- Estimate area of a figure on a grid.
- Utilize the formula to find the area of a rectangle.

### Books & Materials
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition
- square grid paper
- markers or colored pencils (optional)

### Assignments
- Complete Warm-Up.
- Read and complete pages in *Math in Focus 4B*.
- Complete pages in *Workbook 4B*.
- Complete Practice Questions.

## LEARN

### WARM-UP
Use the grid to find the area enclosed by the figure.

1. How many whole squares are inside the figure?
2. How many half squares are inside the figure?
3. What is the area of the figure?

### TEACHING NOTES

#### Warm-up Answer Key
1. 16 whole squares
2. 8 half squares
3. 20 square units
Recall what you learned about area as you complete Let's Practice on pp. 208–210 in Math in Focus 4B.

Your student has practiced using a formula to determine the area of a rectangle and estimated area using a grid. In this lesson, she will reinforce these skills.

If your student needs extra practice with the concept, try this activity. Ask your student to use grid paper and draw a figure with one or more sides that are neither horizontal nor vertical. Tell her to color the squares according to this pattern:

- If an entire square is enclosed in the figure, color it red.
- If exactly half of a square is enclosed in the figure, color the enclosed half blue.
- If more than half of the square is enclosed in the figure, color the enclosed portion yellow.
- If less than half of the square is enclosed in the figure, color the enclosed portion green.

Count one square unit for each square colored red or yellow. Count 12 square unit for each square colored blue. Add the square units to find the estimated area.

**WATCH FOR THESE COMMON ERRORS**

Your student may add the lengths of the sides, instead of multiplying the lengths of the sides, to find the area of a figure. Remind your student about the area model of multiplication. If she can relate the model to the image of a rectangle on a grid, it will be helpful as she applies the formula for area to solve problems.

Complete pp. 137–138 in Workbook 4B.
WRAP-UP

Today you practiced finding and estimating area using a grid or formula.

Area = 6 in. × 3 in. = 18 in.²

✓ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Perimeter and Area of Squares and Rectangles - Part 7

Objectives
- Solve problems regarding area and perimeter of rectangles and squares.

Books & Materials
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition
- grid paper
- straightedge

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete pages in Workbook 4B.
- Complete Practice Questions.

LEARN

WARM-UP

Use the picture to help you solve each problem.

1. The perimeter of the rectangle is 20 ft. What is the length of the right side?
2. What is the area of the rectangle?

Warm-up Answers

1. 3 ft
2. 21 ft²
Read the two Learn sections on p. 211 in Math in Focus 4B. Use the bar model to help you visualize how to apply the formula for the perimeter of a rectangle to solve the problem.

Perimeter

= length of all four sides
= length + width + length + width
= (2 × length) + (2 × width)
= 2 × (length + width)

Complete Guided Learning on p. 212.

Read Learn on p. 212. A square is a rectangle with a length that is equal to its width.

Perimeter of a square = length + length + length + length, or 4 × length

When you know the perimeter of a square, divide it by 4 to find the length of each side.

Complete Guided Learning on p. 213.

TEACHING NOTES

Review the concept of perimeter with your student. Draw a 4-sided figure, label the lengths of each side, and ask her to find its perimeter. Have her draw and use a bar model, something similar to the bar model on p. 211, to find the perimeter of the 4-sided figure. Remind her that the formula to find the perimeter of a rectangle is length + width + length + width. Encourage your student to use a bar model as she solves problems involving perimeter.

When your student is asked to find the perimeter of a square, help her recognize that all sides will have equal lengths. This means the perimeter of a square is 4 × length. Encourage her to use a bar model to find the perimeter of a square so she can visualize how to apply this formula.

If your student needs extra practice with the concept, try this activity. Draw a square on grid paper. Ask your student to find the perimeter of the square by counting squares. Tell your student to divide the perimeter by 4 and compare the quotient to the length of a side.

PRACTICE

Complete Let’s Practice on p. 213 in Math in Focus 4B. Then complete pp. 139–142 in Workbook 4B.
Read the two Learn sections on p. 211 in Math in Focus 4B. Use the bar model to help you visualize how to apply the formula for the perimeter of a rectangle to solve the problem.

Perimeter = length of all four sides
= length + width + length + width
= (2 × length) + (2 × width)
= 2 × (length + width)

Complete Guided Learning on p. 212.

Read Learn on p. 212. A square is a rectangle with a length that is equal to its width.

Perimeter of a square = length + length + length + length, or 4 × length

When you know the perimeter of a square, divide it by 4 to find the length of each side.

Complete Guided Learning on p. 213.

Review the concept of perimeter with your student. Draw a 4-sided figure, label the lengths of each side, and ask her to find its perimeter. Have her draw and use a bar model, something similar to the bar model on p. 211, to find the perimeter of the 4-sided figure. Remind her that the formula to find the perimeter of a rectangle is length + width + length + width. Encourage your student to use a bar model as she solves problems involving perimeter.

When your student is asked to find the perimeter of a square, help her recognize that all sides will have equal lengths. This means the perimeter of a square is 4 × length. Encourage her to use a bar model to find the perimeter of a square so she can visualize how to apply this formula.

If your student needs extra practice with the concept, try this activity. Draw a square on grid paper. Ask your student to find the perimeter of the square by counting squares. Tell your student to divide the perimeter by 4 and compare the quotient to the length of a side.

Complete Let's Practice on p. 213 in Math in Focus 4B. Then complete pp. 139–142 in Workbook 4B.

WRAP-UP

Today you learned how to find the perimeter of a rectangle and a square using a formula. You also learned how to solve for the length of a side of a figure if given its perimeter.

- Add the lengths of the sides of a rectangle or square to find the perimeter.
- If you know the perimeter of a square, divide by 4 to find the length of one side.
- Divide the perimeter of a rectangle by 2 to find the sum of the length and width.

PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Perimeter and Area of Squares and Rectangles - Part 8

Objectives
- Solve problems centered about the area and perimeter of rectangles and squares.

Books & Materials
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition
- geoboard
- perimeter and area table
- grid paper (optional)

Assignments
- Complete Warm-Up.
- Read and complete Math in Focus 4B.
- Complete Workbook 4B.
- Complete Practice Questions.

LEARN

WARM-UP

Find the area and perimeter of the square.

![Square Diagram]

12 in.

1. Area = ______ square inches
2. Perimeter = ______ inches

TEACHING NOTES

Warm-up Answer Key

1. 144
2. 48
Read each Learn on pp. 214–215 in *Math in Focus 4B*. You can use the formula for area in different ways to find the missing pieces of information in a problem.

On p. 215 you will combine your skills to find the length of one side and the perimeter of a square. First, draw and label a picture to visualize the information that you are given for square G. Remember that the sides of a square must have equal lengths. After you draw the figure, first find the length of a side of square G. Then, use this information to solve for the perimeter of square G.


Review the area model for multiplication with your student. Relate it to the formula to find the area of a rectangle.

Remind your student that division is the inverse operation of multiplication. For example, she can solve a problem like \(9 \times _____ = 63\) by dividing \(63 ÷ 9 = 7\). Apply this concept by returning to the area model.

If your student needs extra practice, try this activity. On grid paper, draw a horizontal line 9 squares long. Ask your student to draw three more sides to make a rectangle with an area of 63 square units. She should draw another horizontal line 9 squares long, and two vertical lines each 7 squares wide. If your student is not sure how to find the answer, allow her to guess the width of the rectangle and apply it to the formula for area (length \(\times\) width). However, help her recognize that she can find the width of the figure with the information provided or by dividing the square units by the length of one side.

Once your student masters the concepts on p. 214 with rectangles, point out that she can apply the same concepts to solve problems with squares. Every square is a rectangle, so any method used to solve problems with rectangles will work for problems with squares. However, because all sides have equal lengths, the length of one side will be a number that, when multiplied by itself, can be used to find the area of a square.

Monitor your student’s work as she completes Let’s Explore on p. 216. Check to see that each rectangle has the same perimeter, and challenge her to find patterns in the table she creates. Help her recognize that rectangles with the same perimeter can have different areas.

Today you learned how to determine the area and perimeter of rectangles and squares.

- If you know the length and width of a rectangle, multiply to find the area.
- If you know the area of a rectangle and the length of one side, divide to find the width.
- If you know the area of a square, find a number that equals the area when multiplied by itself.
- You may find it helpful to draw a picture or use a bar model to help you solve problems that involve area or perimeter.

Please go online to view and submit this assessment.
The area of a rectangular piece of land is 240 square yards. Its width is 15 yards.

Part A:

What is the length of the land?

yards

Part B:

What is the perimeter of the land?

yards

Part C:

Suppose the width were greater than 15 yards. How would that affect the length? Explain.
USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Use the information given to answer parts A, B, and C?
- Explain how a width greater than 15 yards would affect the length?
Perimeter and Area of Squares and Rectangles - Part 10

SHOW

Calculate and label the area and perimeter of each room or section. This will help the construction team when they order materials for carpeting and flooring. Write this information in your Math Notebook.

TEACHING NOTES

Discuss with your student what is the difference between units used to measure perimeter and square units used to measure area. What is the difference between a unit and a square unit? How are 10 feet different from 10 square feet?

PROJECT PROGRESS

How ready do you feel to complete this part of the project?

- I feel very ready to complete this part of the project; I have learned everything I need to know to do it.
- I feel somewhat ready to complete this part of the project but I am unsure that I have learned everything I need to know to do it.
- I do not feel ready to complete this part of the project.
- I feel very unprepared to complete this part of the project.
How excited do you feel to complete this part of the project?

- I feel very excited to complete this part of the project.
- I feel somewhat excited to complete this part of the project.
- I do not feel excited to complete this part of the project.
- I feel completing this part of the project will be very boring.
A rectangle has a length of 14 cm and a width of 8 cm.

