Grade K Science

2020
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*The Assessment/File Upload Form and many worksheets in the appendix will be used multiple times throughout this course. Please make additional copies of these pages.
Getting Started
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:

![Teaching Notes Toggle](image)

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.

![PLUS Framework Characters](image)

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
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.
RESOURCES 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**

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**

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 ACTIVITY**

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**

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 CHECK**

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.

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:

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 in grades 3-8 on English Language Arts, 45 minutes on Math, 45 minutes on Science, 45 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 ►

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 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 our 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 directly 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 or journal throughout this course. Journals should be used to reflect on your learning and can serve as a single place for notes and 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®.

• In English Language Arts, this will be referred to as ELA Journal.
• In Social Studies, this will be referred to as Social Studies Journal.
• In Science and Math, Science Notebook or Math Notebook will be the preferred name.

ONLINE ACTIVITIES

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

DIMENSIONS E-TEXT

You will find textbook lesson titles and digital activities in the lesson that are underlined. We refer to this as hyperlinking. Clicking directly on the link opens the corresponding lesson or activity in a new browser window.

Your science course also includes Interactives such as You Solve It Simulations from Dimensions® and virtual labs from ScienceFusion®. These interactives are also hyperlinked in your lessons. Clicking them opens them in a new browser window.

BRAINPOP®

Calvert Education 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.

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

Please go online to view this video ➤

RATE YOUR READINESS

Please go online to view and submit this assessment.
Unit 1 - Game of Motion
Project: Game of Motion

Books & Materials
- Dimensions: Grade K, Unit 2
- Science Notebook
- Computer
- Project and interactive activity worksheets

PROJECT DESCRIPTION

How will the family get up the hill?

Who is pulling the children in the cart?

Who is pushing?

In this unit, you will make a game that uses pushes and pulls.

Tell your Learning Guide what you know about push and pull. If you push a wagon, are you in front of it or behind it? If you pull a wagon, are you in front or behind? If you are behind the wagon and push really hard, you are using a lot of force!

How can we make things move? We push or pull them! Objects can move fast or slow. They can move in a circle or back and forth. There are so many ways to move things! In this unit, we will make two games to show how things move.

Here is what your project needs to include:

- One game that uses pushes to score points and one game that uses pulls to score points.
- Speed and direction need to change in one of the games.
- A picture or drawing with labels that shows what your games will look like.
- Materials to help you design and build your games.
- A description of how each game uses pushes and pulls.
- Rules for how to play the game and a way to score your games to find a winner.

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.
You will need to make two games for your project. You will need to have pushes in one game and pulls in the other game. What games have you played when you have had to push or pull something? Talk about this with your group. If you do not have a group, talk about this with your Learning Guide.

Discuss games that your student has played that involve pushes or pulls. Tug-of-war involves pulling and a game like bowling involves pushing.

In this project, your student will design and build two separate games. One game will use pushes. The other game will use pulls. Your student will need to use creativity to design both games.

Your student will make progress on the project during What is Motion? and How Can We Change the Way Things Move? At the end of What is Motion? your student will start brainstorming his or her ideas for how to make a game with a push and how to make a game with a pull. Your student will also start thinking about what materials he or she can use from home for his or her game. Make as many materials available to your student as possible, such as paper towel rolls, building blocks, toy cars, marbles, crayons, balls, and other objects that can be used in a pushing or pulling game.

In the next part, your student will make progress on the project during How Can We Change the Way Things Move? Your student will add changing speed and direction to one of the games. Your student should start by brainstorming ideas and thinking of household materials to add to one of the existing games.

During SHOW, Making Your Game, your student will finalize the game ideas, make the final games, and make the rules and scoring system for each game. You may scribe your student's rules and scoring system as Learning Guide. Encourage your student to play his or her game with his or her family.

Both the Teacher Rubric and Student Rubric are available as blackline masters that can be printed for reference throughout the project.

Please go online to view and submit this assessment.
What Is Motion? - Part 1

Objectives
- To apply pushes, pulls, and changes to speed and direction to create games

Books & Materials
- Dimensions: Grade K
- Science Notebook
- Computer

Assignments
- Read Dimensions: Unit 2, Lesson 1: What Is Motion?
- Complete the Can You Explain It? activity
- Watch the BrainPOP Jr. video Pushes and Pulls

LEARN

VOCABULARY
- motion
- speed
- direction

How do you move when you play?
When you kick a ball, you push it with your foot.
When you climb on the playground, you pull yourself up.

How do pushes and pulls help us move?
In this part you will learn how to tell the difference between a push and a pull. Both pushes and pulls make things move. Motion is the act of moving. This means how things move. Later in the unit, you will learn how speed changes motion. Speed is how fast or slowly something moves. You will need to use what you will learn about pushes, pulls, motion, and speed to make two different games for your project. You will use pushes in one of your games. You will use pulls in your other game. As you learn in this lesson, pay attention to the differences between pushes and pulls.

Let’s start with pushes and pulls. Place any small object on a table. Move it away from yourself. Then, move it toward yourself. When you moved the object away from yourself, you were pushing the object. When you moved the object toward yourself, you were pulling the object. Explain to your Learning Guide how you know which motion is a push and which is a pull. Talk about ways people use pushes and pulls in everyday life. Then, draw a picture of you pushing or pulling an object in your Science Notebook.

TEACHING NOTES
Discuss the push and pull motions that your student demonstrated. Check your student’s drawings in his or her Science Notebook. Encourage discussion of everyday pushes and pulls, such as pushing a chair to a table or pulling a chair away from a table.
Now, you are ready to learn more about pushes and pulls. Go to Dimensions: Unit 2, Lesson 1, What Is Motion?, Screens 1-4 (pp. 40-41). Read about pushes and pulls and talk about the pictures of pushes and pulls with your Learning Guide. Then, look at the Can You Explain It? and identify which pictures show pushes or pulls and record your answer in your Science Notebook or textbook.

TEACHING NOTES

There is a difference between the e-text and textbook for Can You Explain It? If your student is using the e-text, he or she should identify the picture of the child riding the bike as a push and the picture of pulling sheets and a drawer as pulls. If your student is using the textbook, he or she should identify the picture of the girl pulling the drawer as a pull and the boy pushing the door as a push.

Let's learn more about pushes and pulls! Play the BrainPOP Jr. video Pushes and Pulls (04:08). Stop the video to tell your Learning Guide when you see a push and when you see a pull. Take the quiz when your Learning Guide stops the video to show what you know.

TEACHING NOTES

Stop the video at 02:50 to avoid the discussion on friction. As your student continues to complete one of the quizzes, work with him or her to answer only the questions related to pushing and pulling motions. Allow your student time to take one of the quizzes shown under the video, or the games or word play activity. Explain to your student that the video and activities can get your student to start thinking of some possible ideas for the game he or she will build.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
In the last part, you learned about pushes and pulls. You learned that pushes happen when objects are moved away from you. Pulls happen when objects move toward you. Remember: You will need to make two games for your project: one game for pulls and another game for pushes. In this part, you will use what you learned about pushes and pulls to play a game of Tic-Tac-Go! with your Learning Guide. You will see different pictures and be able to tell whether the picture shows a push or a pull. If you get the answer right, you can put an X or an O on the board. First person to get three Xs or Os in a row wins!

Now let's play a game of Tic-Tac-Go!

Click here to play the game Tic-Tac-Go! You and your Learning Guide can play together. Mark each picture as a push or a pull. Talk about how the arrow in each picture gives you a clue.

**TEACHING NOTES**

As you play the game, emphasize to your student that each picture depicts either a push or a pull. In cases when your student does not know the answer, allow him or her to choose the incorrect button and try answering the next question on the screen.

**RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
What Is Motion? - Part 3

**LEARN**

In the last part, you learned about pushes and pulls. You learned that when you push something, you move it away from you. When you pull something, you move it toward you. For your project, you will need to create two games. One game will have a push, and the other game will have a pull.

Let's learn more about pushes and pulls by playing push and pull games!

In this game, you will help a monkey push or pull animals up a hill.

You will play a game called Pushing and Pulling. Ask your Learning Guide to read the instructions to you. You will need to know where to drag and drop the animals into the cart. You will need to know where the monkey should be placed for pushing and pulling. If you are in front of something, you are pulling an object. If you are placed behind an object, you will be pulling an object.

When you are finished playing, talk with your Learning Guide about what you learned. How did you use pushes and pulls to move the animals in the cart?

**TEACHING NOTES**

Give your student time to practice dragging and dropping the animals into the cart and pushing the correct push or pull button to activate the monkey's movement up the hill.

Your student can progress to level 2 by pressing the button at the top of the screen. Point out the idea that heavier objects need to be pushed or pulled with a greater force to travel the same distance. Discuss that the more monkeys that push or pull the cart at one time, the greater the distance the cart will travel.

**QUICK CHECK**

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

To learn more about pushes and pulls, watch the video *Force, Work and Energy* (02:23). Here you will learn about the different types of motion.

Please go online to view this video ▶
You have learned about pushes and pulls. You will need to make two games for your project. One game will use pushes, and the other game will use pulls.

In this part, you will learn about how fast and slow things go. Can you move fast or slowly? Talk with your Learning Guide about objects that move fast or slowly. How many can you think of?

**TEACHING NOTES**

Talk with your student about objects that move fast and slowly. You can write down each object that moves fast or slowly in your student's Science Notebook. Your student can list animals, people, or objects that move fast or slowly. Objects that move fast include cars, trains, airplanes, cheetahs, and Olympic runners. Objects that move slowly include snails, turtles, and old elevators.

When we talk about how fast or slowly something moves, we are talking about speed. Think about how fast or slow you are at running, skipping, or riding a bike. These are ways to talk about speed. This will help you use speed and change speed in your project.

Let's learn about speed. Go to *Dimensions*: Unit 2, Lesson 1: *What Is Motion?*, Screens 1-6, *Speed* (pp. 44-46). Read the text and talk about the pictures with your Learning Guide. Then, look at the picture of the racecar, rabbit, and cheetah. Identify which one is moving fast. Record your answer in your Science Notebook or textbook.
Your student should identify the racecar and cheetah as moving fast. The rabbit is sleeping, so it does not move fast.

You learned that speed is how something is moving. Objects can move fast or slowly. Draw pictures in your Science Notebook of three things that move fast and three things that can move slowly. Think of new objects for your drawings. Do not use the cheetah, racecar, or rabbit since you already know if they move fast or slowly.

Encourage your student to think of new objects that move fast or slowly. Check your student’s work after he or she has completed the drawings.

Please go online to view and submit this assessment.
What Is Motion? - Part 5

**Objectives**
- To apply pushes, pulls, and changes to speed and direction to create games

**Books & Materials**
- Computer
- Cardboard
- Masking tape
- Toy car

**Assignments**
- Complete Hands-On Activity: Make a Ramp.

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**LEARN**

You have learned that speed tells how fast or how slowly something can move.

How can you make something move fast? Talk about how you can make something move fast with your Learning Guide.

Making a ramp is one way to make something move fast. In this part, you will make a ramp for a toy car. You will investigate what happens when you change the height of the ramp. When you work on your project, you will need to change the speed of an object. You will learn how to change the speed of an object by completing the investigation.

In this part, you will complete a **Hands-On Activity: Make a Ramp**. Access the worksheet. Follow the steps as your Learning Guide reads them to you. Begin Step 1 by making a ramp with one end at the top of the stack of books and the other end on the floor or table. In Step 2, you will roll a toy car down the ramp to see how far it goes. Mark how far the car traveled with tape. In Step 3, you will remove two books from the stack and roll the car down the ramp again. Mark how far the car traveled with tape. In Step 4, you will repeat the same test.

When you are finished with your investigation, tell your Learning Guide what happens to draw conclusions for Step 5. Think about if the car traveled more distance or less distance when you write your claim. Explain why you know that happened for your evidence.

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**TEACHING NOTES**

For the activity, provide a piece of cardboard for the ramp, several books to vary the height of the starting point, and a toy car with wheels. You will also need masking tape. The car should roll off the ramp onto a smooth surface, such as a hard floor or a tabletop, not a carpet. After each test, use tape to mark the distance the car traveled.
Your student should be able to observe that the car traveled farther and faster down the steeper ramp. Help your student make a claim about the heights of the ramp and how he or she can make an object move faster.

✅ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
What Is Motion? - Part 6

You learned about the speed of objects. Speed is how fast or slowly an object is moving.

You learned that a ramp can make something move faster.

You will need to make something change speed in your project. Making something move fast or slowly is a change of speed. Do you think that you could use a ramp in a game for your project?

Now, let’s think about the direction in which different objects can move. One of your games will also need to have a change of direction. Direction is the path a moving object takes. When you are riding in a car, you are moving in a direction because the car is following the road.

Go to Dimensions: Unit 2, Lesson 1, What Is Motion?, Direction, Screens 1-5. Read or view how direction changes movement. You will see up-and-down, round and round, straight, zigzag, and back-and-forth movement. Then, look at the pictures of the seesaw, Ferris wheel, merry-go-round, and boy on the swing. Identify the movement in each of those pictures.

TEACHING NOTES

Discuss with your student which arrows are straight and which arrows are curved. Make sure your student understands that curved directions change the position and motion of an object. Your student should identify the seesaw as an up-and-down movement, the Ferris wheel and merry-go-round as a round and round movement, and the swing as a back-and-forth movement.

Brainstorm different objects that move in the ways you have discussed so far. As time permits, have your student observe objects nearby that move in the ways you have discussed. List these objects in the Science Notebook.
Now, think about what you have read and the games you have played. Use the information and games to make a chart. In your Science Notebook, ask your Learning Guide to make four columns: push, pull, fast, slow. Brainstorm as many of these kinds of movements as you can. Ask your Learning Guide to write each movement on your chart.

**TEACHING NOTES**

Draw a table in your student's Science Notebook with the four columns above. Allow your student to brainstorm and dictate his or her answers as you write them in the Science Notebook. A completed chart might include the following ideas:

<table>
<thead>
<tr>
<th>Push</th>
<th>Pull</th>
<th>Fast</th>
<th>Slow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grocery cart</td>
<td>Tug of war</td>
<td>Race car</td>
<td>Walking</td>
</tr>
<tr>
<td>Lawnmower</td>
<td>Opening a drawer</td>
<td>A bicycle</td>
<td>The movement of a snail</td>
</tr>
</tbody>
</table>

**INTERACTIVE ACTIVITY**

Think about a game you have played that uses pushes or pulls. Talk about a game you played that has pushes or pulls with your Learning Guide. If you want to, you can play Simon Says with your Learning Guide to review pushes and pulls. Your Learning Guide will call a movement, like push, pull, fast, slow, round and round, up and down, straight, zigzag, back and forth. You will need to move how your Learning Guide directs you. But remember, your Learning Guide has to say "Simon Says" before you move. If your Learning Guide doesn't say "Simon Says", don't move.

**TEACHING NOTES**

To help your student think about how to incorporate pushes and pulls into some games he or she knows, play Simon Says with your student. Use the different movements (push, pull, fast, slow, round and round, up and down, straight, zigzag, back and forth) in the directions. As you give directions such as “Simon Says put your hands above of your head,” “Simon Says spin around in a circle slowly,” or “Simon Says push your arms forward,” emphasize the position, speed, direction, or force you are assessing.

If your student misses some of the directions, review them before moving on. Then, switch places and have your student give directions about speed, direction, position, and push and pulls.
RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
What Is Motion? - Part 7

Objectives
- To apply pushes, pulls, and changes to speed and direction to create games

Books & Materials
- Dimensions: Grade K
- Science Notebook
- Computer

USE

In this lesson, you learned about motion, speed, and direction. Review the lesson to remind you of what you learned.

USE FOR MASTERY

Now, draw a picture of a toy car in your Science Notebook. Place an X where you can stand to push the car. Place a box where you can stand to pull the car. Draw an arrow to show the direction the car is moving.

The car can move! Write a word to tell about the speed of the car.

When you are finished, upload your drawing.

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

0 / 12 File Limit
USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Draw a picture of a toy car before giving your answer?
- Place an X somewhere around the car to show where you can stand to push the car?
- Place a box somewhere around the car to show where you can stand to pull the car?
- Draw an arrow to show which way the car is moving?
- Write a word telling about the speed of the car?

TEACHING NOTES

Review with your student the major points of the lesson. Go to Dimensions: Unit 2, Lesson 1, What Is Motion? and have your student recall some ideas of pushes and pulls.
What Is Motion? - Part 8

In this lesson, you learned about pushes, pulls, speed, and direction.

For your project, you will build two games. One game will use pushes. One game will use pulls.

You will need to include a change of speed and direction in one of your games.

In this part, you will brainstorm possible ideas for games that use pushes. Write all of your ideas in your Science Notebook. Try to think of three great ideas for a game that uses pushes that you can create.

You will be brainstorming ideas for games that use pulls in the next part.

With your Learning Guide, review the rubric so that you are sure to cover everything for your two games of motion.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Great</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two games included</td>
<td>One game uses pushes, and one game uses pulls. A change of speed and direction is included in one of the games.</td>
<td>One game uses pushes, and one game uses pulls. Either a change of speed or a change of directions is not included in one of the games.</td>
<td>One game uses pushes, and one game uses pulls. A change of speed and direction is not included in one of the games.</td>
<td>One or both games are missing. A change of speed and direction is not included in one of the games.</td>
</tr>
</tbody>
</table>

TEACHING NOTES

In this part, you will help your student brainstorm possible ideas for games that use pushes. If your student starts to name ideas that use pulls, list them, but try to refocus him or her back to pushes. Explain that you will be brainstorming ideas for pulls in the next part.