1. What is the area of the rectangle?
2. What is the perimeter of the rectangle?

**TEACHING NOTES**

Warm-up Answer Key

1. 112 cm²
2. 44 cm

**INSTRUCTION**

Read **Learn** on p. 218 in **Math in Focus 4B**. When shapes are combined to make a new figure, the new shape is called a *composite figure*. You can answer questions about the composite figure by identifying the shapes that make up the figure.

Can you see the shapes that make up the composite figure on p. 218? Look at the following example to see two different ways to make the composite figure.
Complete **Guided Learning** on p. 219. To find the perimeter of each figure, draw horizontal or vertical lines on the composite figures to show the squares and rectangles that made them. This will help you find the measures that you need to solve for the perimeter.

Then read **Learn** on p. 220. To find the area of the composite figure, add the area of rectangle A to the area of rectangle B. Notice that the area of a composite figure is the sum of the areas of the figures that made it. Complete **Guided Practice** on pp. 220–221.

### TEACHING NOTES

**Textbook Answer Key**

Encourage your student to draw the squares and rectangles that make up each composite figure. There is more than one correct way. Encourage your student to experiment with ways to break down composite figures. She may find that a different decomposition leads to an easier, more intuitive solution.

You may want to make sure your student has mastered finding the perimeter of composite figures (pp. 218-219) before working to find the area (pp. 220-221).
If your student struggles, try this activity. Sketch the composite figures on grid paper to help solve each problem. Use the dimensions in the problem to create the sketch. Next, have your student draw lines to show the shapes that make up the composite figure. All lines should be either horizontal or vertical. There is often more than one way to break apart the figure, so review your student's work carefully. Use the grid paper to help find missing dimensions and to calculate area and perimeter.

**PRACTICE**

Complete pp. 147–148 in *Workbook 4B*.

**TEACHING NOTES**

- Workbook Answer Key

**WRAP-UP**

Today you learned how to find the area and perimeter of a composite figure.

The missing side length is $8 - 5 = 3$ cm.

The perimeter of the figure is $8 + 2 + 3 + 5 + 5 + 7 = 30$ cm.

The area of the figure is $5 \times 5 + 2 \times 8 = 41$ cm².

**PRACTICE QUESTIONS**

Please go online to view and submit this assessment.
If your student struggles, try this activity. Sketch the composite figures on grid paper to help solve each problem. Use the dimensions in the problem to create the sketch. Next, have your student draw lines to show the shapes that make up the composite figure. All lines should be either horizontal or vertical. There is often more than one way to break apart the figure, so review your student's work carefully. Use the grid paper to help find missing dimensions and to calculate area and perimeter.

Complete pp. 147–148 in Workbook 4B.

Workbook Answer Key

Today you learned how to find the area and perimeter of a composite figure.

The missing side length is 8 – 5 = 3 cm.

The perimeter of the figure is 8 + 2 + 3 + 5 + 5 + 7 = 30 cm.

The area of the figure is 5 × 5 + 2 × 8 = 41 cm².

PRACTICE

LEARN

WARM-UP

Use the picture to find the missing dimensions.

1. Find the value of X.

2. Find the value of Y.

Warm-up Answer Key

1. 4 in.

2. 5 in.
INSTRUCTION

Complete **Hands-On Activity** on p. 222 in *Math in Focus 4B*. Figures made from the same pieces will have equal areas, but may have different perimeters. Perimeter is measured in linear units, while area is measured in square units. Make sure you label each measure correctly.

TEACHING NOTES

Monitor your student's progress as she draws different composite figures. She may prefer to use a computer to draw and combine the rectangles and squares. Regardless of her preferred method, encourage your student to draw each figure in a systematic way to ensure she captures the data she needs to calculate the area and perimeter of each figure she forms. When drawing each figure it is very important that your student labels each correctly. Accurate labeling is necessary for correct calculations of perimeter and area.

**WATCH FOR THESE COMMON ERRORS**

Your student may forget to label dimensions that are not identified in a problem. Remind your student to label each side of a figure before she begins to calculate perimeter.

PRACTICE

Complete **Let's Practice** on p. 223 in *Math in Focus 4B*. Then complete pp. 149–150 in *Workbook 4B*.

TEACHING NOTES

- **Textbook Answer Key**
- **Workbook Answer Key**

As your student completes the pages in *Workbook 4B*, tell her that there is more than one way to subdivide the composite figures to calculate area. Encourage your student to divide a composite figure in two or more different ways. Then, ask her to compare the area calculations for each composite figure. She should recognize the composite area is the same, just calculated differently with each division.
WRAP-UP

Today you practiced finding the area and perimeter of composite shapes.

PRACTICE QUESTIONS

Please go online to view and submit this assessment.
Composite Shapes - Part 3

Books & Materials
- Math in Focus - Teacher Edition

Assignments
- Complete Interactive Activity.
- Complete Rate Your Understanding.

LEARN

INTERACTIVE ACTIVITY

Use this interactive geoboard to create composite shapes. Use the squares inside the shapes to find the areas. Take turns with your Learning Guide.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Composite Shapes - Part 4

Objectives
- Solve problems with estimating area.
- Solve problems related to area and perimeter of figures made up of more than one shape.

Books & Materials
- Math in Focus 4B
- Workbook 4B.
- Math in Focus - Teacher Edition
- grid paper

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete pages in Workbook 4B.
- Complete Practice Questions.

LEARN

WARM-UP
Use the figure to solve each problem.

Let \( x = 9 \text{ cm} \) and \( y = 3 \text{ cm} \).

1. Find the perimeter of the rectangle.
2. Find the area of the rectangle.

1. \( 24 \text{ cm} \)
2. \( 27 \text{ cm}^2 \)

TEACHING NOTES

Warm-up Answer Key

INSTRUCTION
Read Learn on pp. 224–225 in Math in Focus 4B. Use the symbols in the shaded box to estimate the area of the pond. Compare your estimate to the one given in the book.
Complete **Guided Learning** on p. 226. Then read **Learn** on p. 226. How do you find the area of the shaded region? Use the drawing and the formula to find the area of the rectangle. Then, find the area that is not shaded and subtract it from the composite figure.

### TEACHING NOTES

This section does not introduce new formulas but applies the concepts that your student is learning to real-world situations. Your student may find it helpful to draw a sketch of the information included in the word problem as she works toward the solution. Sketches, including bar models, are a good way for your student to organize the information presented and identify what she needs to solve the problem.

Reinforce the formula $\text{area} = \text{length} \times \text{width}$. If your student needs extra practice with this concept, connect the formula to the array model for multiplication.

Encourage your student to break problems apart into smaller pieces. Explain that it is not necessary to see the solution immediately. Your student can break apart challenging word problems by following these steps:

1. Identify what you know and what you need to know.
2. Subdivide a figure into smaller parts.
3. Draw a sketch and label it using information from the problem.
4. List any formulas that you might need.
5. Use all the information, sketches, and formulas gathered to find the solution to the word problem.

Your student may find that the most challenging part is simply getting started. Reassure her that this is a typical challenge for any student when learning to solve word problems.

### PRACTICE

Complete **Guided Learning** on p. 227 and **Let's Practice** #1-3 on p. 234 in *Math in Focus 4B*. Then complete pp. **151–152** in *Workbook 4B*.

### TEACHING NOTES

- [Textbook Answer Key](#)
- [Workbook Answer Key](#)
WRAP-UP
Today you solved word problems by finding and estimating the area of different figures. You applied many different skills to solve these problems:

- Use a grid to estimate the area of a figure.
- Use a formula to calculate area.
- Divide composite figures into rectangles and squares.
- Find the area of smaller pieces, then add or subtract to find the area you need.

✔️ PRACTICE QUESTIONS

Please go online to view and submit this assessment.

Textbook Answer Key
Workbook Answer Key

TEACHING NOTES

WRAP-UP
Composite Shapes - Part 5

Objectives
- Solve problems with estimating area.
- Solve problems related to area and perimeter of figures made up of more than one shape.

Books & Materials
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition
- different colored paper (optional)
- scissors (optional)
- grid paper (optional)

Assignments
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete pages in Workbook 4B.
- Complete Quick Check.

LEARN

WARM-UP

Use the figure to solve each problem.

1. Find the perimeter of the figure.
2. Find the area of the figure.

Warm-up Answer Key

1. 26 cm
2. 36 cm²
INSTRUCTION

Read Learn on p. 228 in Math in Focus 4B. Recall that you can find the area of composite figures by dividing them into rectangles and squares.

Notice that the outside edge of the path is a large rectangle. Also, the inside edge of the path is a smaller rectangle. To find the area of the path around the figure you have to find the difference between the areas of the rectangles.


TEACHING NOTES

Textbook Answer Key

Monitor your student as she uses subtraction to find the area of a path around a figure. In previous lessons, your student learned how to view figures as composites. Ask her to recall and apply the skills she used to find the area of composite figures to this new concept.

First, look at the path in the example on p. 228 with your student. Discuss how she could divide the path into squares and rectangles. Then, discuss how many different little figures she would use to solve the problem.

Help your student recognize that it may be better to use subtraction to find the area of certain types of figures. Discuss why it is better to use subtraction for the example on p. 228. Help her recognize the two rectangles that compose the path. Then, explain that the area of the path is the difference between the areas of these two rectangles. Ask her to look at the large rectangle and imagine removing the small rectangle from the center.

If it is helpful, trace the figure and ask your student to cut the small rectangle from the large rectangle so she can visualize the difference. She will be left with the path and the understanding that this method works for figures like a path around a rectangle.

If your student needs extra practice, try this activity. Ask your student to use colored paper to draw and cut out two rectangles with different sizes. Then, have her place the smaller rectangles on top of the larger ones. Ask her to focus on the portion of the larger rectangle that is still visible and to find the area of that new shape, or the visible portion of the larger rectangle.