Remind your student of the games he or she played at the beginning of What is Motion? and talk about which ones used pushes. Name sports that use pushes, such as soccer, bowling, baseball, and
even biking. Think about games that can be played on a tabletop, such as tabletop hockey or sliding coins to hit one another.

If your student needs help, together brainstorm ideas such as tabletop shuffleboard or a modified version of Jenga in which game pieces are pushed out of a structure.

Record all ideas in your student's Science Notebook to refer to later.

RATE YOUR PROGRESS

Please go online to view and submit this assessment.
You have thought about ways pushes can be used in games. You also brainstormed and wrote down ideas for a game using pushes.

Now, you will brainstorm ways that pulls can be used in games. Write all of your ideas in your Science Notebook. Try to think of three great ideas for a game that uses pulls that you can create.

With your Learning Guide, review the rubric so that you are sure to cover everything for your two games of motion.

<table>
<thead>
<tr>
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<td>One or both games are missing. A change of speed and direction is not included in one of the games.</td>
</tr>
</tbody>
</table>

Remind your student that you have already brainstormed ways that pushes can be used in games. Now you will discuss ways that pulls can be used in games.

Talk about different ways that we can pull an object, such as pulling a wagon or a dog pulling on a leash. When we use a rubber band and pull it back, we are pulling it. Encourage creativity in pulling games. Record all ideas in your student’s Science Notebook. Be sure to keep the ideas clearly separated from the ideas you already discussed for pushing games. Tell your student that in the next part, you will discuss the games and brainstorm materials that can be used for each game.
RATE YOUR PROGRESS

Please go online to view and submit this assessment.
What Is Motion? - Part 10

Objectives
- To apply pushes, pulls, and changes to speed and direction to create games

Books & Materials
- Science Notebook
- Computer
- Toy car

SHOW

You have talked about and recorded ideas for pushing and pulling games in your Science Notebook.

Now, let's choose an idea and think about what materials you will need for your games. Begin by reviewing your ideas for push and pull games from your Science Notebook. Then, choose one of your ideas for a game that uses pulls, and choose one of your ideas for a game that uses pushes.

Once you have chosen an idea for a pull game and a push game, think about what materials you will need to make your games. Talk about what materials you can use with your Learning Guide. Then, list the materials you will need in your Science Notebook for each game.

After you have listed your materials for each game, you will need to create a rough sketch of what each game will look like. In your Science Notebook, make a drawing of what your pull game will look like. Label your drawing to show pulls and make a note if speed and direction are included in this game. Do the same for your push game. Draw a rough sketch in your Science Notebook of what your push game will look like. Label your drawing to show pushes and make a note if speed and direction are included in this game.

Review the rubric to make sure you do a good job.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Great</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drawings and pictures of games</td>
<td>Includes a drawing with labels that show how pushes, pulls, speed, and direction are used in the game. A picture of the game is submitted.</td>
<td>Drawing is included with labels, but one of the pushes, pulls, speed, or direction is not labeled. A picture of the game is submitted.</td>
<td>Drawing is included with labels, but more than one of the pushes, pulls, speed, or direction are not labeled. A picture of the game is submitted.</td>
<td>Drawing is not included, or more than two labels are missing. A picture of the game is not submitted.</td>
</tr>
</tbody>
</table>
TEACHING NOTES

Talk with your student about his or her favorite game ideas. Choose one pushing game and one pulling game to explore further. Talk about possible materials that can be used for each game.

If possible, bring your student into a garage, kitchen area, or supply room where a variety of materials can be located.

Possible ideas for materials include paper towel rolls, string, rubber bands, toy cars, balls, marbles, construction paper, boxes, markers, tape, game pieces, paper cups, table tennis balls, coins, building blocks, and other toy building materials.

If some of the materials your student sees gives him or her new ideas about possible games to build, guide him or her to add the materials to the brainstorming list. Explain that in Lesson 2, your student will start building the games.

COLLABORATION

Share the ideas you came up with for your pulling and pushing games with your group. Read the ideas from other students in your group. Can your ideas be improved?

RATE YOUR READINESS

Please go online to view and submit this assessment.
How Can We Change the Way Things Move? - Part 1

**Objectives**
- To describe how we can change the way things move

**Books & Materials**
- Computer

**Assignments**
- Read Dimensions Unit 2, Lesson 2: How Can We Change the Way Things Move?

**LEARN**

**VOCABULARY**
- force

In the last lesson, you learned about pushes and pulls. You also learned about speed and direction. One of your games needs to include a change of speed and a change of direction. This lesson will help you learn about how to change the way things move so that you can use it for your project. What do you think will happen when pushes and pulls change direction? Talk about this with your Learning Guide.

In this lesson, you will learn more about changing speed and direction, as well as force. An object moves when a force is applied. A push is a force. A pull is a force.

**TEACHING NOTES**

Your student will learn how to change the motion of objects and will use what has been learned for the project. Talk with your student about how a push or a pull can change motion. Your student may respond that he or she can push or pull an object hard or to the side, which will change the motion.

Let's see how motion can change the motion of objects. Watch the video Changing Things (01:46).

In this video, you will learn how forces are used to move, change, and stop objects. Listen for the word force. Then, talk with your Learning Guide about how force is used to move, change, and stop objects.
TEACHING NOTES

Introduce the lesson to your student by discussing what you have learned so far about forces and motion. Recall together some of the ideas your student brainstormed about pushing and pulling games. Explain that it will be easier to plan and build the game after learning a little more about forces.

Ask your student to explain one of the game ideas he or she is considering by using the word force instead of push or pull. Ask whether anything changes about the game now that he or she is describing it in a new way. Point out that the game and directions are the same, except your student is using a science vocabulary word to describe it.

Discuss the examples of the baseball game in the video and brainstorm with your student some more real-world examples of changes in the direction of a force.

When appropriate throughout the lesson, replace the words push and pull with force, a pushing force, or a pulling force to help your student associate the concepts with the science vocabulary.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
How Can We Change the Way Things Move? - Part 2

**Objectives**
- To describe how we can change the way things move

**Books & Materials**
- Dimensions: Unit 2, Lesson 2: How Can We Change the Way Things Move?

**Assignments**
- Read Dimensions Unit 2, Lesson 2: How Can We Change the Way Things Move?
- Complete the Can You Explain It? activity

**LEARN**

You learned that pushes and pulls are forces.

You can change the direction of forces.

You can change the speed of forces, too.

In this part, you will learn about forces that change the way things move. You will use what you learn to help you plan your project, Game of Motion. In your project, you will need to change the speed and direction of an object in one of your games.

Let’s learn how you can change the way things move. Go to Dimensions: Unit 2, Lesson 2: How Can We Change the Way Things Move?, Change Direction and Speed, (pp. 54-55). Screens 1-4. Look at the soccer ball being kicked. Talk about how the boy can move the ball quickly over the line in Can You Explain It? with your Learning Guide. Record your answers in your Science Notebook or textbook. Then, tell about your own experiences playing with a ball and watching the ball move fast or slowly.

**TEACHING NOTES**

In Can You Explain It? your student should identify the second and third pictures of the boy hitting the ball with his knee and kicking the ball. Both of these pictures show how the boy can move the ball quickly over the line.
A force is a push or a pull that can make an object move. Forces can also change the speed and direction of objects. Go to Dimensions: Unit 2, Lesson 2: How Can We Change the Way Things Move?, Changing Speed (p. 56), Screens 1-5 to see how force can make objects move at different speeds. Then, look at the pictures showing someone using a force to make objects move. Identify the pictures that show someone using a force to make the ball move fast. Record your answers in your Science Notebook or textbook.

TEACHING NOTES

Your student should identify the pictures of the boys kicking a ball and the baseball pitcher throwing a ball as using a force to make an object move fast. Clarify for your student that the person catching the ball may have caught a fast-moving object, but the catcher did not make the ball move fast.

You learned that force can make objects move at different speeds. Force can also change the direction of objects. Go to Dimensions: Unit 2, Lesson 2: How Can We Change the Way Things Move?, Changing Direction (p. 57), Screens 1-4 to see how force can change the direction that the object moves. Look at the basketball players. One player is using force to move the ball in a different direction away from the hoop. This is one way that force can be used to change direction. Now, look at the three pictures of the boy playing soccer, the girls playing soccer, and the children passing a ball back and forth. Identify which pictures show someone using a force to change the direction the ball is moving. Record your answers in your Science Notebook or textbook.

TEACHING NOTES

Your student should identify all the pictures as showing a force being used to change the direction of the ball. Each picture showed a change in direction since the ball moved in a different direction when the players hit it, kicked it, or tossed it.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
LEARN

You have learned that forces can change speed and direction. When more force is applied to an object, the object will move faster. When less force is applied to an object, the object will move more slowly.

How else do you think forces change how objects move? Talk about your ideas with your Learning Guide.

TEACHING NOTES

Accept all reasonable responses to how your student thinks forces change how objects move. Your student may respond that applying more force makes objects move faster and less force makes objects move more slowly.

Go to Dimensions: Unit 2, Lesson 2: How Can We Change the Way Things Move?, Bumping, (p. 58), Screens 1-4 to see another way that force can change the direction of objects. Look at the bowling pins. What happens when the bowling ball hits the bowling pins? Tell your Learning Guide how this shows push and changing directions. The push of the ball into the pins changes the direction of the ball and slows it down. The pushing force on the pins sets them into motion in different directions.
Use what you saw with the bowling pins and their bumping to see what happens in a maze. Go to the You Solve It Simulation, Rolling Maze. Explore the different settings for the force of the ball so you can see that the softest push does not reach the cups, and the hardest push knocks the cups off the end the ledge. Tell your Learning Guide about the differences in the results of each force applied to the ball and the direction the cups moved each time the ball touched them. You will experiment with your own push and pull forces in the next part of the lesson.

Your student should not complete the Do the Math! or Hands-On Activity: Pushing Objects. The You Solve It Simulation, Rolling Maze, will help your student understand what happens when objects push against each other.

As your student explores the game, encourage him or her to discuss the idea that collisions change the speed and direction of a force. Point out that your student will explore this idea further in Pushing Objects by doing his or her own hands-on activity about the collision of objects.

Please go online to view and submit this assessment.
How Can We Change the Way Things Move? - Part 4

**Objectives**
- To describe how we can change the way things move

**Books & Materials**
- Everyday objects of various weights and sizes
- Masking tape
- Balls of various weights and sizes
- Index cards (8)
- Game tokens or bingo chips

**Assignments**
- Complete the Baseball in Motion activity

---

**LEARN**

Pushing and pulling forces change the speed and direction of objects.

Many games use pushing and pulling forces. You will need to create a game using pushes and pulls for your project. You will also need to include a change of speed and direction in one of your games.

Think about how the game of baseball uses forces to change speed and direction. Discuss this with your Learning Guide.

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**TEACHING NOTES**

Accept all reasonable responses from your student about how baseball uses forces to change speed and direction. Your student may answer that running the bases, hitting a ball with a bat, and catching and throwing a ball all include changing speed and direction.

---

Have you ever played baseball? If you have, you know that you need to hit a ball with a bat, catch balls, and run from base to base. Have you ever thought about the different forces involved in baseball? Now, you are going to do an activity about how forces change speed and direction in baseball. You will need several materials from your Learning Guide.

**MATERIALS NEEDED**
- Everyday objects of various weights and sizes
- Masking tape
- Balls of various weights and sizes
- Index cards
- Game tokens or bingo chips
Begin the activity by drawing a baseball diamond in your Science Notebook.

1. Trace a box that has square sides or trace a large square. Turn the square on your page to look like a diamond.
2. Write H on the point nearest you to mark Home Plate. Then, number the bases 1, 2, and 3.
3. Place a game token on the pitcher’s mound and on home.
4. Draw an arrow to show the movement of the ball from the pitcher to the batter at home plate. Then, draw an arrow to show the motion of the ball after the batter hits it. Place an X at the place where the ball changes direction.
5. Use game tokens or drawings to show the positions of other players.
6. Draw some other movements of the ball, such as players throwing it to each other. Draw an X each time the ball changes direction. Tell your Learning Guide the force that made each change in direction.
7. Work with your Learning Guide to circle two or three places in your drawing that point to when the ball would move fastest.

Have your student draw a baseball diamond in his or her Science Notebook. Guide your student to draw the shape as needed, providing a cube or square to trace the shape of the diamond. Then, help your student understand how to mark Home Plate and bases 1, 2, and 3 in counterclockwise order. Discuss the rules of the game if your student is unfamiliar with the game. Emphasize the idea that throwing and hitting the ball change its speed and direction. Catching the ball and throwing it to a base also changes its speed and direction.

Give some prompts for your student to explore, like the ball being hit softly and then rolling or it being thrown to get someone out on a base. Ask your student to describe where he or she thinks the ball moves the fastest and why. Point out that the ball slows by moving through the air or rolling on the ground.

Please go online to view and submit this assessment.

To learn more about forces and speed watch the video: Force and Motion for Kids (06:20). As you watch, think about how force affects an object.
Pause the video at intervals to have your student explain what makes an object move and why it moves a short or long distance. Be sure your student can explain that the harder the push, the greater the distance an object will move.
How Can We Change the Way Things Move? - Part 5

Objectives
- To describe how we can change the way things move

Books & Materials
- a pencil or pen
- Masking tape
- a coin or an eraser

LEARN

You have learned that pushing and pulling forces can be hard or soft.

Forces can be fast or slow.

Let's try moving some real objects using pushing and pulling forces!

You will need several small objects. They can be a pencil or pen, a coin, or an eraser. Work with your Learning Guide to push some objects to see how they move with a light push, a push that is a little harder, and a strong push. Before each test predict what will happen to each object. After each test, talk about whether the result is what you expected. Making predictions and testing forces will help you when you need to create games for your project. You may have to test your games a few times to make sure they work how you want them to.

TEACHING NOTES

Do not use objects that have wheels for this activity. Place a line of masking tape on the other end of the table, leaving room for the objects to cross the line without falling off the table.

Have your student predict what will happen when the same light pushing force is applied to each object. Then, have him or her try it and tell if the prediction was correct. Return the objects to the starting line, repeating the same activity with a harder pushing force. Discuss the difference between the first trial and the second. Repeat the activity a third time with an even harder pushing force.

Discuss how the different forces affected the way the object moved across the table.
RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
How Can We Change the Way Things Move? - Part 6

You have learned about pushing and pulling forces in many ways.

Some forces cause objects to change directions in sports. They change directions in other ways, too.

You have also learned about strong forces and weak forces.

In this part, you will explore how much force it takes to move some objects.

Go to ScienceFusion, Virtual Lab: How Can We Change Motion? You will explore what forces are and how they affect things.

On the first slide, predict what will happen. Predict how you think you can change the distance the truck moves. Complete the activity on the second slide. Watch as your Learning Guide models with a rubber band the motion of pulling back. Tell your Learning Guide how much the rubber band affects the pushing force applied to the truck. Watch the video and work on the virtual lab, Compare the Forces, up to Slide 9. Discuss the results of the activity. Explain how it shows that the greater the pushing or pulling force applied to an object, the farther it will move.

You will end this part when you have finished Slide 9. You will start with Slide 10 in the next part to complete the virtual lab.

TEACHING NOTES

The virtual lab will guide your student. Your student may advance to the next slide when he or she is ready by clicking on the right navigational arrow.
Before clicking on the rubber band in the activity on Slide 2, have your student make a prediction about what will happen. After seeing that the truck moves to the distance marked “2” on the road, ask your student to predict what kind of motion might make the truck move only to the distance marked “1” on the road. Allow your student to make the association between how much the rubber band is pulled and the pushing force applied to the truck.

Watch the video and guide your student to work through the virtual lab Compare the Forces up to Slide 9. Remind your student that the virtual lab demonstrates pushing forces with the truck and the wagon, but similar results happen with pulling forces.

✅ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
LEARN

Last time, you learned that stronger forces move objects farther. You completed part of a virtual lab.

In this part, you will learn how much force it takes to move heavier objects.

You will complete the rest of the virtual lab.

You will apply what you learn when you work on your unit project.

Go to ScienceFusion: How Can We Change Motion?

Continue the virtual lab, Compare the Forces, from Slide 10. Discuss how the weight of the wagon affects the force needed to pull the wagon. Order the wagons by the number of children in them and the amount of time taken to move the wagons. Show your results to your Learning Guide.

TEACHING NOTES

After doing the activity, discuss Screen 12 and the way objects can move more easily across a surface with wheels, and how ice or a smooth surface makes an object able to be moved with less pushing force.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
How Can We Change the Way Things Move? - Part 8

**Objectives**
- To describe how we can change the way things move

**Books & Materials**
- Balls of various weights and sizes

**LEARN**

In the previous part of this lesson, you did a virtual lab on how forces move objects.

In this part, you will test how objects of different weights move. This will give you lots of ideas for your project.

You will need two balls that are about the same size, but different weights. Compare the two balls that are about the same size, but different weights. You might use a tennis ball and a Wiffle ball. Place each ball on a flat surface. Tap each ball gently using the same amount of force. Which one moves the farthest? Work with your Learning Guide to make more comparisons using different amounts of force with different balls like a softball, baseball, table tennis ball, beach ball, or soccer ball. Talk about what happens. Discuss your answers to these questions.

- Did you use the same force in each comparison?
- If you make the force greater, how does it change the outcome?
- Do heavier balls move farther or shorter distances than light balls?
- If two balls are the same size but different weights, will they roll the same distance?
- Can you find two balls that roll about the same distance, but are not the same size and weight?