Ask: Are you able to find the area of each rectangle separately? (Yes, by using the area formula.) How does the area of the larger rectangle relate to the area of the new figure or the portion of the larger rectangle that is still visible? (She can measure the new figure, or the portion of the larger rectangle that is still visible, by removing the portion of the larger rectangle covered by the smaller one.) So, to find the area of the new figure, your student can subtract the area of the smaller rectangle from the area of the larger one.
Today you learned how to find the area of a path.

Area of large rectangle:

\[ \text{length} \times \text{width} \]
\[ (2 + 11 + 2) \times 10 \]
\[ 150 \text{ yd}^2 \]

Area of small rectangle:

\[ \text{length} \times \text{width} \]
\[ 11 \times 6 \]
\[ 66 \text{ yd}^2 \]

Area of path:

\[ 150 - 66 = 84 \text{ yd}^2 \]
Please go online to view and submit this assessment.

Try using figures drawn on grid paper to help build your understanding that the sum of the areas of the parts equals the area of the composite figure as a whole.
Composite Shapes - Part 6

**Books & Materials**
- Math in Focus - Teacher Edition

**Assignments**
- Complete Interactive Activity.
- Complete Rate Your Enthusiasm.

**LEARN**

**INTERACTIVE ACTIVITY**
In this activity, you can drag tiles to form rectangles and can explore the area and perimeter of each rectangle.

[BrainPop: Area Builder](#)

**RATE YOUR ENTHUSIASM**
Please go online to view and submit this assessment.
Unfold your piece of paper. Notice that the 2-inch side of the shaded triangle becomes part of the bottom edge of the paper. You can find the length of one side of the paper by adding the lengths of the pieces: 5 in. + 2 in. = 7 in. The piece of paper in the example is a square with 7-inch sides. So, multiply 4 × 7 to find the perimeter of the paper.

So, the shaded area is half this value or 2 in.².

Unfold your piece of paper. Notice that the 2-inch side of the shaded triangle becomes part of the bottom edge of the paper. You can find the length of one side of the paper by adding the lengths of the pieces: 5 in. + 2 in. = 7 in. The piece of paper in the example is a square with 7-inch sides. So, multiply 4 × 7 to find the perimeter of the paper.

Let's Explore on p. 233.

**LEARN**

**WARM-UP**

A rectangle is 7 inches long and 3 inches wide.

1. What is the area of the rectangle?
2. A 2-inch square is cut out of the rectangle. What is the area of the new figure?

**TEACHING NOTES**

**Warm-up Answer Key**

1. 21 in.²
2. 17 in.²

**INSTRUCTION**

Read Learn on p. 231 in Math in Focus 4B. Model the problem with a piece of paper as you read. Fold one corner of the paper as shown in the sketch. Label the paper to match the example. Notice that the shaded area of the sketch is half of a square. What is the area of the square?

Area = 2 × 2 = 4 in.²

So, the shaded area is half this value or 2 in.².

Encourage your student to model each problem as she works. The problems are more accessible when your student is able to visualize them accurately.

Review the process for estimating area with your student. Remind her to count whole squares and half squares first. Then, monitor your student’s progress as she completes Hands-On Activity on p. 232.

Let’s Explore on p. 233 provides an opportunity to discover how the area of a rectangle changes when the length or the width changes. Discuss what your student discovers in this activity. Ask: What happens to the area when the length is cut in half? She should see that the area is half that of the original figure.


Textbook Answer Key
Workbook Answer Key

Today you learned how to find the area and perimeter of parts of a figure.

This shaded figure is formed by folding the corner of a piece of paper.
To find the area of the shaded figure, notice that the top side of the triangle formed by the fold has the same length as the left side of the shaded area.

Length of shaded figure: $12 - 4 = 8$ in.

Width of shaded figure: 4 in.

Area of shaded figure: $8 \times 4 = 32$ in.$^2$

✔️ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
## Warm-up

A rectangle is 15 cm long and 9 cm wide.

1. Find the area of the rectangle.
2. Find the perimeter of the rectangle.

### TEACHING NOTES

#### Warm-up Answer Key

1. 135 cm
2. 48 cm

### Instruction

This lesson will give you more practice solving problems with area and perimeter. Many real-world problems are multi-step problems. This means they are not solved with one simple calculation. As you work today, take your time. You are not expected to solve these problems with a quick formula. It will help to break the problem down into smaller sections.

Download, print, read, and complete the examples on the [Finding Area and Perimeter Worksheet](#). As you find missing measures, write them on the figures. This will help as you find the perimeter and area. When you need to divide a composite figure into rectangles and squares, draw that on the figure as well.
These problems are multi-step problems. This means they are not solved with one simple calculation. As you work today, take your time. You are not expected to solve these problems with a quick formula. It will help to break the problem down into smaller sections.

Grade 4

Today you reviewed how to find the area and perimeter of composite figures. You are able to find missing dimensions on a figure. You have learned how to divide a complicated figure into rectangles and squares to find the total area.

This lesson will give you more practice solving problems with area and perimeter. Many real-world situations require you to find the area or perimeter of composite figures. When you need to divide a composite figure into rectangles and squares, draw that on the figure as you find missing measures, write them on the figures. This will help as you find the perimeter and area.

**TEACHING NOTES**

Guide your student through the first problem. Instruct her to label the figure completely. She should add the missing width and the missing length. Ask your student to recall the formula for perimeter, or length + width + length + width. Have your student explain each of the computations on the first example. She should understand what each number represents, when to add, and when to multiply.

Monitor your student’s progress as she completes the second example in the activity. Suggest she continue to mark up the figure by adding missing dimensions and drawing the lines needed to break the figure apart.

If your student needs extra practice finding the side length of a square in the third example, guide her to make a systematic list: 1 × 1, 2 × 2, etc., until she finds the number she needs. When finding perimeter, instruct your student to trace the outer edge of the figure, count the sides of squares as she traces, and to multiply the number of sides by the length of each side to find the total distance.

**PRACTICE**

Complete problems 1–4 on Finding Area and Perimeter Worksheet.

**TEACHING NOTES**

**Worksheet Answers:**

**Your Turn 1** a = 4 m; b = 16 m; c = 1 m; d = 3 m 2 perimeter = 46 m 3 Check your student’s work for accuracy. 4 area = 72 m²

**Using What You Know about Squares and Rectangles 1** 3; 3 in. 2 16 3 48 4 9; 81 **Practice 1** 104 in.² 2 46 in. 3 16 yd² 4 20 yd
WRAP-UP

Today you reviewed how to find the area and perimeter of composite figures. You are able to find missing dimensions on a figure. You have learned how to divide a complicated figure into rectangles and squares to find the total area.

Please go online to view and submit this assessment.
Composite Shapes - Part 9

**Objectives**
- Apply mathematical concepts and skills to solve problems.

**Books & Materials**
- Math in Focus 4B
- Workbook 4B
- Math in Focus - Teacher Edition
- grid paper

**Assignments**
- Complete Warm-Up.
- Read and complete pages in Math in Focus 4B.
- Complete pages in Workbook 4B.
- Complete Practice Questions.

**LEARN**

**WARM-UP**

Draw models to solve each problem.

1. A rectangle has an area of 24 in.². The rectangle is 6 in. long. How wide is it?

2. What is the area of the figure shown here?

**TEACHING NOTES**

Warm-up Answer Key

1. 4 inches

2. about 27 square miles

**INSTRUCTION**

Complete Put On Your Thinking Cap! on pp. 236–237 in Math in Focus 4B.
To help your student complete problem 1, encourage her to draw a table with rows labeled: Length of side (yd); Perimeter (yd); and Area (yd²). Have your student write 1, 2, 3, 4, and so on across the top row. Remind your student that the formula $\ell + \ell + \ell + \ell$ gives the perimeter of a square. For example, the perimeter of a square with a length of 1 yd is 4 yd.

Then have your student use the formula $\text{length} \times \text{width}$ to find the area of a square with a side length of 1 yd. (1 yd²) Continue filling in the table until the area and perimeter have the same numerical value ($4 \times 4$).

For problem 2, have your student use grid paper to draw a 12 × 8 rectangle and shade 3 × 3 squares inside the rectangle to find the total number of possible squares that can be made without overlapping (8 squares). Then help your student understand that the quotient of $12 \div 3$ is 4 and to the nearest whole number, the quotient of $8 \div 3$ is 2. The product of $4 \times 2$ is 8, or 8 square units.

If your student struggles with problem 3, explain that although the figure is irregularly shaped, the combined lengths across the top of the figure equal 25 miles, and the combined lengths along the right side equal 12 miles. So, the figure's perimeter is $25 + 25 + 12 + 12$, or 74 miles. You may want your student to draw a model of the figure on grid paper, and draw straight lines across the top and side to calculate the rectangle's perimeter.

For the last problem, have your student copy and complete the table to find two areas with a sum of 89 cm². If the task is challenging, you may want to reveal that the smaller square has a measure of 25 cm².
If your student struggles with problem 2, encourage her to find how many units make up the perimeter of the painting. \(3 + 3 + 1 + 1 = 8\) units. The perimeter is 8 units, which is equal to 64 inches. So one unit is equal to 8 inches. She can then go back into the problem to find the length. \(3 \times 8 = 24\) in.

For problem 3, your student must start by dividing the area in half because she is looking for the length, which is twice the width. \(50 \div 2 = 25\) This turns this rectangle into a square. Now she can find the length and width of the square. Using mental math she needs to find what number times itself gives her 25. \(5\) So the width is 5 yards. Since the length is twice the width, the length needs to be multiplied by 2. The length is \(5 \times 2 = 10\) yards.

For problem 4, encourage your student to use grid paper to model the distance around three sides of the garden to determine how much fencing is needed (38 m).

For problem 5, suggest that your student begin solving the problem by finding the area of the entire floor (35 square feet). Then calculate the area of the uncarpeted floor. \((7\ ft - 0.5\ ft = 6.5\ ft; 6.5\ ft \times 5\ ft = 32.5\ ft^2)\) Subtract the area of the uncarpeted floor from the area of the entire floor, and the difference is the area of the carpeted floor \(2.5\ ft^2\).