**TEACHING NOTES**

Select a level area outdoors or an indoor area with a lot of floor space. Provide your student with balls of the same size and different weights, such as a tennis ball and a Wiffle ball. Balls for making later comparisons might include a softball, a baseball, a table tennis ball, a jacks set rubber ball, a beach ball, a soccer ball, a bowling ball, or any other available balls.
Work with your student to find a way to apply the same force to each ball. Ask your student which ball moved the farthest. Because the balls are the same size, have your student draw a conclusion about the reason the lighter ball traveled a farther distance than the heavier ball that received the same pushing force. Your student should be able to recognize that it is the weight of the object, not the size, that affects the force needed to make the object move.

Repeat the activity with forces of different strengths and ask your student to record the results of each trial in his or her Science Notebook. Have your student find the two balls that are not the same size but roll the same distance, and extend into discussion about them being similar weights.

✔ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
How Can We Change the Way Things Move? - Part 9

**Objectives**
- To describe how we can change the way things move

**Books & Materials**
- Everyday objects of various weights and sizes
- Index cards (10)

**LEARN**

Let's have some fun with what you have learned about how objects move.

We can use forces of all kinds to move objects. Pushing and pulling forces change the directions of objects.

You are going to play a game with index cards. Some index cards will be object cards, and other index cards will be force cards. You will need 10 index cards for the game.

As you play, think about what ideas you will keep to plan games for your unit project.

**TEACHING NOTES**

To help your student return to thinking about games that require pushing and pulling forces, make a game for him or her to follow. Before the activity, make two small piles of index cards. One pile will be the WEIGHT cards, each with the weight of an object. You will need four index cards for WEIGHT cards. On one side of the index card, write heavy or light on alternating cards. The other pile will be the FORCE cards. You will need four index cards for FORCE. Each card will have the strength of a push or pull. Write strong push, weak push, strong pull, or weak pull on each card.

Provide a variety of heavy and light objects for your student to choose from when he or she selects a WEIGHT card from the face-down pile. After choosing the WEIGHT card and the object he or she chooses to go with it, your student will then choose a FORCE card from that face-down pile to indicate the kind of strength that must be applied. Talk about the results of each round and how far the object moved.
STEPS IN THE GAME

1. Divide your index cards into two piles. One pile will be the OBJECT pile. The other pile will be the FORCE pile. Pick a card from the OBJECT pile. Turn it over. If it says heavy, choose a heavy object. If it says light, choose an object that has a light weight.
2. Pick a card from the FORCE pile. Turn it over. Ask your Learning Guide to read whether the card says strong push, weak push, strong pull, or weak pull.
3. Apply the force to the object that you chose.
4. Show your Learning Guide what you did and explain what happened. If you did what your cards said and explained what happened, you get one point.
5. Now your Learning Guide will take a turn. This time you get to decide if he or she gets a point.

TEACHING NOTES

Keep up with the points of the game. If your student correctly demonstrated an object and force that matched the cards, also explaining the outcome, award one point. Then, take a turn and allow your student to evaluate whether you earn a point. Continue to take turns, making at least one error for your student to use reasoning skills to explain why you do not get a point in that round.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
How Can We Change the Way Things Move? - Part 10

Objectives
- To describe how we can change the way things move

Books & Materials
- Computer
- Science Journal

Assignments
- Read Dimensions Unit 2, Lesson 2: How Can We Change the Way Things Move?

USE

Go to Dimensions: Unit 2, Lesson 2: How Can We Change the Way Things Move? (pp. 54-58) to review how we can change the way things move. You learned a lot about how we can change the way things move. You learned that we can change the speed and direction of an object.

USE FOR MASTERY

Now you will make drawings in your Science Notebook to show how speed and direction can be changed.

First, draw a picture of a person doing something to change the speed of an object. Then, draw a picture of an object changing direction. Use lines to show the direction of the object.

Also write a caption to tell what kind of force worked on the object, such as speed.

When you are finished, upload your work.

Supported file formats: PDF, JPG, GIF, PNG, RTF, TXT, ZIP, Word, Excel, Powerpoint, Publisher

0 / 12 File Limit
USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Draw a person acting on an object to cause it to change speed?
- Write a caption for this drawing that includes a description of a push or pull and what type of force is moving the object?
- Indicate an object changing in any direction in your drawing?
- Include a caption for this drawing with a description of a push or pull and what type of force is moving the object?

TEACHING NOTES

Review with your student the major points of the lesson. Go to Dimensions: Unit 2, Lesson 2, How Can We Change the Way Things Move? and have your student recall how an object can change its speed.
How Can We Change the Way Things Move? - Part 11

Objectives
- To describe how we can change the way things move

Books & Materials
- Science Journal
- Computer

SHOW

GAME OF MOTION
In this lesson, you have learned about how forces can change speed and direction.

Review which push and pull game ideas you chose for your project from What is Motion?

How can you include changes in speed and direction in either of your game ideas? You will either choose the game with the push or the game with the pull. With your Learning Guide, brainstorm ideas and make a sketch of your game that includes changing speed and direction. At the end of this part, you will need to choose which game, the push game or the pull game, will incorporate a change of speed and direction and how to do it.

With your Learning Guide, review the rubric again to make sure you include everything in your game of motion.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Great</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
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<tbody>
<tr>
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<td>One game uses pushes, and one game uses pulls. A change of speed and direction is included in one of the games.</td>
<td>One game uses pushes, and one game uses pulls. Either a change of speed or a change of directions is not included in one of the games.</td>
<td>One game uses pushes, and one game uses pulls. A change of speed and direction is not included in one of the games.</td>
<td>One or both games are missing. A change of speed and direction is not included in one of the games.</td>
</tr>
</tbody>
</table>

Before your student starts building his or her first game that he or she decided on at the end of What is Motion, talk about how the things learned in How Can We Change the Way Things Move about forces might change your student's game idea for this concept.

Brainstorm ideas and encourage your student to make a sketch of his or her pushing or pulling game for changing speed and direction. At the end of this part, your student will need to choose which game, the push game or the pull game, will incorporate a change of speed and direction and how to do it.

Please go online to view and submit this assessment.
Before your student starts building his or her first game that he or she decided on at the end of What is Motion?, talk about how the things learned in How Can We Change the Way Things Move? about forces might change your student’s game idea for this concept.

Brainstorm ideas and encourage your student to make a sketch of his or her pushing or pulling game for changing speed and direction. At the end of this part, your student will need to choose which game, the push game or the pull game, will incorporate a change of speed and direction and how to do it.

Criteria | Great | Good | Fair | Poor |
---|---|---|---|---|
Drawings and pictures of games | Includes a drawing with labels that shows how pushes, pulls, speed, and direction are used in the game. A picture of the game is submitted. | Drawing includes labels, but one of the pushes, pulls, speed, or direction is not labeled. A picture of the game is submitted. | Drawing includes labels, but more than one of the pushes, pulls, speed, or direction are not labeled. A picture of the game is submitted. | Drawing is not included, or more than two labels are missing. A picture of the game is not submitted. |

**TEACHING NOTES**

Before your student starts building his or her first game that he or she decided on at the end of What is Motion?, talk about how the things learned in How Can We Change the Way Things Move? about forces might change your student’s game idea for this concept.

Brainstorm ideas and encourage your student to make a sketch of his or her pushing or pulling game for changing speed and direction. At the end of this part, your student will need to choose which game, the push game or the pull game, will incorporate a change of speed and direction and how to do it.

**RATE YOUR PROGRESS**

Please go online to view and submit this assessment.
Now you have chosen which game will have a change of speed and direction. You choose either your push game or your pull game. Review the materials that you chose for the game that will have a change of speed and direction; this is either your push or pull game. You will need to add materials to your game that has the change of speed and direction to make an object change speed and direction. What materials could you use in your game to make an object change speed and direction? Brainstorm different materials you could use with your Learning Guide. Write your ideas in your Science Notebook. Have you found the right materials to help you make the best game?

Have you included changes in speed and direction in one of your games?

Now revisit your rough sketches from What is Motion? You made a rough sketch of your push game and your pull game. Now, you have chosen which game will have the push or pull, and you have thought of different materials to add to your game. Use the rough sketch of the game that will include a change of speed and direction and draw the additional materials you will use in your game. Label your drawing with where speed and direction will change.

With your Learning Guide, review the rubric so that you are sure to cover everything in your game of motion.

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</table>
You student should think about the household materials that will help him or her incorporate a change in direction to the game.

Encourage your student to make a detailed sketch of the pulling game that may incorporate a change in speed and direction.

Gather additional household materials as necessary and ask your student how the materials relate to changing speed and direction in the game.

---

**COLLABORATION**

Share the ideas you came up with for adding changes in speed and direction within one of your games with other students.

What new materials will you need?

---

**RATE YOUR PROGRESS**

Please go online to view and submit this assessment.
Pushing Objects - Part 1

**Objectives**
- To investigate how a collision of two objects changes the direction and speed of the objects

**Books & Materials**
- Pushing Objects worksheet
- One large marble and one small marble
- one empty cereal box
- one empty paper towel roll
- masking tape
- scissors

**Assignments**
- Complete the hands-on activity Pushing Objects.

---

**LEARN**

**VOCABULARY**
- force

In the last lesson, you learned about pushing and pulling forces. Can these forces be influenced by outside factors? Let's investigate how objects change speed and direction when they bump each other. This will help you with the design of your project. You will design and build games in which you use pushes and pulls to score points. Changing speed and direction are used in the games you will build for your project. Those are a result of collisions.

In this part, you will use the Hands-On Activity Pushing Objects to design a marble track. Access the worksheet. In this part, you will complete Step 1 to design a marble track. Be creative in your design. Your goal is to make two marbles bump and move in opposite directions along the track. You should draw your design in your Science Notebook.

Keep the Pushing Objects worksheet so that you can continue using it in the next part. If you are using a digital worksheet, save the worksheet so that you do not lose your work.

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**TEACHING NOTES**

Provide your student with the worksheet for the Hands-On Activity Pushing Objects. Your student will not need materials in this part because he or she is designing a track. Materials will need to be used in the next part. The materials provided should be as close to the suggested materials as possible, but use what is available to you and your student rather than skip steps in the activity. Your student should work through each step in the process and be as creative as possible.

Use the first step of the activity to help your student through the design phase. In the next part, your student will test and redesign. Have your student predict how the marbles will move in the activity, and remind your student that he or she can use some of the building and designing skills learned from this lesson to help when building the game in the SHOW part of the unit.
Your student will continue to use the *Pushing Objects* worksheet in the next part. Tell your student to keep the worksheet so that he or she can continue making progress on it during the next part. If your student is using a digital worksheet, tell your student to save the worksheet so that the work will not be lost.

✅ RATE YOUR ENTHUSIASM

Please go online to view and submit this assessment.
In the previous part, you began a Hands-On Activity, **Pushing Objects**. You worked on designing a track to make marbles change direction, change speed, and push each other. In this part, you will build your design and test it to complete Steps 2, 3, and 4. As you test it, think about how to improve the track. Ask yourself these questions:

- Can I change where the marbles are at the beginning and the end?
- Do the marbles hit each other in a way that makes them change speed or direction?
- How can I make a change to the design to cause a different change in speed or direction of the marbles?

Then make changes and test your track again until you get the results you want. Do not dismantle the track. You will use it again in the next part.

Use the same **Pushing Objects** worksheet you started in the last part to make progress in this part. Also keep the **Pushing Objects** worksheet so that you can continue using it in the next part. If you are using a digital worksheet, save the worksheet so that you do not lose your work.

**TEACHING NOTES**

If your student needs a review, have him or her look at the marbles from *Dimensions*: Unit 2, Lesson 2: How Can We Change the Way Things Move? **Hands-On Activity Pushing Objects**. Have your student focus on testing, redesigning, and improving the marble track as part of the engineering design process. Explain to your student that even the students in the video had to redesign their model and change it. Tell your student that he or she is not expected to make a perfect, working design the first time he or she tries. Encourage creativity in the redesign process by asking questions such as those provided on the student-facing screen.

Talk with your student about what happened during each trial of his or her track and how the marbles changed speed and direction when they bumped or collided.
Have your student try rolling the marbles at different speeds to see how this affects the collisions. Ask your student to talk about what other movements might affect the speed and direction of the marbles as they bump or collide.

Tell your student not to dismantle the model at the end of the day. It will be used again in Part 3. However, your student will not complete Step 5.

Your student will use the *Pushing Objects* worksheet that he or she began in the last part. Your student should continue to make progress on the same worksheet and will not begin a new worksheet. Your student will need to refer to *Pushing Objects* worksheet in the next part. Tell your student to keep the worksheet so that he or she can refer to it during the next part. If your student is using a digital worksheet, tell your student to save the worksheet so that the work will not be lost.

☑️ **QUICK CHECK**

Please go online to view and submit this assessment.

🔹 **MORE TO EXPLORE**

Motion can be of different types. View *Force and Motion* (06:20) to learn more about the different types of motion.

Please go online to view this video ▶
In this lesson, you designed and built a marble track. You found out what happened when two marbles bumped each other. Think about what your track taught you about forces.

**USE FOR MASTERY**

Now, draw your marble track final design in your Science Notebook. Draw arrows to show where the marbles moved. Circle the places where the marbles bumped each other. Then write a sentence that describes how the large marble and small marble moved after they bumped into one another in the space below.

When you are done, upload your marble final design and submit your sentence.
USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Draw your final design of your marble track in your Science Notebook?
- Draw arrows to show where the marbles moved?
- Draw circles to mark the places where the marbles collided?
- Write a sentence describing how a large marble and small marble moved after a collision?

TEACHING NOTES

Your student should be able to make a rough drawing of the marble track and the direction that each marble traveled in his or her Science Notebook. Allow your student to use the model to make the drawing.
Throughout this lesson, you have been working on games that use pushes and pulls. These are forces. Now, you will finalize your ideas and make your final games. You will also make rules and scoring systems for each game in the next parts.

One of your games includes changes in speed and direction. In this part, you will make your pull game. You have already put some thought into the game and made a rough sketch of how your game will look and what materials you will use. Sometimes, our ideas do not work out in real life like we plan. Think about the materials that you chose to use in your pull game. Do you want to make any changes to those materials? Think about the design of your game. Do you want to make any changes? Make the changes to your materials list and the design before you begin making your game. Record the changes in your Science Notebook.

Now, you are ready to make your pull game. Use your rough sketch and materials to make your game. Then, test your game to make sure it works. Did your game work like you thought it would? Make any changes to your game to make it work the way you want it to. Then, revisit your rough sketch and draw any additional parts that you added to make your game work. This will now be your final design.

Review the Project Rubric so that you are sure to cover everything in your game of motion.

**TEACHING NOTES**

Explain to your student that in this part, he or she will be finalizing his or her pulling game and making changes to improve it.

Remind your student that making changes and improvements is an important part of the process of designing and building.

Encourage your student to try out the game and record his or her ideas about what works and what does not. Explain that in the next part, he or she will write rules for the game so that others can play and keep score.
RATE YOUR PROGRESS

Please go online to view and submit this assessment.
You have designed and built a pulling game! Now, you need to write the rules for your game. Try to keep the rules simple. Come up with two to three rules that will explain how to play the game. Think about if you will need to take turns when playing the game. Is there something that will cause a player to be out of the game? How will someone win the game?

After creating the rules, you will need to design a scoring system. Tell how players can keep score. How will players gain points? How does someone win the game? Are a certain number of points needed to win?

It may help to think about some of the games that you have played. Think about the rules and scoring in those games.

Guide your student to write the rules to the pull game. Rules can include how many players can be included and how to decide who starts the game.

Look with your student at the directions of other game sets available. Encourage your student to be as detailed as possible when dictating the rules. Instructions should include how to score the game and how to decide who wins. Write the rules in your student's Science Notebook.

Please go online to view and submit this assessment.
You have learned about forces, and you have previously worked on designing and selecting materials for your own pushing game. Now, you can improve your game. In this part, you will finalize your ideas and make your final game, just as you did with your pulling game.

You have already put some thought into the push game. Think about the materials that you want to use in the game. Do you want to make any changes to those materials? Think about the design of your push game. Do you want to make any changes? Make your final changes before you play!

Make the changes to your materials list and the design before you begin making your game. Record the changes in your Science Notebook.

Now you are ready to make your push game. Use your rough sketch and materials to make your game. Then, test your game to make sure it works. Did your game work like you thought it would? Make any changes to your game to make it work the way you want it to. Then, revisit your rough sketch and draw any additional parts that you added to make your game work. This will now be your final design.

**TEACHING NOTES**

Explain that your student will be finalizing the pushing game he or she has been working on throughout the unit. Explain that as your student builds the game, he or she can make changes to improve it.

Remind your student that making changes and improvements is an important part of the process of designing and building.

Encourage your student to try out the game and record his or her ideas about what works and what does not. Explain that in the next part your student will write rules for the game so that others can play and keep score.

**RATE YOUR PROGRESS**

Please go online to view and submit this assessment.
You have designed and built your push game. Now, you need to write the rules for your push game. Try to keep the rules simple. Come up with two to three rules that will explain how to play the game. Will you need to take turns when playing the game? Is there something that will cause a player to be out of the game? How will someone win the game?

After creating the rules, you will need to design a scoring system. Tell how players can keep score. How will players gain points? How does someone win the game? Are a certain number of points needed to win?

Think about the rules and scoring system that you created for your pull game. Can you use the same rules for this push game? Can you use the same scoring system?

Guide your student to write the rules to the push game. Rules can include how many people can play and how to decide who starts the game.

Look with your student at the directions of other game sets available. Encourage your student to be as detailed as possible when dictating the rules. Instructions should include how to score the game and how to decide who wins. Write the rules in your student’s Science Notebook.