On p. 120, encourage your student to make a tally table with two columns: Whole Squares and Half to Almost Whole Squares. Have your student make a tally for each kind of square and find the sum to estimate the pond's area. \((41-43\ in.^2)\)

On p. 121, help your student see the relationship between problem 1 on this page and problem 3 in Put On Your Thinking Cap! on p. 237 in Math in Focus 4B.

For problem 2, encourage your student to draw a model of Figure A on grid paper and calculate its area. \((64\ in.^2)\) Then have her cut out the model and fold it to make four triangles. Ask your student to observe that the triangles are congruent, or the same size and shape. Their areas are the same, so each triangle has an area equal to \(\frac{1}{4}\) of the square. \((16\ in.^2)\) Help your student observe that the open flap in Figure B has the same area as each of the square's triangles, or \(16\ in.^2\). So Figure B's total area is \(64\ in.^2 + 16\ in.^2 = 80\ in.^2\).

For problem 3, have your student build a table with three rows labeled: Area of large square, Area of small square, and Area of unshaded part. Have her record guesses in the table, starting with the smallest whole numbers possible, that is, \(2 \times 2 = 4\ ft^2\) for the large square and \(1 \times 1 = 1\ ft^2\) for the small square. Then have her find the difference between the two areas to record in the third row.

Have your student continue guessing until the difference between the large and small squares equals \(9\ ft^2\). \((5 \times 5 = 25\ ft^2\) for the large square and \(4 \times 4 = 16\ ft^2\) for the small square) Knowing the areas of the two squares makes it possible to determine the length of each side of the unshaded part: \(5 + 5 + 1 + 4 + 4 + 1 = 20\ ft\). Drawing a model on grid paper may make it easier for your student to find the solution.
WRAP-UP

Today you learned how to solve challenging problems that focused on finding area and perimeter. There are some strategies that make it easier to solve these kinds of problems.

- Draw tables to record data.
- Make lists or tally chart.
- Draw models.
- Draw models.

✔ PRACTICE QUESTIONS

Please go online to view and submit this assessment.
A rectangular piece of carpet is 18 feet long and 12 feet wide. A square is cut out of each corner to fit the carpet into a room. Each square has 3-foot sides.

Part A:

Find the measures of $a$ and $b$.

\[
\begin{align*}
    a &= \quad \quad b &= \quad \\
\end{align*}
\]

Part B:

Find the area of the carpet after the squares are removed.

\[
\begin{align*}
    \quad \text{feet squared}
\end{align*}
\]
Part C:

What is the perimeter of the carpet after the squares are removed?

Use the diagram and the information given to answer parts A, B, and C?
Show your work to explain how you found your answers?
Composite Shapes - Part 11

Books & Materials
- Math in Focus - Teacher Edition

SHOW

Now it is time to create your second floor. On a separate piece of graph paper, draw the second floor, using a straightedge. The second floor does not need to be the same shape, but the length and width should be equal to or less than the first floor. The second floor should include at least three rooms, which are all composite shapes. Calculate the perimeter and area of each room, and include your calculations on the drawing.

TEACHING NOTES

Have students walk around a building or house and note all the composite shapes they can find.

PROJECT PROGRESS

How ready do you feel to complete this part of the project?

- I feel very ready to complete this part of the project; I have learned everything I need to know to do it.

- I feel somewhat ready to complete this part of the project but I am unsure that I have learned everything I need to know to do it.

- I do not feel ready to complete this part of the project.

- I feel very unprepared to complete this part of the project.
How excited do you feel to complete this part of the project?

- I feel very excited to complete this part of the project.
- I feel somewhat excited to complete this part of the project.
- I do not feel excited to complete this part of the project.
- I feel completing this part of the project will be very boring.
You have done a great job setting up your tourist attraction. The last step is to set up the area outside of your building. Think about what you would want, such as grass, a sidewalk, a parking lot, a playground area, and so on. You should have at least two areas. Label these sections and calculate their total area. Finally, build a fence around the entire property and calculate the length of this fence. Keep all your information in your Math Notebook.

Please go online to view and submit this assessment.
## Show: Design A Tourist Attraction

### Books & Materials
- Math in Focus - Teacher Edition

### Final Project

It's time to present your final project.

Show both floors, as well as the outside. Make sure that all of your rooms and sections are labeled with their purpose, their area, and their perimeter. Include all of your work and calculations. Upload your work in the box.

Supported file formats: PDF, JPG, GIF, PNG, RTF, Word, Powerpoint

---

[File Limit]

0 / 5 File Limit
Unit Quiz: Shapes and Sizes

Books & Materials
- Math in Focus - Teacher Edition

☑️ UNIT QUIZ

Please go online to view and submit this assessment.
Appendix
This form is to be used when completing Use for Mastery assessments or Projects offline. Your assessment can then be scanned and uploaded into the correct lesson online.

Please Fill In This Form Completely

<table>
<thead>
<tr>
<th>Student's Name</th>
<th>Grade</th>
</tr>
</thead>
</table>

Course Name

Lesson Title

Provide your answer in the space below.
# Heading to the City

## Student Facing Project Rubric

Read the chart below to understand how your project will be scored. Your goal should be to earn all 4 points for each part.

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>4 POINTS</th>
<th>3 POINTS</th>
<th>2 POINTS</th>
<th>1 POINT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Poster</strong></td>
<td>Your poster shows the population and size of the city along with at least one additional fact. The numbers are written in standard, exponential, and written form. The poster contains at least one colorful image that represents the town. The sources have been cited appropriately.</td>
<td>Your poster shows the population, size of the city along with at least one additional fact. The numbers are written in two of the following ways: standard, exponential, and written form. The poster contains at least one image that represents the town, but no colors have been used. The sources have been cited appropriately.</td>
<td>Your poster contains most of the information, but it is missing one such as the population, size of the city along with at least one additional fact, or there is no image. The numbers are only written in one form. The sources have been cited appropriately.</td>
<td>Your poster contains some facts, but it is missing one fact and the image or two facts such as the population, size of the city, and at least one additional fact. The sources have not been cited appropriately.</td>
</tr>
<tr>
<td><strong>Comparing Data</strong></td>
<td>You correctly used subtraction to find the difference between both the populations and the areas.</td>
<td>You correctly used subtraction to find the either the difference between the populations or the areas, but you made an error finding the other.</td>
<td>You used subtraction, but you did not find the correct difference between the populations or the areas.</td>
<td>You did not use subtraction, so you did not receive the correct difference between the populations and the areas.</td>
</tr>
<tr>
<td><strong>Calculating Cost</strong></td>
<td>You correctly calculated the cost to visit the town including the hotel stay along with two fun activities. Your sources have been listed correctly.</td>
<td>You correctly calculated either the total cost to visit the town or the cost for your family to do the fun activities. Your sources have been listed correctly.</td>
<td>You used multiplication and addition to calculate the total cost, but you made two or more computation errors which led to an incorrect answer. Your sources have been listed.</td>
<td>You did not use multiplication and addition to calculate the total cost, and you therefore reached an incorrect total. You did not list your sources.</td>
</tr>
<tr>
<td><strong>Calculating the People Per Square Mile</strong></td>
<td>You used division to correctly divide the population by the area to find the number of people per square mile.</td>
<td>You used division and divided the population by the area, but your answer for at least one of the towns was incorrect.</td>
<td>You used division, but you divided the area by the population to reach an incorrect answer.</td>
<td>You did not use division, so you did not find the correct answer.</td>
</tr>
<tr>
<td><strong>Presentation</strong></td>
<td>Your presentation summarizes all of the information that you have gathered including the population, area, and people per square mile. You also provided the information about the trip including the total cost, the hotel you will be staying at, and the two activities that you want to do. You uploaded all of your work including your notes and sources.</td>
<td>Your presentation summarizes all of the information that you have gathered including the population, area, and people per square mile. You also provided the information about the trip, but left out one of the following details: the hotel you will be staying at and one of the two activities that you want to do. You uploaded all of your work including your notes and sources.</td>
<td>Your presentation summarizes all of the information that you have gathered including the population, area, and people per square mile. You also provided the information about the trip including where you will stay and what you will do, but you left out how much it would cost. You uploaded most of your work.</td>
<td>Your presentation summarizes some of the information that you have gathered but left out the population, area, or people per square mile. You also provided the information about the trip but you left out how much it would cost and either where you will stay or what you will do. You uploaded most of your work.</td>
</tr>
</tbody>
</table>

Total Possible Points: 20
### Total Possible Points: 20

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>1 POINT</th>
<th>2 POINTS</th>
<th>3 POINTS</th>
<th>4 POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your Results</td>
<td>You correctly converted all of your ingredients to decimal form, and you showed all of your work and calculations.</td>
<td>You correctly converted 1-2 of your ingredients to decimal form, and you showed 1-2 of your work and calculations.</td>
<td>You correctly converted 3-4 of your ingredients to decimal form, and you showed 3-4 of your work and calculations.</td>
<td>You correctly converted all of your ingredients to decimal form, and you showed all of your work and calculations.</td>
</tr>
<tr>
<td>Decimals</td>
<td>The decimals representing sizes and amounts were incorrect. You did not show all of your work and calculations.</td>
<td>The decimals representing sizes and amounts were incorrect. You showed 1-2 of your work and calculations.</td>
<td>The decimals representing sizes and amounts were incorrect. You showed 3-4 of your work and calculations.</td>
<td>The decimals representing sizes and amounts were correct. You showed all of your work and calculations.</td>
</tr>
<tr>
<td>Fractions to Decimal Form</td>
<td>You converted all of your ingredients to decimal form, but at least 5 of your amounts were incorrect. You did not show all of your work and calculations.</td>
<td>You converted 1-2 of your ingredients to decimal form, but 3-4 of your amounts were incorrect. You showed 1-2 of your work and calculations.</td>
<td>You converted 3-4 of your ingredients to decimal form, but 1-2 of your amounts were incorrect. You showed 3-4 of your work and calculations.</td>
<td>You correctly converted all of your ingredients to decimal form, and you showed all of your work and calculations.</td>
</tr>
<tr>
<td>Multiplying the Ingredients</td>
<td>You correctly used both addition and subtraction to correctly calculate the amount of milk cheese you will need. You also showed all of your work and calculations.</td>
<td>You correctly used both addition and subtraction to correctly calculate the amount of milk cheese you will need. You showed 1-2 of your work and calculations.</td>
<td>You correctly used both addition and subtraction to correctly calculate the amount of milk cheese you will need. You showed 3-4 of your work and calculations.</td>
<td>You correctly used both addition and subtraction to correctly calculate the amount of milk cheese you will need. You showed all of your work and calculations.</td>
</tr>
<tr>
<td>Preparing the Ingredients</td>
<td>You correctly added the salt and mustard seed to create the seasoning packet. You also explained your reasoning and shared your work and calculations.</td>
<td>You correctly added the salt and mustard seed to create the seasoning packet. You explained your reasoning and shared 1-2 of your work and calculations.</td>
<td>You correctly added the salt and mustard seed to create the seasoning packet. You explained your reasoning and shared 3-4 of your work and calculations.</td>
<td>You correctly added the salt and mustard seed to create the seasoning packet. You explained your reasoning and shared all of your work and calculations.</td>
</tr>
<tr>
<td>Measurements</td>
<td>You used both the measuring spoon and measuring cup correctly to find the exact amount of each ingredient you will need. You also showed all of your work and calculations.</td>
<td>You used both the measuring spoon and measuring cup correctly to find the exact amount of each ingredient you will need. You showed 1-2 of your work and calculations.</td>
<td>You used both the measuring spoon and measuring cup correctly to find the exact amount of each ingredient you will need. You showed 3-4 of your work and calculations.</td>
<td>You used both the measuring spoon and measuring cup correctly to find the exact amount of each ingredient you will need. You showed all of your work and calculations.</td>
</tr>
<tr>
<td>Equivalent Measurements</td>
<td>You correctly ordered your ingredients from greatest to least. You did not explain your reasoning or share your work and calculations.</td>
<td>You correctly ordered your ingredients from greatest to least. You explained your reasoning and shared 1-2 of your work and calculations.</td>
<td>You correctly ordered your ingredients from greatest to least. You explained your reasoning and shared 3-4 of your work and calculations.</td>
<td>You correctly ordered your ingredients from greatest to least. You explained your reasoning and shared all of your work and calculations.</td>
</tr>
<tr>
<td>Subtracting by Adding and Subtracting</td>
<td>You correctly added the salt and mustard seed to create the seasoning packet. You also explained your reasoning and shared your work and calculations.</td>
<td>You correctly added the salt and mustard seed to create the seasoning packet. You explained your reasoning and shared 1-2 of your work and calculations.</td>
<td>You correctly added the salt and mustard seed to create the seasoning packet. You explained your reasoning and shared 3-4 of your work and calculations.</td>
<td>You correctly added the salt and mustard seed to create the seasoning packet. You explained your reasoning and shared all of your work and calculations.</td>
</tr>
<tr>
<td>Calculations</td>
<td>You correctly calculated the amounts of each ingredient you will need, or using both addition and subtraction to determine how much you would have to buy as well as how much you will have left over. You also showed all of your work and calculations.</td>
<td>You correctly calculated the amounts of each ingredient you will need, or using both addition and subtraction to determine how much you would have to buy as well as how much you will have left over. You showed 1-2 of your work and calculations.</td>
<td>You correctly calculated the amounts of each ingredient you will need, or using both addition and subtraction to determine how much you would have to buy as well as how much you will have left over. You showed 3-4 of your work and calculations.</td>
<td>You correctly calculated the amounts of each ingredient you will need, or using both addition and subtraction to determine how much you would have to buy as well as how much you will have left over. You showed all of your work and calculations.</td>
</tr>
</tbody>
</table>

Read the chart below to understand how your project will be scored. Your goal should be to earn all 4 points for each part.
# Dream Neighborhood

**Student Facing Project Rubric**

Read the chart below to understand how your project will be scored. Your goal should be to earn all 4 points for each part.

<table>
<thead>
<tr>
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<th>4 POINTS</th>
<th>3 POINTS</th>
<th>2 POINTS</th>
<th>1 POINT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Neighborhood Sketch</td>
<td>You sketched the streets of your neighborhood. You have labeled all of the angles as acute, right, and obtuse. You also made some observations about the neighborhood.</td>
<td>You sketched the streets of your neighborhood. You have labeled all of the angles as acute, right, and obtuse. You did not make some observations about the neighborhood.</td>
<td>You sketched the streets of your neighborhood. You have labeled some of the angles as acute, right, and obtuse. You did not make some observations about the neighborhood.</td>
<td>You sketched the streets of your neighborhood. You did label the angles as acute, right, and obtuse. You did not make some observations about the neighborhood.</td>
</tr>
<tr>
<td>Parallel and Perpendicular Streets</td>
<td>You included at least three pairs of streets that are parallel and three pairs of streets that are perpendicular. They are all correctly labeled and identified.</td>
<td>You included at least two pairs of streets that are parallel and two pairs of streets that are perpendicular. They are all correctly labeled and identified.</td>
<td>You included one pair of streets that are parallel and one pair of streets that are perpendicular. They are all correctly labeled and identified.</td>
<td>You included one pair of streets that are parallel or one pair of streets that are perpendicular. They are all correctly labeled and identified.</td>
</tr>
<tr>
<td>Lines of Symmetry</td>
<td>You have included at least 5 landmarks on your map, and at least 3 are symmetrical. Lines of symmetry have been correctly drawn on the symmetrical polygons.</td>
<td>You have included at least 3 landmarks on your map, and at least 3 are symmetrical. Lines of symmetry have been correctly drawn on the symmetrical polygons.</td>
<td>You have included at least 5 landmarks on your map, and at least 3 are symmetrical. There are no lines of symmetry, or they are not correct.</td>
<td>You have included at least 3 landmarks on your map, but they are not all symmetrical. There are no lines of symmetry, or they are not correct.</td>
</tr>
<tr>
<td>Final Show-Neighborhood Details</td>
<td>Your neighborhood includes street labels, fun attractions to visit with labels, a variety of colors, and your home.</td>
<td>Your neighborhood includes many details, but is missing one of the following: street labels, fun attractions to visit with labels, a variety of colors, and your home.</td>
<td>Your neighborhood includes many details, but is missing two of the following: street labels, fun attractions to visit with labels, a variety of colors, and your home.</td>
<td>Your neighborhood includes many details, but is missing three of the following: street labels, fun attractions to visit with labels, a variety of colors, and your home.</td>
</tr>
<tr>
<td>Overall Neatness</td>
<td>All of the lines on the map have been drawn with a straight edge. The streets and landmarks are clearly labeled using neat, legible handwriting.</td>
<td>You converted all of your ingredients to decimal form, but 1-2 of your amounts was incorrect. You showed all of your work and calculations.</td>
<td>You converted all of your ingredients to decimal form, but 3-4 of your amounts was incorrect. You did not show all of your work and calculations.</td>
<td>You converted all of your ingredients to decimal form, but at least 5 of your amounts was incorrect. You showed all of your work and calculations.</td>
</tr>
</tbody>
</table>

Total Possible Points: 20
### Design A Tourist Attraction

#### Student Facing Project Rubric

Read the chart below to understand how your project will be scored. Your goal should be to earn all 4 points for each part.

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>1 POINT</th>
<th>2 POINTS</th>
<th>3 POINTS</th>
<th>4 POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design of Floors</td>
<td>The first floor of your tourist attraction has at least six rooms that are a combination of triangles, squares, and rectangles.</td>
<td>The first floor of your tourist attraction has less than six rooms that are a combination of triangles, squares, and rectangles.</td>
<td>The second floor is made up of at least 3 composite shaped rooms.</td>
<td>The second floor is made up of less than 3 composite shaped rooms.</td>
</tr>
<tr>
<td>Area</td>
<td>You correctly calculated the area of the rooms in the shape of triangles, squares, rectangles, and composite figures.</td>
<td>You correctly calculated the area of most rooms in the shape of triangles, squares, rectangles, and composite figures. You made 1 or 2 mistakes.</td>
<td>You correctly calculated the area of most rooms in the shape of triangles, squares, rectangles, and composite figures. You made 2 or 3 mistakes.</td>
<td>You correctly calculated the area of some rooms in the shape of triangles, squares, rectangles, and composite figures. You made more than 3 mistakes.</td>
</tr>
<tr>
<td>Perimeter</td>
<td>You correctly calculated the perimeter of the rooms in the shape of triangles, squares, rectangles, and composite figures.</td>
<td>You correctly calculated the perimeter of most rooms in the shape of triangles, squares, rectangles, and composite figures. You made 1 or 2 mistakes.</td>
<td>You correctly calculated the perimeter of most rooms in the shape of triangles, squares, rectangles, and composite figures. You made 2 or 3 mistakes.</td>
<td>You correctly calculated the perimeter of some rooms in the shape of triangles, squares, rectangles, and composite figures. You made more than 3 mistakes.</td>
</tr>
<tr>
<td>Outside</td>
<td>You correctly calculated the area of the areas outside of the building as well as the amount of fencing that you will need.</td>
<td>You correctly calculated the area of the areas outside of the building as well as the amount of fencing that you will need. You made 1 error in your calculations.</td>
<td>You correctly calculated the area of the areas outside of the building as well as the amount of fencing that you will need. You made 2 errors in your calculations.</td>
<td>You correctly calculated the area of the areas outside of the building as well as the amount of fencing that you will need. You made more than 2 errors in your calculations.</td>
</tr>
<tr>
<td>The Final Show</td>
<td>All rooms and outside areas are labeled with their purpose, area, and perimeter. All notes and calculations have also been included.</td>
<td>Most of the rooms and outside areas are labeled with their purpose, area, and perimeter. There are 2-5 labels or dimensions missing. All notes and calculations have also been included.</td>
<td>Most of the rooms and outside areas are labeled with their purpose, area, and perimeter. There are 6-9 labels or dimensions missing. Some notes and calculations are not included.</td>
<td>Some of the rooms and outside areas are labeled with their purpose, area, and perimeter. There are at least 10 labels or dimensions missing. Notes and calculations are not included.</td>
</tr>
</tbody>
</table>

Total Possible Points: 20
Adding Angle Parts Worksheet

Find each angle’s measure.