Please go online to view and submit this assessment.
You have made your games and written rules for your games. Now you will need to describe how each game uses pushes or pulls. Ask your Learning Guide to help you write down your description of each game and how each game uses pushes or pulls. You should write your descriptions in the textbox or you may upload them if you wrote them in your Science Notebook.

Now that you have created your pulling and pushing games, you can play them! Present your games to your Learning Guide. Discuss the rules with your Learning Guide and explain how to keep score and win the game.

After you have played your game, you will upload your work. You will need to upload your rough and final sketches of your push and pull game and the rules for each game.

- Include a picture or sketch of the final version of both games with labels.
- Describe how your games use pushes and pulls.
- Explain how one of the games involves a change in speed and direction.
- Describe the rules for each game.
- Explain how each game is scored.

Your student will need to describe how each game uses pushes or pulls. Have your student describe to you how pushes and pulls are used in each game. Then write your student's answers in the textbox or upload your student's answers.
You have made your games and written rules for your games. Now you will need to describe how each game uses pushes or pulls. Ask your Learning Guide to help you write down your description of each game and how each game uses pushes or pulls. You should write your descriptions in the textbox or you may upload them if you wrote them in your Science Notebook.

Now that you have created your pushing and pulling games, you can play them! Present your games to your Learning Guide. Discuss the rules with your Learning Guide and explain how to keep score and win the game.

After you have played your game, you will upload your work. You will need to upload your rough and final sketches of your push and pull game and the rules for each game.

Include a picture or sketch of the final version of both games with labels. Describe how your games use pushes and pulls. Explain how one of the games involves a change in speed and direction. Describe the rules for each game. Explain how each game is scored.

Your student will need to describe how each game uses pushes or pulls. Have your student describe to you how pushes and pulls are used in each game. Then write your student’s answers in the textbox or upload your student’s answers.

**Objectives**

To build games that use pushes and pulls and changes in speed and direction

**Books & Materials**

Computer

**TEACHING NOTES**

Share a picture of your final games with your group. Tell how each game uses pushes and pulls. Tell how one of your games includes changes in speed and direction. How are your games similar to others in your group? How are they different? Offer feedback to your group members and read the feedback that they give you.

Now that you are finished with your project, write about your experience in your Science Notebook. What did you like most about your games? What would you change about them if you could? Which game did you like best? Why?

Give your student time to play the game and compare it to the pull game. Allow your student to express opinions about what he or she likes most about each game.
Unit Quiz: Game of Motion

Please go online to view and submit this assessment.
It is small.

It has a big, flat tail.

It can swim.

It makes dams.

Can you guess what it is? Watch Beavers Are Geniuses (02:07) to see the amazing things that beaver do. Draw what you see in your Science Notebook.

It was a beaver! Beavers make dams. In the project you will make a dam too. In the lessons, you will learn how beavers are part of a bigger world and how they change their environment to meet their needs. You will also build a model dam to see why beavers need to build dams. You will see what materials beavers use to make dams and how their environment changes from using these resources.

Here is what your project needs to include:

- Picture of your model dam
- Explanation for how you built the dam, how the dam changes plant and animal life, and the environment
- Describe how beavers use things from the environment to make dams
- At least three ways that beavers change their environments
draw a picture of the beaver in his or her Science Notebook. Discuss what the beaver looks like, where it lives, and what it does. Return to a picture of the dam. Pause the video and ask the student: What is the beaver building? Reinforce that the structure is called a dam.

Explain that in the project, he or she will make a model of a beaver dam using different materials.

Here is what it will take to do a good job on your project!

In this project, you will plan and build a model dam to discover why beavers need to build dams, describe how beavers use resources from the environment, and how the environment has changed because of beavers.

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
Make a prediction about how you think beavers can change their environment? Share your prediction with your group. If you do not have a group, share your prediction with your Learning Guide.

TEACHING NOTES
In this project, your student will be shown pictures of beaver dams and will use guided research to learn more about beavers, how and why they build dams, and will make predictions about how the environment will change. Later in the unit, your student will make a model dam that holds water, and will describe how building a dam changes the plant and animal life in the environment. Your student will submit a picture of his or her model and a written or audio description of how the plant and the environment changed because of the dam.

There will be two times your student will work on the project. The first time your student will work on the project will occur after, What Do Animals Need? Your student will use guided research to learn more about why beavers build dams and will make a prediction about how the environment will change as a result.

During the show, your student will make a model dam using household materials, test his or her design, and describe how building the dam changes the plant and animal life in the environment. Your student will take a picture of his or her design and make an audio recording or have the Learning Guide scribe a written description of how the dam changed plant and animal life.
Both the Teacher Rubric and Student Rubric are available as blackline masters and can be printed for reference throughout the project.

☑️ RATE YOUR EXCITEMENT

Please go online to view and submit this assessment.
What Do Plants Need? - Part 1

Objectives
- To tell what plants need to live and grow

VOCABULARY
- living things
- nonliving things

Plants need certain things to live and grow. When they do not have those things, they can become nonliving. When beavers cut down trees, they are affecting plants. Trees need certain things to live and grow. When they are cut down by beavers, they cannot get the things they need. For your project, you will need to think about how the needs of plants, like trees, are not being met because of beavers. Beavers use all parts of the tree to make their dam to meet the needs of the beaver. In this lesson, you will learn what plants need to live and grow. You will also learn the difference between living and nonliving.

Let’s learn more about what it means to be living and nonliving. Go to Dimensions: Unit 3, Plants and Animals: Lesson 1, What Do Plants Need? Read Living and Nonliving Things, (pp. 76-77) to tell the difference between things that are living and things that are nonliving. Look at the picture of the park showing living and nonliving things. Then see if you can identify the living and nonliving things. Record your answer in your Science Notebook or textbook. Let’s see what you know! Complete the Apply What You Know: Evidence Notebook. Draw two columns in your Science Notebook or use the columns in your textbook. Label the left column Living. Label the right column Nonliving. Draw, or use a magazine to cut out, at least one picture of living and nonliving thing. Then place the picture in the correct column.

TEACHING NOTES
In this activity, your student will make observations about living and nonliving things. As needed, read the text to your student. Direct your student’s attention to the highlighted phrases living things and nonliving things. Point out that some nonliving things may move. For example, a bike and wind move. Explain that these are nonliving things because they do not need air, food, water, or space to...
live. Ask the learner to tell the difference between living and nonliving things. You may wish to have the student draw pictures of living and nonliving things in his or her Science Notebook or look at a science magazine to identify living and nonliving things.

Your student will need to identify living and nonliving things. There is a difference between the e-text and textbook for this activity. If your student is using the e-text, he or she should identify the frog and flower as living. If your student is using the textbook, he or she should draw a living and nonliving thing. Your student can choose a living and nonliving thing from the picture of the park.

✔️ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
How do you take care of a plant?

Do you put it in the dark?

Do you put it in the sun?

Do you give it water?

Let's find out!

Now you know the difference between a living and nonliving thing. One example of a living thing is a plant. Let's read to see what plants need. As you read, think about your project. Ask yourself how building a dam might affect a plant.

Let's find out what living and nonliving things that plants need. Go to Dimensions: Unit 3, Plants and Animals: Lesson 1, What Do Plants Need? Read Sunlight, Water, and Soil, (pp. 78-81). Look at the picture of the garden to see what plants need to live and grow. Identify the plants that are having their needs met. Then draw a picture in your Science Notebook of a plant that has its needs met. Draw a second picture showing a plant that does not have its needs met. What is the difference? Discuss the difference with your Learning Guide.

In this activity, your student will make observations that plants need sunlight, water, and soil to grow.

As needed, read the text with your student. Ask him or her to explain why the plants need sunlight, water, and soil. The student may not know why plants need soil. Help your student understand that the soil itself is not food for plants, but that most plants use the nutrients contained in the soil to make food. Some plants, such as air plants, can survive without soil. However, these plants must get the nutrients normally provided by soil another way.
Your student should identify the pictures of the living plants as the plants that are having their needs met.

Ask your student to draw a picture in his or her Science Notebook of a plant that has all three needs met. Encourage him or her to add labels and explanations. Then, discuss what would happen if a beaver cut down the tree or gnawed some of the limbs. Guide your student in understanding that the needs of the plant may be compromised by the action of the beavers.

✅ QUICK CHECK

Please go online to view and submit this assessment.

MORE TO EXPLORE

You have been learning about the needs of plants. To learn more about what both plants and animals need, watch Living Things Grow (03:04).

If you incorrectly answered the question, pay closer attention to the part on plants. This starts at 02:00 in the video. Write down one thing animals need and one thing plants need to grow in your Science Notebook.
What does a plant need?

Some soil.

Some light.

Some water.

That's right!

In the last part, you learned why soil is important to plants. Let's learn more about plant needs. Go to ScienceFusion, Why Do Plants Grow? In this virtual lab, you will have the chance to investigate what plants need to grow. Start the virtual lab but stop after you complete screen 4. Answer all questions in the virtual lab in your Science Notebook. When you are done with screen 4, talk to your Learning Guide about what you learned. In the next part, you will continue with the virtual lab beginning with screen 5.

TEACHING NOTES

As needed, read the text with your student. The virtual lab also has audio that will read the text to your student.

This virtual lab will be broken into three parts. In this part of the virtual lab, your student will complete screens 1-4. Your student will complete screens 5-7 in the next part. On the screens, your student will receive reinforcement for the correct and incorrect responses. If your student answers incorrectly, he or she will be prompted to try again until answering correctly.

Screen 1 is an introduction. The screens will not prompt the student to advance to the next screen. After the instruction, there is a pause until the student presses the forward arrow. You may need to prompt your student to advance screens.
On screen 2 of the activity, your student will match an animal to what it eats by dragging the animal to its food source. Emphasize to a student that all living organisms need food. Ask: What would happen if these animals did not have food? Explain to your student that plants make their own food. They need to have water, soil, and light to make their food. Explain to your students that plants do not eat food in the same way animals eat food. Plants absorb nutrients to create the energy they need to survive. Animals eat food to get the energy they need to survive.

On screen 3, your student will press a picture to identify that sunlight is a plant need. If your student identified sand or gravel, reinforce that soil is a plant need; however, these sources are not full of the nutrients that plants need.

On screen 4, your student will click on three images to learn more about what plants need: sunlight, water, and soil.

☑ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
What Do Plants Need? - Part 4

**Objectives**
- To tell what plants need to live and grow

**Books & Materials**
- ScienceFusion
- Computer

**Assignments**
- Read Dimensions: Unit 3 Lesson 1, What Do Plants Need?
- Complete ScienceFusion Virtual Lab, Why Do Plants Grow?

---

**LEARN**

**INTERACTIVE ACTIVITY**

Are you ready to grow some plants?

First we need a plan.

In the last part you started the virtual lab, Why Do Plants Grow? You learned that all living things need food. Animals eat their food, but plants need to make their own food. Continue with your investigation. Go back to ScienceFusion, Why Do Plants Grow? Start on screen 5. Use the arrow button to get there. Stop after screen 7. When you are done with screen 7, talk to your Learning Guide about what you learned. You will complete the virtual lab in the next part.

**TEACHING NOTES**

As needed, read the text with your student.

As you recall, this virtual lab will be broken into three parts. In this part of the virtual lab, your student will complete screens 5-7. Your student may need support in using the forward button to advance to screen 5.

On screen 5, your student will get an introduction to the investigation explaining each part including the tanks, water bottles, light, calendar, camera, and data table. Have your student pause and point to all the elements of the investigation explaining how each will be used. Please note that, when finished, your student will not receive a prompt to move to the next screen. You may need to prompt your student to press the forward arrow to move to the next screen.
On screen 6, your student will make a prediction as to the outcome of the investigation by selecting the picture showing the plant did not get any light or water. Have your student pause and explain the reasoning for selecting the picture, but please note that your student is not expected to have the correct answer at this point.

On screen 7, your student will drag and sequence the steps of the procedure. If he or she places an item in the incorrect sequence the item will pop back, and your student may try again. Make sure your student understands that the plant in Tank A will always get light and water. He or she will not select the water or the light for this plant.

✔ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
What Do Plants Need? - Part 5

**Objectives**
- To tell what plants need to live and grow

**Books & Materials**
- ScienceFusion
- Computer

**Assignments**
- Read Dimensions: Unit 3 Lesson 1, What Do Plants Need?
- Complete ScienceFusion Virtual Lab, Why Do Plants Grow?

**LEARN**

Squirt. Squirt.

Water the plant.

Click. Click.

Turn on the light.

It looks like you are ready to go!

In the last part you continued the activity, *Why Do Plants Grow?* You made a prediction about the outcome of the investigation, and you created a sequence of steps for your investigation. Now, go back to ScienceFusion: *Why Do Plants Grow?* Start on screen 8. Use the arrow button to get there. When you are done, talk to your Learning Guide about what you learned.

**TEACHING NOTES**

As needed, read the text with your student.

As you recall, this interactive activity will be broken into three parts. In this part of the activity, your student will complete screens 8–13. Your student may need support in using the forward button to advance to screen 8.

On screen 8, your student will begin the investigation. Point out that the light in Tank B is out. He or she will press the water bottle to water plant B. Emphasize that Tank A will get water and light.
without the child doing anything. Then, your student should select the calendar and wait three weeks. Next, he or she will take a picture of the plants. It will automatically be placed into the table for your student to view at the end. Finally, the student presses reset to start over.

On screen 9, he or she repeats the experiment without water or light in Tank B.

On screen 10, your student is shown four photos from the experiment and asked to observe which one looks worst. Your student will be given the opportunity to select responses until the correct one is chosen.

On screen 11, your student views a time-lapse video of plants growing. Your student will listen to audio emphasizing that plants need sunlight and water to grow.

On screen 12, your student will interact with the screen to grow a bean seed. Ask: How do you know this plant’s needs are being met? (It is healthy and growing.)

On screen 13, your student will receive a summary of the activity content. Prior to playing the screen, encourage your student to summarize what he or she has learned.

✅ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
What Do Plants Need? - Part 6

**Objectives**
- To tell what plants need to live and grow

**Books & Materials**
- Dimensions: Grade K Science Notebook
- Computer

**Assignments**
- Read Dimensions: Unit 3 Lesson 1, What Do Plants Need?
- Complete ScienceFusion Virtual Lab, Why Do Plants Grow?

**LEARN**

Plants need water.

Plants need sunlight.

Plants need soil.

What else do they need?

In the last part, you finished the virtual lab about what plants need to live and grow! Now, review what you have learned. Watch *What Do Plants Need to Grow?* (00:53). Draw a picture in your Science Notebook of five things plants need.

Please go online to view this video ▶

**TEACHING NOTES**

In this video, your student can sing along to a song about the five plant needs. After listening to the song once, replay the song with the student. Ask your student to pause after each verse to write or draw a picture of the plant needs in his or her Science Notebook. After your student has recorded all five plant needs, discuss the needs. You may wish to show the student a picture of plants that are too close together and some that are spread apart, such as in the rows of a garden.

Now compare two different plants. Go to *Dimensions*: Unit 3, Plants and Animals: Lesson 1, What Do Plants Need?, Sunlight, Water, and Soil and complete the **Do the Math!** (p. 81) activity to find out which plant is taller. Answer the question in your Science Notebook or textbook. What could you do to help the smaller plant grow bigger? Discuss with your Learning Guide.
Discuss with your student how to compare two objects. Explain that in this activity, they are going to compare two plants by height, or how tall they are. Children should understand that some plants will grow tall when they get the things they need to live and grow. Without water, sunlight, and soil, a plant may not grow big and tall. If your student is using the e-text, he or she should identify that the plant on the right is taller. If your student is using the textbook, he or she should identify that the plant on the left is taller.

Discuss with your student that water, sunlight, and soil can help a plant grow taller.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
What Do Plants Need? - Part 7

Did you like the song?

You learned something new.

Plants need air and space.

Let’s find out why.

Read to find out more about plant needs. Go to Dimensions: Unit 3, Plants and Animals: Lesson 1, What Do Plants Need? Read Air and Space to Grow (p. 82). Do the activity in your Science Notebook or textbook. You should notice that plants need air and space.

In this activity, your student will learn why air and space are important to plants.

Ask the student what he or she notices about the plants shown. Your student should conclude that plants need space to grow. Discuss with your student all of the things plants need and ask if he or she sees a pattern. Explain that scientists look for patterns when they make observations. When plants get air, sunlight, water, soil, and space to grow, they live and grow. This is a pattern in healthy plants. When they do not get the things they need, they do not live and grow. This is a pattern in plants that are not healthy. If the student struggles with the term space, you may wish to give the student several dry beans, blocks or other small objects. Have the student place them very close together. Then have the student spread them apart. Explain that now there is space between them.

As your student explores, you may wish to show a picture of a crowded forest with many trees. Ask what might happen to a new tree trying to grow at the bottom of the forest floor. Guide your student in understanding that it might not get enough sunlight, water, or nutrients from the soil because the forest is so crowded. A new plant may not have space to grow. Ask: What might happen if a beaver colony cut down some of the trees? Help your student to understand that this might make space for new plants to grow.
There is a difference between the e-text and textbook for the activity in Air and Space to Grow. If your student is using the e-text, he or she should identify all of the pictures because they all show plants getting the air and space they need to live and grow. If your student is using the textbook, he or she should draw plants in soil with enough space to live and grow. Make sure your student does not draw plants too close to one another.

✅ QUICK CHECK

Please go online to view and submit this assessment.

⏰ MORE TO EXPLORE

You have been learning about the needs of plants. To learn more about what both plants and animals need, watch Living Things Grow (03:04).

If you incorrectly answered the question, pay closer attention to the part on plants. This starts at 02:00 in the video. Write down one thing animals need and one thing plants need to grow in your Science Notebook.
What Do Plants Need? - Part 8

LEARN

What would you put in a garden?
Corn?
Beans?
Flowers?
You can plant a garden in this game.

In the last part, you learned about two more important things plants need. They are air and space!

INTERACTIVE ACTIVITY

Continue to review what plants need to live and grow. Play What Do Plants Need to Grow? Watch to see that all five plant needs are met.

TEACHING NOTES

In this game, your student will plant seeds in a garden. Then, he or she will water the plants and make sure they get sunlight to grow. Before beginning the game, review the five plant needs with your student. Plants need sunlight, water, soil, air, and space. Have him or her write or draw a picture of each need in his or her Science Notebook. Then, as your student plays the game, have him or her put a check mark next to each plant need as it is met. After the game, discuss with your student how the plants had their needs met.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
## What Do Plants Need? - Part 9

### Objectives
- To tell what plants need to live and grow

### Books & Materials
- Dimensions: Grade K
- Computer

### Assignments
- Read Dimensions: Unit 3 Lesson 1, What Do Plants Need?
- Complete ScienceFusion Virtual Lab, Why Do Plants Grow?

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### LEARN

In the last part, you played a game to grow your own garden. How did your garden grow?

You put a seed in the soil.

A plant came out.

The seed really changed.

How do plants change over time?

Now, learn more about how plants change as they grow. Watch the Discovery Education video *Seed Life Cycle* (03:54). Tell your Learning Guide how the orange seed changed.

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### TEACHING NOTES

In this video, your student will follow a group of students as they learn about plant life cycles. Encourage your student to return to the plant life cycle diagram at 03:04. Point out the circular design of the life cycle diagram. Emphasize that this shows that the cycle continues. Ask the student to describe what happens over time.

A seed was planted.

A tree grew.

Then, it made an orange.

Do animals change too?

In this video, your student will follow a group of students as they explore animal life cycles. Encourage your student to return to the plant life cycle diagram at 00:08. Ask him or her to describe what happens over time. Then, ask the student to compare the life cycle of the orange and the frog. Ask: How are they the same? The student should point out that over time both change and grow bigger until they become an adult.

You looked at lots of plants to see what they need to grow.

Scientists study plants too.

Let’s find out how scientists study a cactus. Go to Dimensions: Unit 3, Plants and Animals: Lesson 1, What Do Plants Need? Read Take It Further, (p. 85) People in Science & Engineering. You are going to learn about Dr. Norma Alcantar. Dr. Alcantar does a lot of work with plants. Identify which plant Dr. Alcantar uses to make water clean. Then talk with your Learning Guide about how people use plants.

In this activity, your student will learn how a scientist, Dr. Norma Alcantar, studies a prickly pear to help clean dirty drinking water for people, plants, and animals that use it to live and grow. Explain that Dr. Alcantar is a chemical engineer. In many places, drinking water contains harmful ingredients. Dr. Alcantar uses a process that involved adding the mucilage found in the prickly pear cactus to treat the unclean water. When it is added to the untreated water, it causes unwanted substances in the water to sink to the bottom. Ask: Why is it important for water to be clean? (It might make you sick if it isn’t.) Where do you get water to drink? (water fountains, bottled water, wells, springs, and so on.) Is the water you drink safe and clean? Why? (The water is clean because it has been purified.)

There is a difference between the e-text and textbook in Take It Further. If your student is using the e-text, he or she should identify the prickly pear cacti. If your student is using the textbook, your student should draw the prickly pear cacti.

Please go online to view and submit this assessment.
What Do Plants Need? - Part 10

**Objectives**
- To tell what plants need to live and grow

**Books & Materials**
- Computer

**Assignments**
- Read Dimensions: Unit 3 Lesson 1, What Do Plants Need?
- Complete ScienceFusion Virtual Lab, Why Do Plants Grow?

**USE**

You learned what plants and animals need to grow. It’s time to see what you know. Let’s review. Go to the Discovery Education video *Living Things Grow* (03:04). Sing along with the song.

**USE FOR MASTERY**

Now, draw a picture that shows the five things a plant needs to live and grow in your Science Notebook. Label each of the five things in your picture. When you are finished, upload your drawing including the labels of the five things plants need.

Supported file formats: PDF, JPG, GIF, PNG

0 / 12 File Limit
USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Draw and label a picture of the five things a plant needs to live and grow in your Science Notebook?

TEACHING NOTES

Before completing the question, have your student point to each object and name what is pictured. After he or she has correctly named each item, allow your student to submit the work.
In the last lesson, you learned about what plants need to live and grow. Now you will see what animals need to live and grow. This is important to understand for your project. In your project, you will need to know what animals, like beavers, need to live and grow to meet their needs. You learned that plants need five things to live and grow. Animals have needs, too. You will need to know what beavers need to live and grow and how beaver’s needs can affect the needs of other plants and animals.

Close your eyes.

Think about a beaver.

What does it look like?

What does it do?

Would you like to see a beaver?

Watch the video Two Baby Beavers Play and Eat (04:08). Stop the clip at 0:41. What is the first beaver doing? Write about it in your Science Notebook.

Please go online to view this video
RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
What Do Animals Need? - Part 2

**Objectives**
- To tell what animals need to live and grow

**Books & Materials**
- Dimensions: Grade K
- Science Notebook
- Computer

**Assignments**
- Read Dimensions: Unit 3 Lesson 2, What Do Animals Need?
- Complete You Solve It Simulation Grow a Garden

---

**LEARN**

Big, black bear.

Small, soft hare.

Green, wet frog.

Brown, furry dog.

There are so many animals! How are they all the same?

They all have needs.

In the last part, you looked at how beavers live. You also thought about what animals need to live and grow. Let’s read to see if you were right. Go to Dimensions: Unit 3, Plants and Animals: Lesson 2, What Do Animals Need? (p. 90) Look at the orangutan picture. Draw a picture in your Science Notebook of the things the orangutan needs to live and grow.

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**TEACHING NOTES**

Point out the orangutan. Ask your student to share what he or she drew in his or her Science Notebook. Ask which of these needs is being met in the photo (food). Reinforce that the bananas in the animal’s mouth are evidence it needs food.

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Next, go to Dimensions: Unit 3, Plants and Animals: Lesson 2, What Do Animals Need? and look at the forest to see what animals need to live and grow. Read Can You Explain It? (p. 91). Answer the question about what animals need to live and grow in your Science Notebook or textbook.
Direct your student's attention to the **Can You Explain It?** question. Discuss that animals, like a raccoon, need certain things to live, grow, and thrive. Allow your student to share his or her observations of the raccoon. Your student should identify what is shown in each picture before answering the question. Accept all reasonable answers for what the raccoon needs to live and grow.

Please go online to view and submit this assessment.
Animals have needs.

You do too.

Can you name a few?

In the last part, you started to look at what animals need. In this part, you will learn about what people need. Do you think what people need will be similar or different to what animals need? Talk about this with your Learning Guide. Then think about all of the things that you need to live and grow. Make a list of these things in your Science Notebook. Then review your list with your Learning Guide.

Your student will begin by making a prediction about if the needs of people are similar or different than the needs of animals. Accept all reasonable responses. Your student will then make a list of all the things he or she needs to live and grow. Your student can either write a list in the Science Notebook, or you can discuss this with your student. This is a good opportunity to talk about the differences between a need and a want. A need is something necessary to live, like food and water. A want is something that’s nice to have, like going to the park.

Now, read the text to find out more about what people need. Let’s see if what you think you need is correct. Go to Dimensions: Unit 3, Plants and Animals: Lesson 2, What Do Animals Need? Read What People Need (pp. 92-93). Did you see a pattern for what people need to live and grow? Talk about what pattern you see with your Learning Guide. Then identify the things people need to live and grow and record your answers in your Science Notebook or textbook.
Have your student describe what is happening in each image. Ask: What do people need to live and grow? Your student should indicate that people need food, air, water, and shelter. Help your student recognize that these form a pattern by asking: What meals did you eat today? What meals will you eat tomorrow? What about the next day? Your student should recognize that people eat every day, which forms a pattern. Ask your student to think about the pattern of water and breathing. Your student should identify the pictures of the boy eating and the boy drinking water as needs. Having books and markers are wants since they are not needed to live and grow.

Please go online to view and submit this assessment.
Do you have a favorite pet?

A dog? A cat? A lizard?

We take care of our pets’ needs.

What do you think pets and other animals need?

In the last part, you started learning about what animals need by looking at what people need. Now you will take a closer look at what other animals need. Watch *The Needs of Animals* (01:01).

Please go online to view this video ▶

In this lesson, you have been learning about what animals need. Sometimes, the books you read and television shows and movies you watch have animals in them. Do these animals always look and act like the animals in real life? Movies, television, and books can be more interesting when animals talk and do other things they do not actually do in real life.

In your Science Notebook, create a T-chart. Label one side “Real” and the other side “Make Believe.” You are going to view a video that shows some animals. You will write anything that an animal actually does in the real world on the “Real” side of your chart. When you see something that the animals do not actually do in real life, write this on the “Make Believe” side.
Watch the Discovery video *The Caterpillar and the Polliwog* (07:26) and fill in your chart. When you are finished, share with your Learning Guide.

### TEACHING NOTES

Help your student create a T-chart in his or her Science Notebook. Below you will see examples of what your student may put in his or her chart. When you are reviewing your student's answers with him or her, be sure to point out any mistakes he or she has made. You could do some research to find out if animals actually do any of the examples in real life.

<table>
<thead>
<tr>
<th>Real</th>
<th>Make Believe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caterpillars make cocoons.</td>
<td>Animals are talking.</td>
</tr>
<tr>
<td>Caterpillars become butterflies.</td>
<td>The caterpillar wears a scarf.</td>
</tr>
<tr>
<td>Polliwogs live in a pond.</td>
<td></td>
</tr>
<tr>
<td>Polliwogs become frogs.</td>
<td></td>
</tr>
<tr>
<td>Turtles go into their shells.</td>
<td></td>
</tr>
</tbody>
</table>

As you saw in the video, sometimes plants and animals are shown doing things that they do not actually do in real life. However, books, television shows, and movies often also show plants and animals in ways that are real.

### QUICK CHECK

Please go online to view and submit this assessment.

### MORE TO EXPLORE

What do plants and animals need? Watch the Discovery Education video *Living Things* (05:01) to learn about their needs. Start at 03:00.
A bear comes out of a cave.

It yawns.

It eats some berries.

It drinks from a river.

Is this bear getting its needs met?

In the last part, you started looking at what different animals need. Now let's read to find out more about bears’ and other animals’ needs. Read Dimensions: Unit 3, Plants and Animals: Lesson 2, What Do Animals Need? Read What Animals Need (p. 94). Identify what animals need and record your answer in your Science Notebook or textbook. Then discuss how the animals in the pictures are getting their needs met.

TEACHING NOTES
As your student identifies what animals need, encourage him or her to cite evidence as to why they chose the animal. There is a difference in the questions between the e-text and textbook. In the e-text, your student will pick the picture that has the water, air, and shelter the eagle needs. In the textbook, your student should circle the hare as getting the food it needs, and circle the bear as getting the shelter it needs. Ask: How does the picture show the hare getting what it needs to live and grow? How does the picture show the fox getting what it needs to live and grow?

How do animals meet their needs?

Think about a bird’s beak or a rabbit’s claws.
What do they do?

Their body parts help them eat!

You learned about the things animals need to live. Now, take a closer look about how animals meet some of those needs. Watch *Adaptations* (13:12). Stop watching after three minutes. What body parts do the animals have to meet their needs? Choose one of the animals that you saw in the video. You can choose the armadillo, wood lice, tortoise or sea turtle, crab, or crawfish. Draw the animal in your Science Notebook and talk with your Learning Guide about how this animal has body parts to help it meet its needs.

Please go online to view this video ▶

**TEACHING NOTES**

Explain to your student that animals have body parts and behaviors that help them meet their needs. For example, a parrot has a strong beak to help it crack the shells of nuts, and a rabbit has feet made for digging. As your student watches the video, pause after each animal to discuss how the appearance of the animal helps it survive.

**RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
What Do Animals Need? - Part 6


Let's learn more about why animals need these.

In the last part, you looked at different body parts and behaviors animals have to meet their needs. Read to find out more about how these animals are having their needs met. Watch What Do Living Things Need? (10:37) The video will ask your questions as you watch it. When you come to a question, pause the video and write or talk about your answer with your Learning Guide. Stop watching at 07:26 mark.

How do you think a beaver can have its needs met? Talk about a question you might have about beavers with your Learning Guide.

This video explains four needs of every organism. As the video asks a question and pauses, direct your student to record the answer in his or her Science Notebook. After watching the video, help your student connect plants and animals to see that they both have needs.

Draw your student's attention back to the project. Have your student begin to think about the needs of a beaver. How does the beaver get its needs met? Have your student write or tell a question they might have about this topic such as What do beavers eat? or What do beavers use as shelter?

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

What do plants and animals need? Watch the Discovery Education video, *Living Things Grow* (03:04), to learn about their needs.
LEARN

How do you drink water?

Do you use a straw?

Do you drink from a cup?

Do you drink from a water bottle?

Animals have lots of ways to drink water, too.

You have been looking at what animals need and how they meet those needs. Let's find out how animals get water and air that they need to live and grow. Read *Dimensions*: Unit 3, Plants and Animals: Lesson 2, What Do Animals Need? Read Water and Air for Animals (p. 98). Look at the elephant, flamingo, and water buffalo pictures. Animals drink water in different ways. Point out the animal that uses its beak to drink water to your Learning Guide.

Animals drink water differently and also drink different amounts of water. Look at the Do the Math! (p. 98) and identify the animal that drinks more water in a day.

TEACHING NOTES

Your student should identify the flamingo as the animal that uses its beak to drink water. Discuss with your student that animals have different body parts that allows them to drink water differently. In Do the Math!, (p. 98) your student should identify the dog as drinking more water in a day.

Animals drink differently and they also take in air differently. Animals need air to live and grow. Look at the picture of the dog and the shark and read about how they take in air. What body part do fish, like sharks, use to take in air? What body parts do animals, like dogs, use to take in air? Record your answers in your Science Notebook.
Your student should recognize that fish, like sharks, use their gills to take in air. Animals, like dogs, use their lungs to take in air. Explain to your student that people also use lungs to take in air.

Pretend you are the different animals shown in the text. You can be a dog, elephant, water buffalo, or shark. Show your Learning Guide how you drink water. Then draw a picture of the animal you chose drinking water in your Science Notebook.

Encourage your student to name the body part each animal is using to drink, such as trunk, beak, and mouth. Have your student act out being each animal drinking, such as the elephant using its trunk to put water in its mouth.

Ask your student how animals get air. Have him or her identify the body parts that animals use to breathe.

Please go online to view and submit this assessment.
What do you see in a garden?

Orange carrots.
Green beans.
Red peppers.
You may even see brown worms!

LET'S SEE WHAT ANIMALS, LIKE WORMS, NEED TO LIVE AND GROW. PLAY THE DIMENSIONS YOU SOLVE IT SIMULATION, GROW A GARDEN! IN THIS SIMULATION, YOU WILL CREATE A GARDEN. THIS WILL GIVE YOU THE CHANCE TO TAKE CARE OF THE NEEDS OF PLANTS AND ANIMALS. WHEN YOU ARE FINISHED WITH THE SIMULATION, DRAW A PICTURE OR WRITE ABOUT WHAT YOU LEARNED IN YOUR SCIENCE NOTEBOOK.

IN THIS SIMULATION, YOUR STUDENT WILL CREATE A MODEL GARDEN WITH PLANTS AND EARTHWORMS. HE OR SHE WILL SELECT THE MATERIALS. THEN, YOUR STUDENT WILL CHOOSE HOW MUCH WATER TO PROVIDE THE ORGANISMS. BY MOVING THE SLIDER, HE OR SHE WILL SEE THE RESULTS OF OVER WATERING, UNDER WATERING, OR JUST-RIGHT WATERING. AT THE END OF EACH ROUND, YOUR STUDENT TAKES A DIGITAL PICTURE OF THE SETUP. THEN, YOUR STUDENT IS ASKED TO REPEAT THE ACTIVITY USING A DIFFERENT WATER AMOUNT. AT THE END, YOUR STUDENT DETERMINES WHICH WAS THE CORRECT AMOUNT OF WATER TO MEET THE PLANTS’ AND WORMS’ NEEDS.

PLEASE GO ONLINE TO VIEW AND SUBMIT THIS ASSESSMENT.
What Do Animals Need? - Part 9

**Objectives**
- To tell what animals need to live and grow

**Books & Materials**
- Dimensions: Grade K
- Computer

**Assignments**
- Read Dimensions: Unit 3 Lesson 2, What Do Animals Need?
- Complete You Solve It Simulation Grow a Garden

**USE**

In this lesson you learned that animals have needs, and how they can meet their needs. Now let’s see what you have learned.

**USE FOR MASTERY**

Look at the picture. It shows an astronaut standing on the moon.

What things are missing for people to live on the moon?

Write at least two things that are missing and why the person will need them. Write your answer in the box.

0 / 10000 Word Limit
Did you:

- List two things that are missing on the moon that people need to survive?
- Explain why a person would need the identified items?

**TEACHING NOTES**

If your student needs support, you may wish to have him or her return to the *Dimensions*: Unit 3, Plants and Animals: Lesson 2, What Do Animals Need? text and review the section, What Animals Need (p. 94). Have your student read each word and identify if the astronaut is having these needs met by his or her environment. If necessary, you can write the answer out for your student.
WHAT DO BEAVERS BUILD DAMS?

In Part 1 of the lesson, you watched two beavers eat and play. Beavers, just like other animals, need to have their needs met to live and grow.