1. \( \angle RYP \) = ____

2. \( \angle LNX \) = ____

3. \( \angle ABC = 174^\circ \)

4. \( \angle XYZ = 97^\circ \)

Solve.

5. Maria drew \( \angle ABC \) made up of smaller angles \( \angle ABD \) and \( \angle DBC \). The measure of \( \angle ABC \) is 155°. Sketch and label the angles to show what could be the measure of \( \angle ABD \) and \( \angle DBC \).

6. Zahana drew \( \angle XYZ \) made up of smaller angles \( \angle XYU \) and \( \angle UYZ \). The measure of \( \angle XYU \) is 68°. \( \angle XYZ \) has a measure that is greater than a right angle but less than a straight angle. Sketch and label the angles to show what could be the measure of \( \angle XYZ \) and \( \angle UYZ \).
Adding Greater Numbers Worksheet

Solve each problem.

1. $3,467 + 2,312$

2. $4,682 + 1,307$

3. $5,309 + 2,070$

4. $3,753 + 5,142$

5. $23,450 + 16,321$

6. $2,793 + 6,412$

7. $4,508 + 2,579$

8. $4,705 + 3,299$

9. $24,681 + 36,497$

10. $57,902 + 34,128$

11. $43,876 + 17,345$

12. $54,972 + 32,009$
Analyzing Line Plots with Fractions Worksheet

Solve each problem.

Kathy wants to make a line drawing for art class. She created a chart of how many line segments she wants in the drawing and how long each line segment will be.

Lines for Drawing

<table>
<thead>
<tr>
<th>Length (feet)</th>
<th>Number of Line Segments</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\frac{1}{12}$</td>
<td>8</td>
</tr>
<tr>
<td>$\frac{1}{4}$</td>
<td>6</td>
</tr>
<tr>
<td>$\frac{1}{2}$</td>
<td>10</td>
</tr>
<tr>
<td>$\frac{3}{4}$</td>
<td>12</td>
</tr>
<tr>
<td>$\frac{5}{6}$</td>
<td>1</td>
</tr>
</tbody>
</table>

1. Make a line plot of the data.

2. How many line segments will Kathy draw in all?

3. If Kathy lines up the line segments that are $\frac{1}{2}$ foot in length, what will the total length be?

4. What is the difference in length between the longest and shortest line segments?
Comparing and Ordering Decimals Worksheet

Use a >, <, or = sign to compare each pair of decimals.

1. 0.34 ☐ 0.3  
2. 1.32 ☐ 1.23  
3. 4.57 ☐ 4.75  
4. 2.06 ☐ 2.6  
5. 0.02 ☐ 0.01  
6. 0.45 ☐ 0.54  
7. 3.12 ☐ 3.12  
8. 4.2 ☐ 4.02  
9. 3.01 ☐ 1.3  
10. 0.56 ☐ 0.9

Order the numbers from least to greatest.

11. 4.5  2.54  5.43  4.67
12. 0.34  3.4  0.43  0.44
13. 1.01  1.11  0.11  0.01

Order the numbers from greatest to least.

14. 5.67  6.87  3.98  4.02
15. 0.23  0.2  0.02  0.32
16. 4.21  4.02  4.22  4.2
Comparing Fractions With Unlike Denominators

Find the equivalent fractions. Then write >, <, or = to compare the equivalent fractions.

1. $\frac{1}{4} = \boxed{} \quad \bigcirc \quad \frac{2}{3} = \boxed{}$

2. $\frac{2}{6} = \boxed{} \quad \bigcirc \quad \frac{1}{8} = \boxed{}$

3. $\frac{6}{14} = \boxed{} \quad \bigcirc \quad \frac{5}{7} = \boxed{}$

4. $\frac{1}{12} = \boxed{} \quad \bigcirc \quad \frac{2}{8} = \boxed{}$

Write >, <, or =.

5. $\frac{3}{5} \quad \bigcirc \quad \frac{2}{3}$

6. $\frac{2}{6} \quad \bigcirc \quad \frac{9}{18}$

7. $\frac{1}{2} \quad \bigcirc \quad \frac{3}{12}$

8. $\frac{4}{9} \quad \bigcirc \quad \frac{2}{3}$

9. $\frac{4}{6} \quad \bigcirc \quad \frac{5}{8}$

10. $\frac{5}{10} \quad \bigcirc \quad \frac{10}{20}$
Recall that a 1° angle is \(\frac{1}{360}\) of a circle to answer each question.

1. What fraction of a circle is a 90° angle? Explain.

2. What fraction of a circle is a 180° angle? Explain.

3. What fraction of a circle is a 36° angle? Explain.

4. What angle measure represents \(\frac{3}{4}\) of a circle? Explain.

5. What angle measure represents \(\frac{1}{3}\) of a circle? Explain.

6. What angle measure represents \(\frac{47}{360}\) of a circle? Explain.
Convert Units of Time Worksheet

Multiply or divide to convert each measure.

1. 180 seconds = _____ minutes

2. 11 hours = _____ minutes

3. 360 minutes = _____ hours

4. 9 minutes = _____ seconds

5. Javier runs 120 minutes each day. How many hours does Javier run in a day?

6. Josie reads for 1 hour each night. How many minutes does Josie read each night?

7. Mrs. Miller teaches piano lessons from 1:00 P.M. to 6:00 P.M. every Monday. How long does Mrs. Miller teach piano lessons? Express the total time in minutes.

8. Patrick helps clean up the kitchen from 5:32 P.M. until 5:39 P.M. How many seconds does Patrick spend cleaning the kitchen?
Create Line Plots with Fractions Worksheet

Solve each problem.

Ann is making a model of a bridge. Before she begins working, she needs to cut different lengths of wire. She makes the following chart to keep track of how many pieces she needs to cut.

**Wire Needed for Bridge Model**

<table>
<thead>
<tr>
<th>Length (inches)</th>
<th>Number of Pieces</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\frac{1}{4}$</td>
<td>4</td>
</tr>
<tr>
<td>$\frac{3}{8}$</td>
<td>3</td>
</tr>
<tr>
<td>$\frac{1}{2}$</td>
<td>6</td>
</tr>
<tr>
<td>$\frac{5}{8}$</td>
<td>3</td>
</tr>
<tr>
<td>$\frac{7}{8}$</td>
<td>2</td>
</tr>
</tbody>
</table>

1. Make a line plot graph of this data.

2. How many pieces does Ann need to cut in all?

3. If Ann lines up the pieces that are $\frac{1}{4}$ inch in length, what will the total length be?

4. What is the difference in length between the longest and shortest pieces?
Customary Units of Weight Worksheet

Use the table to write equivalent measures.

<table>
<thead>
<tr>
<th>Customary Units of Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 pound</td>
</tr>
<tr>
<td>1 ton</td>
</tr>
</tbody>
</table>

1. How many pounds are in 10 tons?

2. How many ounces are in 4 pounds?

3. Convert 2.5 tons to an equivalent weight in pounds.

4. 88 ounces = ______ pounds

5. How many ounces does it take to make 1 ton?

6. 96,000 ounces = ______ tons

7. Sophie buys 32 ounces of bananas at the grocery store. The price for bananas is posted as $0.88 per pound. How much does Sophie pay for bananas?
Area of a Composite Figure: Find the Area of Its Pieces

Children at the community center are making a giant greeting card for residents of the neighboring nursing home. They have made the card in sections, and they are now ready to put the sections together. There are 4 sections. Each section of the card is 3 feet long and 2 feet wide. How big will the card be when it is completed? Find its area.

Draw a picture to help you solve the problem.

Find the area of each section of the card.

3 \times 2 = 6 \text{ ft}^2

There are 4 sections that combine to make the card. Multiply to find the total area.

4 \times 6 = 24 \text{ ft}^2

The finished card has an area of 24 square feet.

Perimeter of a Composite Figure: Find the Length of Each Side

The children decorate the completed card, placing a ribbon around its border. How much ribbon do they use? Find the perimeter of the card.

Look at the picture. Find the missing measures to help you find the perimeter.

Length of card: 2 + 2 + 2 + 2 = 8 \text{ ft}

Width of card: 3 \text{ ft}

Perimeter of card: 8 + 3 + 8 + 3 = 22 \text{ ft}

Units are always part of your final answer!

*Perimeter* is measured in units of length, like meters or inches.

*Area* is measured in square units.

The children need 22 ft of ribbon to decorate the card.
Your Turn

Find the perimeter and area of the figure. Use the picture to find the missing dimensions and solve the problem.