Let's learn more about what beavers need to live and grow.

Start by brainstorming some questions you have about what beavers need to live and grow. If you need help, think about what you have learned about what animals need to live and grow. Then, use the resources below to find the answers.

Discovery Kids: Beavers

Active Wild: Beavers

PBS Nature: Beaver video, How Beavers Build Dams (02:32)

Please go online to view this video ▶

TEACHING NOTES

GUIDED RESEARCH

With your student, brainstorm research questions about what beavers need to survive. Guide your student to include a question about what beavers use for shelter. Sample questions may include: What do beavers eat? How do beavers make shelters?

It may be easiest for your student to do focused research, where he or she looks for information on only one question at a time. In this case, you may ask your student to focus on shelter. One method for your student to collect facts and organize their information is to use his or her Science Notebook. He or she writes each animal need: food, water, air, and shelter at the top of the page. As your student finds information to answer each question, he or she can write or draw a picture on a sticky
note. Then, your student can place the sticky notes on the appropriate page in his or her Science Notebook.

Provide resources for your student to use to research the question such as books, science magazines for kids, and websites. The following links may be useful.

✅ RATE YOUR PROGRESS

Please go online to view and submit this assessment.
Beavers are busy!

They chew trees.

They build dams.

How does all of this change where they live?

Draw a picture of the beaver’s environment before it builds a dam. You can use words to label your picture. Then, draw a picture of the beaver’s environment with its dam built. How has the environment changed? List at least three ways that the beaver has changed the environment.

Draw a picture before.

Then draw a picture after beavers live and work there.

You brainstormed, researched, and drew pictures of how beavers change their environments by building a dam. Review the rubric to make sure you have included everything for your project so far.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Great</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
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<tbody>
<tr>
<td>Describe how beavers make dams.</td>
<td>Tell how beavers use things from the environment.</td>
<td>Tell how beavers use things from the environment.</td>
<td>Tell how beavers use things from the environment.</td>
<td>Does not tell how beavers use things from the environment or how beavers change their environment.</td>
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<td></td>
<td>Tell three ways that beavers change their environment.</td>
<td>Tell two ways that beavers change their environment.</td>
<td>Tell one way that beavers change their environment.</td>
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COLLABORATION

Share your predictions about why beavers build dams with others.

TEACHING NOTES

Have your student draw a picture of the beaver's environment (without a dam). Then, encourage your student to review his or her notes. Return to the videos and images. How do each of the activities they see such as gathering food, cutting wood, and building dams change the environment? Have him or her draw a picture of the changed environment. Encourage your student to add labels or arrows to identify the changes.

After the drawings have been completed, discuss with your student how this drawing relates to their beaver dam building project. Start with a review of the rubric to help your student assess progress so far. Display part of your student rubric for the discussion.

<table>
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Have your student explain what he or she learned about beaver dams, how they are constructed, and how they change the environment. After this discussion, ask your student to assess his or her own progress. Remind your student that the goal is to satisfy the criteria for earning a great rating. Later your student will construct the beaver dam model.

RATE YOUR PROGRESS

Please go online to view and submit this assessment.
Where Do Plants and Animals Live? - Part 1

Objectives
- To say why plants and animals live in certain places

Books & Materials
- Science Notebook
- Computer

Assignments
- Read Dimensions: Unit 3, Lesson 3: Where Do Plants and Animals Live?
- Complete ScienceFusion Virtual Lab, Can Plants Survive in Different Environments?

LEARN

VOCABULARY
- desert
- forest
- pond
- ocean

Where do you live?

Is it cold or hot?

Is it wet or dry?

Now think about where beavers live. It's important to know about where beavers live for your project. They live in dams that are in and near streams. This is the perfect home for them to get their needs met. They can find food and water. They have wood to build shelters. You will need to build a model dam for your project. As you learn in this lesson, think about what your model dam will look like and how it will provide a good home for the beaver.

There are lots of places for plants and animals to live. Let's learn about some more. Watch the video Home Sweet Home Habitat (04:41). Stop the clip at 00:46.

Please go online to view this video ►

TEACHING NOTES

In this video, your student will imagine what might happen if a polar bear lived in a desert. Use this to introduce the idea that plants and animals live in different environments. Work with your student to compare desert and polar regions. Your student may wish to make a T-chart in his or her Science Notebook and describe each environment.
RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Where Do Plants and Animals Live? - Part 2

**Objectives**
- To say why plants and animals live in certain places

**Books & Materials**
- Dimensions: Grade K
- Science Notebook
- Computer

**Assignments**
- Read Dimensions: Unit 3, Lesson 3: Where Do Plants and Animals Live?
- Complete ScienceFusion Virtual Lab, Can Plants Survive in Different Environments?

### LEARN

What do you have in your home?

Is there some yummy food?

Is there water?

Is there space to move?

Plant and animal homes have these too.

Read to find out how animals needs are met in their environments. Go to **Dimensions**: Unit 3, Plants and Animals: Lesson 3, Where Do Plants and Animals Live? (p. 106). Look at the bear picture, and then read **Living Things All Around** (p. 107). Living things are all around us. Look at the picture of the forest and see what the forest has that plants and animals need. Then complete the **Can You Explain It?** (p. 107) to identify the things that forest plants and animals need. Record your answers in your Science Notebook or textbook.

### TEACHING NOTES

Point out the picture of the bears to your student. Ask your student where he or she thinks the bears live. He or she may say the mountains or woods. They aren't expected to know environment names yet. Ask: What do you think the bears need to live and grow? (food, water, shelter, space). Do you think the bears have their needs met where they live? Have your student act out the bear getting its needs met (e.g. drinking water, eating berries, sleeping in a cave).

As needed, support your student in reading the text. Guide your student to understand that a forest is a system with parts that work together. Look to the activity to see how the plants and animals in a forest get what they need. Allow your student to share his or her observations of the forest.
Then, direct your student’s attention to the **Can You Explain It? (p. 107)**. He or she should identify what is shown in each picture before answering the question. Your student should identify that the plants and animals can get food, water, shelter, and sunlight in the forest. Your student will revisit this question at the end of the lesson, at which point, he or she should be able to use what he or she has learned to explain what living things in a forest need to live and grow.

✅ **RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
LEARN

Let’s play a game.

I am a snake.

I live near lots of sand and rocks.

Where do I live?

The desert!

In the last part, you look at how needs of plants and animals can be met using their surroundings. Now, watch the video to learn more about the desert and how animals have their needs met. Watch A Day in the Desert (03:24). Before you watch the video, make a prediction about what plants and animals you think live in the hot desert. Draw a picture of a hot desert in your Science Notebook with the plants and animals you think live there. Then watch the video to see what plants and animals live in the hot desert. After the video, you can add to your drawing of the desert and draw more plants and animals that you learned about or write what plants and animals you see in your Science Notebook.

Please go online to view this video ➤

TEACHING NOTES

Some children believe that deserts are just rocks and sand with very little wildlife. Before watching, ask your student what plants and animals he or she thinks will appear in the video. This video shows the variety of plants and animals that can be found in one desert by showing them throughout a day. As your student watches the video, encourage him or her to draw a quick sketch in his or her Science Notebook of the plants and animals observed that can be added to their desert drawing. You can pause the video so your student can complete the drawing. At the end of the task, ask your student if he or she was surprised by any of the living things found in the desert.
You saw a desert.

Were you surprised to see plants and animals living there?

Let's learn more about desert homes.

Let's read more to find out about desert homes. Go to Dimensions: Unit 3, Plants and Animals: Lesson 3, Where Do Plants and Animals Live? Read Deserts (p. 108) to find out what types of plants and animals live in deserts. Then identify the plants and animals that live in the desert. Answer the questions in your Science Notebook or textbook.

TEACHING NOTES

Have your student look closely at the desert image. What plants and animals does he or she observe? What parts of the desert system can he or she observe? (plant, animals, rocks, and sand). Point out that the desert system has living and nonliving parts. Remind your students that a desert is a dry place. Ask: What does this tell you about the plants and animals that live there? (They need very little water to live and grow). If a plant needed a lot of water to live and grow, could it live in the desert? (No, the plant would not get the water it needed to live and grow.) Then, help your student identify the plants and animals in the image and discuss how each is able to live in the desert environment.

As your student progresses through the lesson, it may be helpful for him or her to create a graphic organizer to record details about each environment. Help your student create a table with two columns. The first column will contain the name of the environment. The second column can include details about the environment. For example, your student may write dry for desert and list some desert plants and animals.

There are some differences between the e-text and textbook when your student needs to identify the plants and animals that live in the desert. If your student is using the e-text, your student should identify the desert hare, collared lizard, and cacti as living in the desert. If your student is using the textbook, your student should identify all but the sea star as living in the desert.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Let’s learn more.

Please go online to view and submit this assessment.

Next, go to

You saw a forest.

Did you see many tall trees in the desert?

No. Deserts do not have many trees.

A forest is a place with many trees.

In the last part, you looked at how plants and animals meet their needs in a desert. Let’s watch to learn how animals have their needs met in a forest. Watch *Forest Habitat* (02:12) to see what plants and animals live in a forest. Talk with your Learning Guide about the plants and animals you see.

Please go online to view this video ▶

You saw a forest.

Which plant did you like?

Which animal did you like?

Let’s learn more.

Let’s read to learn more about how animals have their needs met in a forest. Go to Dimensions: Unit 3, Plants and Animals Lesson 3: Where Do Plants and Animals Live? Read Forests (p. 110). Answer the questions about the forest animals in your Science Notebook or textbook.
Let's read to learn more about how animals have their needs met in a forest. Go to Dimensions: Unit 3, Plants and Animals Lesson 3: Where Do Plants and Animals Live? Read Forests (p. 110). Answer the questions about the forest animals in your Science Notebook or textbook.

Have your student look closely at the forest image. Ask: How do you know the bear can get the water it needs in this forest? (The forest has a river or stream.) Do you think the bear could live in the desert? (No, the bear could not get the water it needs in a desert.) As your student studies the image, ask him or her to name some things that are part of the forest system. Then, help your student to identify the plants and animals in the image and discuss how each is able to live in the forest environment. There is a difference between the e-text and textbook images. If your student is using the e-text, your student should identify the deer and the fern as getting food, water, or shelter in the forest. If your student is using the textbook, your student should identify the hummingbird and bear.

Prompt your student to add to the graphic organizer from Part 3 to include the forest environment.

Next, go to Dimensions: Unit 3, Plants and Animals Lesson 3: Where Do Plants and Animals Live? and complete the activity Do the Math! (p. 113) to find out how many more trees should be planted. Record your answer in your Science Notebook or textbook.

Then direct your student to the Do the Math! (p. 113) activity. In this activity, your student sees an image of six trees in a forest that have been cut down by people. They will be asked how many trees should be planted to replace the trees. Your student should respond that six trees need to be planted. After completing the activity, ask your student to return to the image. Ask: What happens when these trees are cut down? (It changes the environment. The animals that used the trees for homes and food have less available.) What animals change the environment this way? (Beavers cut down trees to make dams.)

Please go online to view and submit this assessment.

What is a desert habitat? Watch the video, Desert Habitat (01:34). Discuss what you learn with your Learning Guide.
Where Do Plants and Animals Live? - Part 5

Think about a desert.
What do you see?
What kinds of plants?
Did you say cacti?
What about a bean plant?
Can a bean plant live in a desert?

INTERACTIVE ACTIVITY

You have been looking at how plants and animals have their needs met in different environments. Let’s find out how plants survive in different environments. You will use the virtual lab, Can Plants Survive in Different Environments? to find out how plants meet their needs in different environments. This activity explores how two plants grow in both a desert and a mild environment.

You will complete screens 1 to 6 in this part. You will finish the virtual lab in the next part. Follow the directions on each screen and move onto the next screen when you are finished.

TEACHING NOTES

This Virtual Lab is a simulation, which explores how two plants (a cactus and bean plant) grow in both a desert and a mild environment. Your student’s answers will not save so anything your student will need in the next part will need to be recorded in his or her Science Notebook. Your student will complete the virtual lab in the next part.
Screen 1. Your student is introduced to the project. When the audio on the screen finishes, it does not prompt your student to advance, so you may need to prompt him or her to push the forward arrow.

Screen 2: Your student views several plants and is asked if the plants are getting what they need to survive. Your student is given an explanation so he or she understands that even in harsh environments plants can have their needs met if they are suited to live in those conditions. This is an important concept, because some students may believe that plants cannot grow in conditions such as the tundra or desert.

Screen 3: Your student receives an overview of four basic needs for plants: light, water, air, and nutrients. The activity focuses only on light and air.

Screen 4: Your student selects four buttons to learn more about how plants are adapted to a desert, marsh, temperate forest, and tropical rain forest. As your student explores each screen, encourage him or her to consider how the plants are adapted to each environment.

Screen 5: This is an overview of the lesson. Have your student pause before advancing to the next screen to make sure he or she understands all the elements of the project. Have your student point to the two plants and identify their names. Then, have your student point to the two climates: desert and mild. Discuss what your student thinks he or she will observe about the sunlight and water in each of these environments. Have your student point to the camera. Explain that pressing the camera button will allow him or her to capture images of each plant, which will automatically be placed in the data table. Finally, have your student point to the data table. Have him or her trace across the rows to describe what data will appear in each box.

Screen 6: Your student will be asked to predict what both plants will look like after being placed in the desert. Before placing his or her answer, have your student point to the screen and explain what will be placed in each box. The columns show the before and after of the plants. The rows show the different plants. The activity will allow your student to place the images in any box as he or she is just making predictions at this point.

✅ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Will it wilt? Will it grow?

Let’s do the virtual lab, so we will know!

You had the investigation all set up during the last part. Now, let’s see what happens to the beans in each environment. Go back to Can Plants Survive in Different Environments? Start on screen 7. You will finish the virtual lab during this part.

Your student will continue the Virtual Lab he or she started in the last part. Help your student navigate to Screen 7 to begin.

On Screen 7, your student will begin by exploring how both plants grow in the desert environment. He or she will press the image of the desert environment to begin. Point out the calendar, which will show the progression over sixty days. Ask: How have the plants changed? Do you think the plants are getting their needs met? Direct your student’s attention to the bars that show water and sunlight. Point out that the yellow bar indicates the number of days of sunlight, and the blue bar shows the days with rain. After the sixty-day period, ask your student to take a picture. The camera is a small green camera icon next to each plant. Your student will then repeat the process with both plants in a mild environment. Ask your student: How have the plants changed? Do you think the plants are getting their needs met? Point out the difference in days with sunlight and rain in the mild environment as opposed to the desert environment.

Screen 8: Your student will look at the results. Using the images, have your student discuss if the plants are thriving in both environments.

Screen 9: Your student is asked to apply what he or she has learned by deciding if a rose bush would thrive in a desert environment. Note: your student must press OK to advance.
Screen 10: Your student repeats the investigation with only the bean plant. He or she runs the simulation twice in the desert environment and twice in the mild environment. The model will automatically run the second time without action from your student. Your student may need a reminder to take a picture after each run as he or she will not be prompted to do so. Your student then repeats the simulation with the milder environment.

Screen 11: Your student is asked to analyze the results and determine if he or she achieved the same results for both trial conditions. Discuss with your student why scientists repeat investigations and look to see if he or she receives similar results.

Screen 12: This is a summary screen. Your student is given the option to print the lab results at the end.

✅ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Where Do Plants and Animals Live? - Part 7

LEARN

Splish. Splash.

Ribbit. Ribbit.

Where would you hear those sounds?

In a pond!

You have looked at how plants and animals live in an environment like a forest and desert. Let’s see what plants and animals live in a pond. Watch the Discovery Education video Ponds (01:16) to see what plants and animals live in a pond. Talk with your Learning Guide about the plants and animals you see and how they have their needs met.

As your student watches the video, pause it periodically to discuss the different plants and animals that you see. Have your student pause the video at 00:31 to discuss the difference between a pond and a lake. Discuss the different animals and plants that they see in the pond images. Tell your student that beavers live in pond environments.

Beavers live in ponds.

Let’s learn more about ponds!

Let’s read about plants and animals, like beavers, that live in ponds. Go to Dimensions: Unit 3, Plants and Animals: Lesson 3, Where Do You Plants and Animals Live? and read Ponds (p. 114). Think about how the pond compares to other environments, like the forest and desert. Answer the question about which plants and animals live in or near a pond in your Science Notebook or textbook.
As needed, read the text with your student. Have your student look closely at the pond images in the video or the text. Remind your student that a pond is a system. The living and nonliving things in the system work together. Ask: How are the plants and animals in the pond alike? (The pond has all the things they need to live and grow.) Then, analyze the image with your student. Ask: What evidence do you have that water lilies can get what they need in a pond? (The water lilies are healthy.) This pond has a fish. Could fish live in a forest? (No, a forest does not have what fish need.) Then, help your student to identify the plants and animals in the image and discuss how each is able to live in the pond environment. There is a difference between the e-text and textbook for the pond picture. If your student is using the e-text, your student should identify the water lily, fish, and dragonfly as living in or near the pond. If your student is using the textbook, your student should identify two pond animals and two pond plants.

Prompt your student to add to the graphic organizer from Part 3 to include the pond environment.

Please go online to view and submit this assessment.

What is a pond habitat? Read the text and watch the video, *Pond Habitat* (01:13) to learn more about ponds. Discuss what you learn with your Learning Guide.

Please go online to view this video ▶
Ponds can be big.

Oceans are much bigger.

In the last part, you looked at life in a pond. Now, you will explore a bigger body of water. The big ocean has lots of plants and animals. Let's watch a video to see what kinds of plants and animals live in the ocean. Watch the video Ocean Habitats (02:21). You could start at 00:14 to shorten the video. In this video you will see what plants and animals live in an ocean. Talk with your Learning Guide about the plants and animals you see.

Please go online to view this video ▶

As your student watches the video, pause it periodically to discuss the different plants and animals that you see. Point out that different types of animals live in different parts of the ocean. It may be helpful to show a globe or map to illustrate how large oceans are.

Are you ready to learn more about oceans?

Let's dive in!

Let's read to see what plants and animals live in an ocean. Go to Dimensions: Unit 3, Plants and Animals: Lesson 3, Where Do Plants and Animals Live? and read Oceans (p. 116). You will see how the a big body of water provides plants and animals what they need. Answer the question about what plants and animals live in the ocean in your Science Notebook or textbook.
As needed, read the text with your student. Have your student look closely at the ocean images in the video or the text. Recall that living things in the ocean are part of a system. Ask: Why couldn’t a rabbit be part of an ocean system? (It could not live in salt water.) What other plants or animals could you add to this model of an ocean? (Sample answers: sharks, coral, and seaweed.) Then, analyze the image with your student. Have your student identify each plant and animal and then explain how it gets what it needs to live and grow. Finally, help your student identify the plants and animals in the image and discuss how each is able to live in the ocean environment. There is a difference between the e-text and textbook for the question about the plants and animals that live in the ocean. If your student is using the e-text, your student should identify the octopus, shark, and seagrass as living in the ocean. If your student is using the textbook, your student should identify the dolphin, sting ray, sea urchin, and sea star as the animals that live in the ocean.

Prompt your student add to the graphic organizer from Part 2 to include the ocean environment.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Where Do Plants and Animals Live? - Part 9

Objectives
- To say why plants and animals live in certain places

Books & Materials
- Computer

Assignments
- Read Dimensions: Unit 3, Lesson 3: Where Do Plants and Animals Live?
- Complete ScienceFusion Virtual Lab, Can Plants Survive in Different Environments?

LEARN


Are there other places animals can live and grow?

Yes! Let's see.

There are other places where plants and animals can have their needs met. Let's watch a video to find out where they are. Watch the video Habitats (03:00). You can start at the 0:14 mark and skip the introduction. Pause the video after each animal. After each animal talk with your Learning Guide about where the animal lives and how the animal gets its needs met in the environment. Also talk about what other plants and animals you might find in the environment.

Please go online to view this video ▶

TEACHING NOTES

This song teaches introduces four animals and their environments: pig (farm), alligator (swamp), cheetah (grasslands), and polar bear (arctic). After each animal, have your student pause the video. Ask your student to name the animal and habitat. Discuss how the animal gets its needs met in the environment. Ask what other plants and animals you might find in this environment.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Where Do Plants and Animals Live? - Part 10

Objectives
- To say why plants and animals live in certain places

Books & Materials
- Dimensions: Grade K
- Science Notebook
- Computer

Assignments
- Read Dimensions: Unit 3, Lesson 3: Where Do Plants and Animals Live?
- Complete ScienceFusion Virtual Lab, Can Plants Survive in Different Environments?

USE

In this lesson you learned that plants and animals live in different environments. They live in deserts, forests, ponds, and oceans.

To review the lesson, watch Animal Habitats (04:08).

Please go online to view this video ▶

USE FOR MASTERY

Look at the pictures. Then answer the questions.

Ocean

Forest
Which animals live in the ocean?

Which animals live in the forest?

How do you know if the animals are in the right environment? Write your answer in the space below.

USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Correctly tell which animals live in the ocean or the forest?
- Tell why each is the correct environment for each animal?
Beavers like to live in ponds. They have their needs met there. They have food, water, and shelter. Other animals live in deserts and forests.

Animals live in places where their needs are being met. Animals have all kinds of different needs. Some animals need to live in the water. Some animals need to live on the land. Beavers also need to live in places where their needs are being met. In your project, you will need to build a model dam where a beaver can live. You will also see how the beaver meets its needs and how it can take away the needs of other plants and animals. In this lesson, you will learn about animals that live in cold, arctic places, and animals that live in hot, desert places. Then you will need to think about what would happen to the animal if the animal moved to a different place.

During the lesson, your student will investigate one animal that lives in an arctic climate and one animal that lives in a desert climate. Your student will begin with choosing and drawing an animal that lives in the arctic. In the next several parts, your student will choose and draw an animal that lives in the desert, research the needs to of the arctic and desert climates, and infer what would happen if the animals switched climates.
Brr!

Some animals live in the cold. Some live in the water, and some live on land. In this part, you will choose and draw an animal that lives in a cold place. Begin by thinking about animals that live in cold places. Talk about these animals with your Learning Guide. Then look through the resources below with your Learning Guide. Choose an animal that lives in a cold place.

Top 10 animals found in the Arctic region

Active Wild: Arctic Animals

Arctic Animals video, 10 Arctic Animals for Kids (06:24)

Please go online to view this video ▶

TEACHING NOTES

This is a multi-part activity.

In this part, your student will select an animal that lives in a cold climate, such as the arctic or polar region. It can be a terrestrial or marine animal. Some possibilities include penguins, caribou, polar bears, seals, seals, snowshoe hares, and narwhals. Your student may wish to look at the resources provided to find ideas to draw.

Top 10 animals found in the Arctic region

Active Wild: Arctic Animals

Once your student has selected an animal, have him or her draw the animal in the Science Notebook. Then, you may want to have your student cut out the drawing and attach it to a craft stick to make a stick puppet.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Where Can I Live? - Part 2

Objectives
- To know how living things change the environment to get what they need

Books & Materials
- Science Notebook
- Computer
- Paper
- Markers, crayons, or colored pencils
- Two craft sticks
- Scissors
- Tape or glue
- Research materials such as books, science magazines for kids, and internet resources

Assignments
- Complete an animal environment activity.

LEARN

Some like it cold.

Some like it hot.

Some animals live where it is hot. In this part, you will choose and draw an animal that lives in a hot place. Begin by thinking about animals that live in hot places. Talk about these animals with your Learning Guide. Look through the resources your Learning Guide suggests. Then choose an animal.

BrainPOP: Desert
Animals That Live in the Desert

Desert Animals (03:23)

Please go online to view this video

TEACHING NOTES

This is a multi-part activity.

In this part, your student will select an animal that lives in a hot climate, such as a desert region. Some possibilities include camels, armadillos, scorpions, cactus wrens, and desert foxes. Your student may wish to look at the resources below to find ideas to draw.

Once your student has selected an animal, have him or her draw the animal in the Science Notebook. You may want to have your student cut out the drawing and attach it to a craft stick to make a stick puppet.
RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Where Can I Live? - Part 3

**Objectives**
- To know how living things change the environment to get what they need

**Books & Materials**
- Science Notebook
- Computer
- Research materials such as books, science magazines for kids, and internet resources

**Assignments**
- Complete an animal environment activity.

**LEARN**

What is it like to live in the arctic?

What helps your animal meet its needs?

In this part, you will look for answers for how animals that live in the arctic meet their needs to live and grow. Use the resources below to find out how the animal you chose meets its needs in the Arctic.

[BrainPOP Jr. Arctic Habitats](#)

[National Geographic Kids: Arctic Animals](#)

What did you find out about how the arctic animal meets its needs? Talk about this with your Learning Guide.

Now, draw a picture of the arctic environment in your Science Notebook.

**TEACHING NOTES**

This is a multi-part activity.

On this part, your student will research an arctic environment. Your student should focus on how the arctic climate meets the animal's needs. For example, polar bears have a layer of blubber to keep them warm. Since the arctic region is cold, the polar bear stays at just the right temperature. You may need to support the learner by reading the text aloud to him or her in the resources. Encourage your student to study the images of the polar region to see evidence that the animal's needs are being met.
Then, have your student create a drawing of the environment in his or her Science Notebook. Encourage your student to fill the entire sheet and to include plants and terrain. Remind your student that living and nonliving components make up an environment.

Resources:

BrainPOP, Jr. Arctic Habitats

National Geographic Kids: Arctic Animals

✅ QUICK CHECK

Please go online to view and submit this assessment.

✎ MORE TO EXPLORE

You have been learning about the needs of polar bears. To learn more about what both plants and animals need, watch Animal and Their Habitats (01:30).
Where Can I Live? - Part 4

**Objectives**
- To know how living things change the environment to get what they need

**Books & Materials**
- Science Notebook
- Computer
- Research materials such as books, science magazines for kids, and internet resources
- Paper
- Markers, crayons, or colored pencils

**Assignments**
- Complete an animal environment activity.

**LEARN**

What is it like in a desert?

What helps your animal meet its needs?

In this part, you will look for answers for how animals that live in the desert meet their needs to live and grow. Use the resources below to find out how the animal you chose meets its needs in the desert.

National Geographic Kids: Desert

20 Amazing Animal Adaptations for Living in the Desert

What did you find out about how the desert animal meets its needs? Talk about this with your Learning Guide.

Now, draw a picture of the desert environment in your Science Notebook. Include plants that also live in the environment.

**TEACHING NOTES**

This is a multi-part activity.

On this part, your student will research a desert environment. Your student should focus on how the desert climate meets the animal’s needs. For example, lizards are not able to control their own temperature. They rely on the sun and the environment around them, such as warm rocks, to warm them. Since the desert is hot, lizards stay at just the right temperature. You may need to support the learner by reading the text aloud to him or her in the resources. Encourage the learner to study the images of the desert region to see evidence that the animal’s needs are being met.
Then, have your student create a drawing of the environment in his or her Science Notebook. Encourage your student to fill the entire sheet to include plants and terrain. Remind students that living and nonliving components make up an environment.

Resources:

National Geographic Kids: Desert

✅ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Where Can I Live? - Part 5

**Objectives**
- To know how living things change the environment to get what they need

**Books & Materials**
- Computer

**Assignments**
- Complete an animal environment activity.

**LEARN**

Beavers live near the water.

They need the water to live.

How about your animals?

Can they live anywhere else?

In this part, you will need to think if your animal can live in a different place and still be able to live and grow. Begin by looking at your pictures of your arctic animal, desert animal, arctic drawing, and desert drawing. Then place your arctic animal next to your desert drawing. Talk with your Learning Guide about if your animal's needs would be met if the animal lived in the desert. Next, place your desert animal next to your arctic drawing. Talk with your Learning Guide about if your animal's needs would be met if the animal lived in the arctic.

If you made stick puppets of your animals, place the stick puppet in the opposite environment from where it lives. You would place your arctic animal in the desert picture. You would place your desert animal on the arctic picture.

**TEACHING NOTES**

This is a multi-part activity.

On this part, your student will discuss how each animal will survive in each environment.

Have your student place the desert climate on the table. Then have your student place the desert animal in the environment. Ask your student to describe how the animal has its needs met in the environment. Ask your student to determine if the animal can thrive and grow in a desert region. Now, have your student place the arctic region on the table and move the desert animal to the arctic environment. Once again ask your student how the animal’s needs are met and if the animal can
thrive and grow in this environment. Your student should identify that the animal would have trouble finding food, water, or shelter if the animal moved to the opposite climate.

Take the desert animal away. Place the arctic animal in the arctic environment and discuss how its needs are met. Then move the arctic animal to the desert environment and discuss how its needs are met in a new environment. Have your student conclude where the animal can thrive and grow.

✅ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Where Can I Live? - Part 6

Objectives
- To know how living things change the environment to get what they need

Books & Materials
- Dimensions: Grade K
- Computer

Assignments
- Complete an animal environment activity.

USE

In this lesson, you learned that animals live in different environments. Animals need to live in certain places to meet their needs. If they live in a place that does not have their needs, they would not be able to live and grow.

✔ USE FOR MASTERY

Look at the pictures. Then answer the questions.

Where can the cactus live and grow?

What would happen if the cactus was moved to another region? Write your answer in the space below.

0 / 10000 Word Limit
Look at the pictures. Then answer the questions.

Where can the cactus live and grow?

What would happen if the cactus was moved to another region? Write your answer in the space below.

USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Correctly identify where a cactus can live and grow?
- Describe what would happen if the cactus moved to another region?

TEACHING NOTES

If your student needs support, you may wish to have him or her return to the Dimensions: Unit 3, Plants and Animals: Lesson 3, Where Do Plants and Animals Live? Deserts (p. 108) and review that section. Have your student review the characteristics of the desert and explain why the cactus is well suited to this environment. Ask: The arctic region is very cold. Do cacti grow well in the cold? The forest has lots of rain in some seasons. Do cacti grow well in wet places? to determine if the plant's needs can be met in that environment.
How Do Plants and Animals Change the Environment? - Part 1

**Objectives**
- To know how living things change the environment to get what they need

**Books & Materials**
- Dimensions: Grade K
- Computer

**Assignments**
- Read Dimensions: Unit 3 Lesson 4, How Do Plants and Animals Change Their Environments?

**LEARN**

**VOCABULARY**
- environment

Lots of animals dig in the ground.

Dogs bury bones.

Ants make tunnels.

That's a lot of holes in the ground!

Digging changes the environment. Beavers also change their environments when they make their shelter. In the project, you will need to find out how beavers change their environments and how these changes affect other plants and animals. In this lesson, you will learn how living things, like beavers, change the environment to get what they need to live and grow. Go to Dimensions: Unit 3, Plants and Animals: Lesson 4, How Do Plants and Animals Change Their Environment? (p. 122). Look at the picture of the prairie dogs. Describe what you see to your Learning Guide.

**TEACHING NOTES**

As needed, read text with or to your student. In Where Do Plants and Animals Live?, your student explored where plants and animals live to get what they need to live and grow. This lesson builds on this concept by exploring how plants and animals change their environment to get what they need to learn and grow.

Direct your student’s attention to the prairie dogs. Ask: How do you think that hole got there? (Prairie dogs dug the hole to provide shelter.) What are some other ways that animals use materials in their environment to provide shelter? Point out a bird’s nest. You may wish to show a picture of one. Ask: Where do the twigs and leaves come from? (area trees) Why is a bird’s nest evidence that birds
change their environment to meet their needs? (Birds build nests they need to protect their young, so the young can live and grow.) Have your student look through books, magazines, or the internet to find examples of birds’ nests and other changes animals make in their environment. If interested, your student may wish to collect these images to make a collage that he or she can add to throughout the lesson.

✅ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
How Do Plants and Animals Change the Environment? - Part 2

Dig a hole.

Make a tunnel.

Make more tunnels.

The prairie dogs really change the land.

Digging is one way to change the environment. Let's read to learn more ways. Go to Dimensions: Unit 3, Plants and Animals: Lesson 4, How Do Plants and Animals Change Their Environment? Read Changes Plants and Animals Make (p. 123) and complete the Can You Explain It? (p. 123) by identifying the plants and animals changing their environment to get what they need. Answer the question in your Science Notebook or textbook.

TEACHING NOTES

As needed, read text with or to your student. Emphasize that animals change their environments in interesting ways. Direct your student to study the image to see how a beaver changes its environment. Ask him or her to share his or her observations of the plants and animals.

As your student explores the Can You Explain It?, (p. 123) emphasize for your student to record his or her initial thoughts about which plant or animal is changing its environment. Ask: Why do you think an animal might change its environment? (Possible responses: to build a shelter, to solve a problem, to find food.)

In Can You Explain It? your student should have selected the images of the tree and elephants as the ones changing their environment.
RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
How Do Plants and Animals Change the Environment? - Part 3

Can a plant break rocks?

Yes!

Read to find out how.

Let’s read to find ways that plants change their environments. Go to Dimensions: Unit 3, Plants and Animals: Lesson 4, How Do Plants and Animals Change Their Environment? Read Plant and Animal Changes (p. 124). Talk to your Learning Guide about what you see. Complete the activity to see how plants and animals have changed their environments in your Science Notebook or textbook.

TEACHING NOTES

As needed, read the text with or to your student. Point out the picture with the car. Ask: Why do you think the plants are growing over the car? (They need a lot of space. They are growing over the car to get the space they need.) Next, point out the tree roots and sidewalk. Have your student trace his or her finger over the roots of the tree. Ask: What evidence supports the claim that the tree caused the change in the sidewalk? (The sidewalk and street are broken apart where the tree roots are poking through, which suggests that the tree roots pushed and broke the concrete.)

Next, direct the student’s attention to the picture of the elephant. Ask your student to explain how the environment is changing and what is causing it to change. Ask: Why is the animal causing the environment to change? (To get what it needs to live and grow.) Then, ask the student to explain what is happening with the mound. Ask: How have these termites changed their environment? (They have moved soil.) Ask: What evidence supports your claim? (The termites have moved soil to build the mound.)

Finally, ask the student how the animals have changed their environment. The student should indicate that the caterpillar eats the leaves, the woodpecker eats insects, and the armadillo burrows.
✅ QUICK CHECK

Please go online to view and submit this assessment.

🔥 MORE TO EXPLORE

Watch the Discovery Learning video *Adaptations: Adapting the Environment* (05:49) to learn how plants change their environment.
How Do Plants and Animals Change the Environment? - Part 4

Objectives
- To know how living things change the environment to get what they need

Books & Materials
- Dimensions: Grade K
- Science Notebook
- Computer
- Paper
- Crayons
- Markers
- Images of parks

Assignments
- Read Dimensions: Unit 3 Lesson 4, How Do Plants and Animals Change Their Environment?

LEARN

Go for a walk.
You might see some changes.
An anthill.
A bird’s nest.
A tree’s roots sticking up.
Let’s read to see ways that plants and animals change their environment. Go to Dimensions: Unit 3, Plants and Animals: Lesson 4, How Do Plants and Animals Change Their Environment? Read Changes All Around (p. 127). Look at the pictures of the animals in the forest and identify how the living things are changing the environment. Then read about claims and evidence. Tell your Learning Guide what evidence you see about how the alligator changed the environment.