1. Where do you start? Find the missing dimensions.
   \[a = \text{______}, \quad c = \text{______}\]
   \[b = \text{______}, \quad d = \text{______}\]

2. Find the perimeter by adding the lengths of each side.
   \[\text{Perimeter} = \text{______}\]

3. Now draw lines to divide the figure into rectangles. There is more than one way to do this correctly.

4. Find the area of each rectangle, and then find the total area.
   \[\text{Area} = \text{______}\]

Using What You Know about Squares and Rectangles

The following figure was made by combining squares. Each square has an area of 9 square inches. Find the perimeter and area of this figure.
1. To find the perimeter, you need to find the length of one side of a square.

   \[ \text{Area} = \text{length of side} \times \text{length of side} \]
   
   \[ 9 = \_\_\_ \times \_\_\_ \]
   
   Length of one side = \_\_\_

2. Use the length of one side of one square to find the perimeter of the figure.

   How many sides of squares make up the outline of the figure? \_\_\_

3. Multiply the numbers of square sides by the length of one side to find the perimeter.

   Perimeter = \_\_\_\_\_ inches

4. Each square has an area of 9 square inches.

   There are \_\_\_ squares in the figure.
   \[ \text{Area of figure} = \text{area of one square} \times \text{number of squares} = \_\_\_ \text{ square inches} \]

**Practice**

Use the following figure to solve problems 1–2.

1. Find the area of the figure.

2. Find the perimeter of the figure.
Use the following figure to solve problems 3–4.

3. Find the area of the figure.

4. Find the perimeter of the figure.
Finding Lines of Symmetry Worksheet

Answer each question.

1. Does this shape have symmetry? ______
   How many lines of symmetry does it have? ______

2. Does this shape have symmetry? ______
   How many lines of symmetry does it have? ______

3. Does this shape have symmetry? ______
   How many lines of symmetry does it have? ______

4. Does this shape have symmetry? ______
   How many lines of symmetry does it have? ______
5. Does this shape have symmetry? ______
   How many lines of symmetry does it have? ______

6. Does this shape have symmetry? ______
   How many lines of symmetry does it have? ______

7. Does this shape have symmetry? ______
   How many lines of symmetry does it have? ______

8. Does this shape have symmetry? ______
   How many lines of symmetry does it have? ______
9. Does this shape have symmetry? _____
   How many lines of symmetry does it have? _____

10. Does this shape have symmetry? _____
    How many lines of symmetry does it have? _____
Write the decimal that the shaded part represents.

1. [Diagram of grid with shaded part]

2. [Diagram of grid with shaded part]

What number is shown on the number line?

3. [Number line with a marker at 0.15]

4. [Number line with a marker at 0.17]
Express each of the following as a decimal.

5. \[
\begin{array}{ccc}
\text{Ones} & \text{Tenths} & \text{Hundredths} \\
\end{array}
\]

6. \[
\begin{array}{ccc}
\text{Ones} & \text{Tenths} & \text{Hundredths} \\
\end{array}
\]

Write each number as a decimal.

7. \[
\frac{39}{100}
\]

8. \[
\frac{18}{100}
\]

9. \[
\frac{67}{100}
\]

10. \[
\frac{4}{100}
\]

11. \[
\frac{5}{100}
\]

12. seventy hundredths ________

13. nine hundredths ________
Length in Customary Units Worksheet

Use the table to write equivalent measures.

<table>
<thead>
<tr>
<th>Customary Units of Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 foot</td>
</tr>
<tr>
<td>1 yard</td>
</tr>
<tr>
<td>1 mile</td>
</tr>
</tbody>
</table>

1. How many inches are in 8 feet?

2. Convert 9 yards to feet.

3. How many feet are in 1 mile?

4. Convert 84 inches to an equivalent measure in feet.

5. How many yards are in 54 feet?

6. How many inches are in 4 yards?

7. Convert 5 miles to yards.
Length in Metric Units Worksheet

Use the table to write equivalent measures.

<table>
<thead>
<tr>
<th>Metric Units of Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 meter</td>
</tr>
<tr>
<td>1 centimeter</td>
</tr>
<tr>
<td>1 kilometer</td>
</tr>
<tr>
<td>1 meter</td>
</tr>
</tbody>
</table>

1. How many centimeters are in 12 meters?

2. Convert 25,000 meters to kilometers.

3. How many meters are in 41 kilometers?

4. How many centimeters are in 2 meters?

5. Convert 3 kilometers to an equivalent measure in centimeters.

6. Complete the following table.

<table>
<thead>
<tr>
<th>Kilometers</th>
<th>Meters</th>
<th>Centimeters</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.75</td>
<td>3,750</td>
<td>375,000</td>
</tr>
<tr>
<td></td>
<td>6,500</td>
<td></td>
</tr>
<tr>
<td>4.29</td>
<td></td>
<td>250,000</td>
</tr>
</tbody>
</table>
Metric Units of Mass Worksheet

Use the table to write equivalent measures.

<table>
<thead>
<tr>
<th>Metric Units of Mass</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 kilogram</td>
</tr>
<tr>
<td>1,000 grams</td>
</tr>
</tbody>
</table>

1. How many grams are in 15 kilograms?

2. Convert 30,000 grams to kilograms.

3. 9.82 kg = __________________________ g

4. 4,250 g = __________________________ kg

5. Hannah is making loaves of pumpkin bread to give to her friends as gifts. She has 1,235 grams of sugar. She needs 1 kilogram of sugar to make enough bread for her friends. Does she have enough sugar? Explain.

6. DeSean is doing a science experiment. The experiment calls for 285 grams of sand. How much sand is this in kilograms?
More Perpendicular Line Segments Worksheet

Cut out magazine pictures that show each type of figure. Using a marker and ruler, draw and label the figure on the picture.

1. Find pictures that show perpendicular lines. Draw and label the perpendicular lines.
   For example, the cabinet doors on a kitchen cupboard have perpendicular lines.

2. Find pictures that do not show perpendicular lines. Label why the image does not have perpendicular lines.
   For example, a tile in the shape of a parallelogram does not have perpendicular lines.

3. Find pictures that show right triangles. Draw and label the perpendicular lines in the right triangle.
   For example, a sandwich cut on a diagonal creates a triangle that has perpendicular lines.
Using Bar Models to Solve Multiplication Problems

There are 6 boxes of name tags at the local community center. Each box contains 25 name tags. How many name tags does the community center have?

First write an answer sentence.

The community center has ____ name tags.

Draw a bar model to show the problem. Then solve.

\[
\begin{align*}
&\text{25 name tags} \\
&\text{\hspace{1cm}\text{1 unit}} \Rightarrow 25 \\
&\text{\hspace{1cm}\text{6 units}} \Rightarrow 25 \times 6 = 150 \\
&\text{The community center has 150 name tags.}
\end{align*}
\]

Using Bar Models to Solve Two-Step Problems with Multiplication

Tiyo has 3 times as many chicken nuggets as his little brother Kofi. Their sister Brandi has 5 nuggets. Altogether they have 21 nuggets. How many nuggets does Tiyo have?

\[
\begin{align*}
&\text{Tiyo} \\
&\text{\hspace{1cm}\text{Kofi}} \\
&\text{\hspace{1cm}\text{Brandi}} \\
&\text{\hspace{2cm}21} \\
&\text{\hspace{2cm}5} \\
&\text{\hspace{2cm}?}
\end{align*}
\]

Solve.

Step 1: Subtract Brandi's chicken nuggets from the whole amount of nuggets.

\[21 - 5 = 16\]
Step 2:
1 unit ⇒ 16 ÷ 4 = 4
3 units ⇒ 4 × 3 = 12
Tiyo has 12 chicken nuggets.

Your Turn
Use the bar model to solve the problem.

There are 8 packs of fruit snacks in one box. Mrs. O’Brien has 9 boxes of fruit snacks. How many packs does Mrs. O’Brien have?

Label the bars to model the problem.

Now solve the problem.

Using Bar Models to Solve Division Problems
Sometimes you divide to find how many are in each group.

Sarah is 24 years old. She is 4 times as old as Kylie. How old is Kylie?
Kylie is _____ years old.

Draw a bar model to show the problem.

4 units ⇒ 24
1 unit ⇒ 24 ÷ 4 = 6
Kylie is 6 years old.
Using Bar Models to Find How Many Groups

Sandi is filling gift boxes for soldiers. She has 72 packages of cookies, and she wants to put 3 packages in each gift box. How many boxes can she fill?

Sandi can fill ____ gift boxes with cookies.

Draw a bar model to show the problem.

\[
\begin{array}{c}
\text{72 packages} \\
\begin{array}{c}
\text{3} \\
\text{?} \\
\text{3}
\end{array}
\end{array}
\]

\[1 \text{ unit } \Rightarrow 3\]
\[72 \div 3 = 24\]

Sandi can fill 24 gift boxes with cookies.

Practice

Draw a bar model to solve each problem.

1. Each pack of trading cards contains 12 cards. Isaiah has 4 packs. How many cards does Isaiah have?

\[4 \times 12 = 48\]

Isaiah has 48 trading cards.

2. Don is filling 8-ounce cups from a pitcher that holds 128 ounces. How many cups can Don fill?

\[128 \div 8 = 16\]

Don can fill 16 cups.
3. Juan is making a photo album for his mother and father. He has 96 photos to place in the album. Each page in the album holds 4 photos. How many pages does he need to have in order to include all of the photos?

4. Kate is baking cookies. She can place 12 cookies on her cookie sheet, and she bakes 7 batches of cookies. She then makes bags for the charity bake sale, placing 4 cookies in each bag. How many bags does Kate make?
Solve each problem. Write each fraction in simplest form.

1. $5 \times \frac{1}{2} = \underline{\hspace{1cm}}$

2. $\frac{4}{5} \times 7 = \underline{\hspace{1cm}}$

3. $\frac{2}{3} \times 3 = \underline{\hspace{1cm}}$

4. $\frac{4}{10} \times 5 = \underline{\hspace{1cm}}$

5. $3 \times \frac{5}{6} = \underline{\hspace{1cm}}$

6. $2 \times \frac{1}{3} = \underline{\hspace{1cm}}$

7. $\frac{4}{6} \times 5 = \underline{\hspace{1cm}}$

8. $\frac{8}{9} \times 2 = \underline{\hspace{1cm}}$

9. $7 \times \frac{1}{8} = \underline{\hspace{1cm}}$

10. $\frac{6}{7} \times 3 = \underline{\hspace{1cm}}$

11. Sydney cut fabric for a quilt. She cut 8 pieces that were each $\frac{3}{4}$ yard. How much fabric did she cut?

12. Blake was making a birdhouse. He cut 5 pieces of wood that were each $\frac{7}{8}$ foot long. How much wood did he cut altogether?
Multiplying with Area Models Worksheet

Draw area models to solve the following problems.

1. $13 \times 53 = ____$

2. $25 \times 85 = ____$

3. $34 \times 42 = ____$

4. $10 \times 31 = ____$

5. $11 \times 82 = ____$

6. $13 \times 21 = ____$

7. $20 \times 92 = ____$

8. $31 \times 54 = ____$

9. $15 \times 62 = ____$

10. $42 \times 25 = ____$
Draw a line diagram or a timeline to solve each problem.

1. Quincy is selling tickets for a local carnival. Yellow tickets cost $1 each, blue tickets cost $2 each, and red tickets cost $4 each.
   
a. If Quincy sells 30 tickets of each type, how much money will he collect?
   
b. There are 7 rides at the carnival, and each ride raises the same amount of money for Quincy. How much does each ride raise for Quincy?

2. Mark's basketball team is raising money for a local charity. Each player raises $20. For every $50 donated, the team will receive a voucher for new equipment from a local sponsor. There are 10 players on the team.
   
a. How much money does Mark's team raise?
   
b. How many vouchers will they receive?

3. Mrs. Cappella teaches 40-minute piano lessons. She begins teaching at 9:00 A.M. and teaches 9 lessons.
   
a. When is Mrs. Cappella finished teaching piano lessons?
   
b. Mrs. Cappella earns $30 an hour. How much does she charge for each 40-minute lesson?
**Representing Fractions with Bar Models Worksheet**

**Using Bar Models to Represent Fractions**

Jonathan has 8 trading cards. Of the 8 trading cards, 3 are baseball cards. What fraction of Jonathan’s cards are baseball cards?

Solve. Draw a bar model to show the problem.

![Bar Model for Baseball Cards](image)

There are 8 parts in the whole. Of those parts, 3 are shaded, so $\frac{3}{8}$ of the whole is shaded. So, $\frac{3}{8}$ of the cards are baseball cards.

**Adding Fractions with Like Denominators**

Michelle wrote $\frac{1}{5}$ of a story on Monday. She wrote $\frac{2}{5}$ of the story on Tuesday. How much of the story did Michelle write?

![Bar Model for Adding Fractions](image)

Michelle wrote $\frac{1}{5}$ of her story and $\frac{2}{5}$ of her story, so divide your bar into five equal parts to show fifths. The shaded part shows the fraction of the whole story Michelle wrote in all. Since there are 3 parts shaded, Michelle wrote $\frac{3}{5}$ of her story.
Finding a Fraction of a Set
What is $\frac{2}{3}$ of 24?

Solve.

3 units $\Rightarrow 24$
1 unit $\Rightarrow 24 \div 3 = 8$
2 units $\Rightarrow 2 \times 8 = 16$
So, $\frac{2}{3}$ of 24 is 16.

Your Turn
Example 1
Use the bar model to solve the problem.

$\frac{2}{9} + \frac{5}{9} = ____$

Label the bars to model the problem.

$\frac{2}{9} + \frac{5}{9} = ____$
Example 2

Use the bar model to solve the problem.

\[ \frac{3}{4} \text{ of } 24 \text{ is } \underline{\hspace{2cm}}. \]

Label the bars to model the problem.

\[ 4 \text{ units } \Rightarrow 24 \]
\[ 1 \text{ unit } \Rightarrow 24 \div 4 = 6 \]
\[ 3 \text{ units } \Rightarrow 3 \times 6 = 18 \]
\[ \frac{3}{4} \text{ of } 24 \text{ is } \underline{\hspace{2cm}}. \]

Practice

Draw a bar model to solve each problem.

1. \[ \frac{2}{5} + \frac{2}{5} = \underline{\hspace{2cm}} \]

2. \[ \frac{3}{10} + \frac{5}{10} = \underline{\hspace{2cm}} \]

3. \[ \frac{2}{3} \text{ of } 21 = \underline{\hspace{2cm}} \]
4. \( \frac{2}{3} \) of 15 = ____

5. Joe eats 3 out of 8 crackers in a package. What fraction of the crackers does Joe eat?

6. There are 30 pages in a chapter of Judith’s book. She reads \( \frac{5}{6} \) of the pages. How many pages does Judith read?
Rewriting Whole Numbers When Adding Worksheet

Add. Write each mixed number in simplest form.

1. \(4 \frac{1}{4} + \frac{2}{8} = \) 

2. \(8 \frac{1}{3} + 1 \frac{3}{9} = \) 

3. \(15 \frac{2}{4} + 2 \frac{1}{2} = \) 

4. \(12 \frac{4}{8} + 3 \frac{3}{4} = \) 

5. \(25 \frac{3}{5} + 10 \frac{6}{10} = \) 

6. \(10 \frac{6}{7} + 12 \frac{4}{11} = \)
Rewriting Whole Numbers When Subtracting Worksheet

Subtract. Write each mixed number in simplest form.

1. \(3 - 1\frac{1}{4} = \) __

2. \(8 - 3\frac{4}{5} = \) __

3. \(12 - 5\frac{1}{2} = \) __

4. \(25 - 12\frac{6}{8} = \) __

5. \(65 - 25\frac{3}{9} = \) __

6. \(100 - 25\frac{5}{10} = \) __
Solving Multiplication Problems Using Arrays Worksheet

Use the multiplication array to solve each problem.

1. $4 \times 12 = ?$
   a. $4 \times 10 = \underline{\hspace{2cm}}$
   b. $4 \times 2 = \underline{\hspace{2cm}}$
   c. $\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
   d. $4 \times 12 = \underline{\hspace{2cm}}$

2. $8 \times 14 = ?$
   a. $8 \times 10 = \underline{\hspace{2cm}}$
   b. $8 \times 4 = \underline{\hspace{2cm}}$
   c. $\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
   d. $8 \times 14 = \underline{\hspace{2cm}}$

Write a multiplication sentence to match the array. Solve the multiplication problem.

3. 
   
   1  2  3  4  5  6  7  8  9  10  11  12  13  14  15
   1  2  3  4  5  6  7  8  9  10  11  12  13  14  15
   1  2  3  4  5  6  7  8  9  10  11  12  13  14  15
   1  2  3  4  5  6  7  8  9  10  11  12  13  14  15
   1  2  3  4  5  6  7  8  9  10  11  12  13  14  15
   1  2  3  4  5  6  7  8  9  10  11  12  13  14  15

4. 
   
   1  2  3  4  5  6  7  8  9  10  11  12  13
   1  2  3  4  5  6  7  8  9  10  11  12  13
   1  2  3  4  5  6  7  8  9  10  11  12  13
   1  2  3  4  5  6  7  8  9  10  11  12  13
   1  2  3  4  5  6  7  8  9  10  11  12  13
   1  2  3  4  5  6  7  8  9  10  11  12  13

Grade 4 Calvert Math in Focus 490 Appendix
Draw arrays to solve the following problems.

5. \(8 \times 17 = \_
\)

6. \(4 \times 15 = \_
\)

7. \(6 \times 18 = \_
\)

8. \(3 \times 14 = \_
\)

9. \(7 \times 12 = \_
\)

10. \(5 \times 19 = \_
\)
Subtracting Greater Numbers Worksheet

Solve each problem.

1. \[4,523 - 1,412\] 
   \[= 3,111\]

5. \[4,612 - 593\] 
   \[= 3,919\]

9. \[30,000 - 24,699\] 
   \[= 5,301\]

2. \[9,387 - 5,280\] 
   \[= 4,107\]

6. \[3,785 - 2,778\] 
   \[= 1,007\]

10. \[60,000 - 15,765\] 
    \[= 44,235\]

3. \[3,568 - 247\] 
   \[= 3,321\]

7. \[34,124 - 25,479\] 
   \[= 8,645\]

11. \[80,000 - 4,851\] 
   \[= 75,149\]

4. \[45,869 - 12,404\] 
   \[= 33,465\]

8. \[54,567 - 15,488\] 
   \[= 39,079\]

12. \[70,000 - 45,108\] 
   \[= 24,892\]
Unknowns in Multi-Step Problems Worksheet

Use letters to represent unknown information. Solve each problem.

1. Max read 600 minutes during the month of December. Kate read 200 more minutes than Max. Jessica read twice as much as Kate.
   a. How many minutes did Kate read?

   b. How many minutes did Jessica read?

   c. How many minutes did Max, Kate, and Jessica read altogether?

2. Tim works for the Larson Crayon Company. For the first hour on Monday morning he packed 120 crayons into boxes of 30. During the second hour, he packed 150 crayons into boxes of 30.
   a. How many boxes of crayons did he pack during the first hour?

   b. How many boxes of crayons did he pack during the second hour?

   c. How many boxes of crayons did Tim pack in those two hours?
3. There are three different kinds of granola bars in a box: peanut butter, honey, and chocolate chip. There are 12 peanut butter bars, and 5 more honey bars than peanut butter. There are 3 times as many chocolate chip bars as peanut butter bars.

a. How many honey bars are in the box?

b. How many chocolate chip bars are in the box?

c. If you wanted to share the box of granola bars among 42 friends, would there be enough for everyone to get at least one granola bar?

d. After sharing among 42 friends, will there be any left over? If so, how many?
Multiply or divide to convert each unit of time.

1. 3 hours = _____ minutes
2. 0.5 hour = _____ minutes
3. 3.5 hours = _____ minutes
4. 2.25 minutes = _____ seconds

5. Drew is watching a movie that is 1.75 hours long. How many minutes does Drew spend watching the movie?

6. Heather completes her math homework in \( \frac{3}{4} \) hour. How many minutes does Heather spend on her homework?