TEACHING NOTES

As needed, read the text with or to your student. Discuss the pictures with your student. Have your student write a claim in his or her Science Notebook about a change he or she observes in the pictures. Ask the student to include evidence to support his or her claim. Possible answers include: the bear scratches the bark off the tree, the fox makes a hole in the ground for shelter, and the vine grows up and covers the tree.

Then, have the student make a claim about the alligator and support it with evidence. You should talk to your student about the answer. Possible response: The alligator changed its environment by using dry grass to build a nest.
Snow is white.

It is very white.

What if a rabbit was brown?

Would it be easy to see in the snow?

Animals can change their environment. Sometimes animals change to fit their environment. Watch Amazing Animals Change Color (00:42). In your Science Notebook, draw one of the animals in summer. Then draw it in winter. How is it different? Discuss with your Learning Guide.

As the student watches the video, have him or her pay attention to how the animal’s fur changes color in winter. Point out that if the animal’s fur was brown in the winter, it would be very easy for predators to see the animal. The white fur helps the animal to camouflage. Refer your student to the Encyclopedia Britannica website to see more examples of animals that have white fur in the winter and darker fur in the summer. Have him or her describe the changes animals go through throughout the seasons, as a result of the climate.

Please go online to view and submit this assessment.
How Do Plants and Animals Change the Environment? - Part 5

**Objectives**
- To know how living things change the environment to get what they need

**Books & Materials**
- Science Notebook
- Computer
- Paper
- Crayons
- Markers

**Assignments**
- Read Dimensions: Unit 3 Lesson 4, How Do Plants and Animals Change Their Environments?

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**LEARN**

A bear claws bark.

Change!

A bird makes a nest.

Change!

A plant climbs a tree.

Change!

Wow! That's a lot of changes, but there are more!

Now watch Big Changes in the Big Forest (04:38) to learn about some other changes. Use the clip from 00:34-02:19. Act out the changes you see.

Please go online to view this video ►

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**TEACHING NOTES**

As the student watches the video, have him or her pause after each example of an animal changing the environment. Have your student write or draw a picture of the change in his or her Science Notebook. Discuss how the animal changed its environment. Remind your student that living things like plants and animals, as well as nonliving things, like rocks, soil, and water, are all part of a system and work together. Ask the student to explain why each animal is changing its environment.

Have the student act out the different changes animals can make to their environment, explaining how the environment is changing while they act it out.
RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
How Do Plants and Animals Change the Environment? - Part 6

**Objectives**
- To know how living things change the environment to get what they need

**Books & Materials**
- Dimensions: Grade K Science Notebook
- Computer
- Paper
- Crayons
- Markers

**Assignments**
- Read Dimensions: Unit 3 Lesson 4, How Do Plants and Animals Change Their Environments?

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**LEARN**

Animals make changes.

Plants make changes.

People make changes too!

Let’s read to learn more about ways people can change the environment. Go to Dimensions: Unit 3, Plants and Animals: Lesson 4, How Do Plants and Animals Change Their Environment? Read Changes to the Environment (p. 129). Read and look at images of changes that harm an environment and changes that help the environment. As you read, identify why the air may be dirty and unsafe and how people are helping the environment. Answer the questions in your Science Notebook or textbook or talk about your answers with your Learning Guide.

Next, in your Science Notebook, draw a picture showing how people change the environment to get what they need.

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**TEACHING NOTES**

If your student is using the e-text, the title of the reading is Changes to the Environment (p. 129). If your student is using the textbook, your student should read Changes that Harm the Environment and Changes that Help the Environment.

As needed, read the text with or to your student. Point out that people can also change the environment. As the student views the forest, ask: What did people do to change the environment? (They cut down a large part of a forest.) Explain that people use wood from trees for building things and making products, such as paper. Point out the smokestack. Ask: What claim can you make about the environment? (Possible response: People can harm the environment.) What evidence supports your claim? (Possible response: The smoke stacks send harmful smoke into the air.)
People can help the environment by picking up litter and planting trees. Talk with your student about other ways to help the environment, or what his or her family does to help the environment.

QUICK CHECK

Please go online to view and submit this assessment.

Watch the Discovery Education video Impacting Earth (01:09) to learn about their needs.
How Do Plants and Animals Change the Environment? - Part 7

Objectives
- To know how living things change the environment to get what they need

Books & Materials
- Computer
- Paper
- Crayons
- Markers
- Images of parks

Assignments
- Read Dimensions: Unit 3 Lesson 4, How Do Plants and Animals Change Their Environments?

LEARN

Parks are fun.

Slides.

Swings.

Bars.

Parks also have other things like plants and animals.

Let’s make a park!

Let’s explore how people can change their environment. People change their environment by making roads and building houses. Building parks is another way that people change and also preserve their environments. You will use the Hands-On Activity worksheet Plan a Park (p. 131) and do the activity. Follow the steps in the worksheet to design your park. As you make your park, think about the ways that the environment is changed.

TEACHING NOTES

As needed, read the text with or to your student. In this hands-on activity, your student will use evidence from his or her model of a park to explain what plants and animals need in order to live and grow. Before beginning, locate images like this one of parks without playground equipment.
Display the images and discuss with the student: What do you need in your park? Responses include space to grow, sunlight, and water for plants; food, water, and shelter for animals. Remind the student that the park is for the plants and animals.

Step 1: Make a plan. Point out that a park is where plants and animals form the area live. Ask: What plants and animals are likely to live in a park in our community?

Step 2: Design the park. Suggest that your student draw the shape of the park first and then decide where to put the plants.

Step 3: Share the design. The student should use evidence to explain what the plants and animals will get what they need to live and grow.

You can use the following rubric to score the activity.

<table>
<thead>
<tr>
<th>Scoring Rubric for Plan a Park</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
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<tr>
<td>2</td>
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<tr>
<td>1</td>
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</tbody>
</table>

RATE YOUR ENTHUSIASM

Please go online to view and submit this assessment.
In this lesson you learned that plants, animals, and people can change the environment. Some of these changes are helpful. Some of the changes are harmful.

USE FOR MASTERY

Look at the pictures. Answer the question.

Which animal is making a change to its environment?

Why is this animal making the change?

Explain why the lion and the frog are not changing their environment?

Answer the question in the space below.
USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Identify which animal is making a change to its environment?
- Explain how that animal is making a change to their environment?
- Correctly explain why the other two animals are not making a change to their respective environments?

TEACHING NOTES

If the student needs support, you may wish to have him or her return to the Dimensions: Unit 3, Plants and Animals Lesson 4, Where Do Plants and Animals Live? Plant and Animal Changes (p. 124) and review the section on animal changes. Have the students decide what change is being made and why the animal is changing the environment. If your student needs support, ask him or her questions, such as What need is the animal trying to meet?.
Show: How Do Beavers Change the Environment?  
- Part 1

**Objectives**
- To build a model dam and explain how beavers change their environment

**Books & Materials**
- Science Notebook
- Computer
- Long, shallow, clear, plastic container
- Sand
- Small rocks such as aquarium gravel
- Craft sticks
- Bucket of water

**SHOW**

You learned lots about plants and animals!

They have needs.

They can change things.

Now, you will use all that you have learned to continue to make progress on your project.

In this part, you will need to research how beavers make dams so that you can make your own model dam. Look at this picture of a beaver dam. What do you see in the beaver dam that you could use to make your own model dam? You will need to start by making a plan for how to build the dam in your Science Notebook. Your plan may include pictures or words to show how you will build your dam. Also think and show what materials you will need for your model. When you are finished with your plan, show it to your Learning Guide. You will make your model dam in the next part.

Review the Project Rubric so you are sure to cover everything for your project. You will work on making a plan for your dam in this part.

**TEACHING NOTES**

Guide your student in researching beaver dams. These resources show a picture of a beaver dam and a cut-away diagram of a beaver dam. Once your student has viewed images of the diagram guide him or her in creating a plan for creating the diagram in his or her Science Notebook. The plan may include pictures and words to show how it will be built. After your student makes his or her plan, discuss the plan with the student. Ask questions such as What materials will you use? Where will you place the material? How will the water flow? What do you think will happen when the water flows? How is your model like the beaver dam?
A good design might include covering the bottom of the container with sand to simulate the river bottom, and then building up the sides to make river banks. Then, the student might dig a path for a river in the sand. He or she can use the craft sticks, rocks, sticks, or other materials to construct the dam. The goal is to allow some, but not too much, water to go through the dam. The area at the bottom will have greater water pressure so should be well supported.

Finally, review the rubric with your student to assure that the student understands the expectations. Allow your student to return to his or her plan to make any revisions.

Discovery Kids: Beavers

✅ RATE YOUR PROGRESS

Please go online to view and submit this assessment.
Show: How Do Beavers Change the Environment? - Part 2

**Objectives**
- To build a model dam and explain how beavers change their environment

**Books & Materials**
- Computer
- Long, shallow, clear, plastic container
- Sand
- Small rocks such as aquarium gravel
- Craft sticks
- Bucket of water

**SHOW**

It's time to build!

Look at your plan you made in the last part. You will use your plan to build your model dam. Use the materials to make a dam in the container. Remember to make a path for the water, put land on either side of the dam, make the stream go past the dam. Look at this picture of the beaver dam again to make sure your model looks like a real beaver dam.

How is what you are building similar to how a beaver builds a dam? How has the environment changed? Talk about this with your Learning Guide.

Review the rubric to make sure that you have included everything so far. You will have completed the Create the stream and Make the dam sections in this 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>Create the stream.</td>
<td>Make a path for the water.</td>
<td>Make a path for the water.</td>
<td>Make a path for the water.</td>
<td>Make a path for the water.</td>
</tr>
<tr>
<td></td>
<td>Put land on the sides.</td>
<td>Put land on the sides.</td>
<td>Put land on the sides.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Make the stream go past the dam.</td>
<td>Make the stream go past the dam.</td>
<td>Make the stream go past the dam.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Put land after the dam too.</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Prior to this part, gather the needed materials. You may also wish to cover the table with a plastic cloth or newspaper for ease in clean up. Have your student review his or her plan and begin construction. Your student should only construct the dam and environment model in this part, not pour the water or test the model.

As your student works, encourage him or her to reference the rubric to ensure that each element is included. Check on your student's progress. You may want to remind your student that the goal is to allow some water to flow through the dam. You might prompt him or her to consider what the beavers used to fill in between the sticks. Students may use mud or clay.

Discuss how what your student is building similar to how a beaver builds a dam and how the environment has changed. Your student may respond that beavers need many materials to make the dam and uses materials from the environment.

Please go online to view and submit this assessment.
Show: How Do Beavers Change the Environment?

- Part 2

SHOW

It's time to build!

Look at your plan you made in the last part. You will use your plan to build your model dam. Use the materials to make a dam in the container. Remember to make a path for the water, put land on either side of the dam, make the stream go past the dam. Look at this picture of the beaver dam again to make sure your model looks like a real beaver dam.

How is what you are building similar to how a beaver builds a dam? How has the environment changed?

Talk about this with your Learning Guide.

Review the rubric to make sure that you have included everything so far. You will have completed the Create the stream and Make the dam sections in this part.

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<th>2 points</th>
<th>1 point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make the dam.</td>
<td>Use lots of things to build the dam. The dam stops the water or slows it down.</td>
<td>Use two or more things to build the dam. The dam slows it down.</td>
<td>Uses two things to build the dam.</td>
<td>Uses one thing to build the dam.</td>
</tr>
</tbody>
</table>

TEACHING NOTES

Prior to this part, gather the needed materials. You may also wish to cover the table with a plastic cloth or newspaper for ease in clean up. Have your student review his or her plan and begin construction. Your student should only construct the dam and environment model in this part, not pour the water or test the model.

As your student works, encourage him or her to reference the rubric to ensure that each element is included. Check on your student’s progress. You may want to remind your student that the goal is to allow some water to flow through the dam. You might prompt him or her to consider what the beavers used to fill in between the sticks. Students may use mud or clay.

Discuss how what your student is building similar to how a beaver builds a dam and how the environment has changed. Your student may respond that beavers need many materials to make the dam and uses materials from the environment.

RATE YOUR PROGRESS

Please go online to view and submit this assessment.
Show: How Do Beavers Change the Environment?  
- Part 3

### Objectives
- To build a model dam and explain how beavers change their environment

### Books & Materials
- Science Notebook
- Computer
- Long, shallow, clear, plastic container
- Sand
- Small rocks such as aquarium gravel
- Craft sticks
- Bucket of water

**SHOW**

You have planned your dam and made a model.

Make a prediction about what you think will happen when you test your dam. Write your prediction in your Science Notebook.

Now let’s test the beaver dam!

Gently pour water to test your model.

Watch what happens to the water. Then think about how the environment is changed.

**TEACHING NOTES**

Monitor your student as he or she pours the water. Make sure that he or she does not have too much water in the bucket so that it fills the entire area. Your student may need to make revisions to the model if it fails the test by letting water through. If a lot of water goes through the dam or the dam breaks, have your student revise the model.

To finish your project, you will need to tell how you built the dam, how the dam changed plant and animal life, and the environment. Ask your Learning Guide to write your responses in the textbox.

Make sure to submit the following items for your project:

- Picture of your model dam
• Explanation for how you built the dam, how the dam changes plant and animal life, and the environment
• Describe how beavers use things from the environment to make dams
• At least three ways that beavers change their environments

You should use the upload to submit your picture and you can also use it to submit your explanation for the model, how beavers make dams, and how beavers change their environments.

**FINAL PROJECT**

Have your Learning Guide type your answers here.

<table>
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<tr>
<th>B</th>
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**COLLABORATION**

Once you have shared your project, you can look at other projects. You can write notes to other students. Was there something you liked? Do you have a question?
As your student drafts his or her submission, you will need to serve as a scribe to record your student's explanation and description for the project. Encourage your student to view and comment on other students’ projects. You may need to read any comments that he or she receives from other students.

Now that you are done with your project, write about your experience in your Science Notebook. What happened when you poured in the water? Would you change anything about what you did to get a better result?
Unit Quiz: How “Wood” Environments Change?

UNIT QUIZ

Please go online to view and submit this assessment.
Unit 3 - Sun Warms Earth
How Does the Sun Warm the Earth? - Part 1

**Objectives**
- To tell what the sun warms on Earth

**Books & Materials**
- Science Notebook
- Computer
- Crayons or colored pencils

**Assignments**
- Read Science Dimensions: Unit 4, Lesson 1, How Does the Sun Warm Earth?

**LEARN**

**VOCABULARY**
- light
- heat

How can you tell when it is a sunny day? On a sunny day, there is **light**. Light makes things look bright so we can see them. On a sunny day, it may also be warm. **Heat** makes things feel warm. In this lesson, you will learn how the sun warms Earth.

You may see the sun in the sky. What do you like to do on a sunny day? Draw a picture of yourself doing something fun on a sunny day. Draw your picture in your Science Notebook. The sun provides all of the heat and energy on Earth. How do you think Earth would be different without heat or energy? What do you think would happen to the plants and animals? Talk about this with your Learning Guide.

**TEACHING NOTES**

Use your student’s personal experience and prior knowledge of the sun to introduce the concept of sunlight as a source of heat and light. Look out the window or go outside to discuss the day’s weather. Tell your student to never look directly at the sun because it can damage a person’s eyes. Show your student the correct place in his or her Science Notebook to draw him- or herself doing an outdoor activity on a sunny day. Ask your student to describe the picture.

Your student may not have thought previously about the effect the sun has on us, but prompt him or her to think about what Earth would be like with no heat or light, and how that can affect the plants and animals on the planet.
RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
LEARN

Last time, you drew a picture of yourself on a sunny day and talked about how Earth would be different without the sun. Now, let’s read about the sun. The sun gives us heat to keep us warm. It gives us light to help us see.

To see how the sun heats things up, go to Dimensions: Unit 4, Lesson 1: How Does the Sun Warm Earth?: The Sun's Heat and Light, (pp. 146-147), Screens 1-4. Read the text aloud. Look at the image of the beach. What parts of the beach does the sun warm? Record your answer for Can You Explain It? about which things are being warmed by the sun in your Science Notebook or textbook.

TEACHING NOTES

In Can You Explain It? Your student should identify the sand, water, and rocks are being warmed by the Earth. Explain that the sun warms everything on Earth and it is warmer during the day because the sun’s light heats Earth. Challenge your student to name places outdoors that are not sunny during the day, such as under the shade of a tree or under a beach umbrella.

RATE YOUR ENTHUSIASM

Please go online to view and submit this assessment.
How Does the Sun Warm the Earth? - Part 3

You have been learning about how the sun heats Earth. Now, you will learn about changes in the sun's heat and light.

The sun can change how things on Earth look and feel. Sometimes, the sky is darker. It may be close to nighttime. The sky can get cloudy, too. During these times, the sun gives less heat and light.

Go to Dimensions: Unit 4, Lesson 1: How Does the Sun Warm Earth?: The Sun's Light, (pp. 148-149), Screens 1-5 to see what light lets us see. Look at the picture of the mountains to see how the sun helps us see things around us. Think about how the sun's light helps us see things. The sun's light changes throughout the day. From the morning until the afternoon, we have more of the sun's light. From the afternoon until night, we have less of the sun's light. This starts over again the next day. This is called a pattern.

Show how the sun's light changes during the day by drawing a picture in your Science Notebook or textbook. Then, identify the objects that give off light so that we can see things. Record your answers in your Science Notebook or textbook. In the next part, you will do an experiment to show how objects on Earth get hot.

Your student will read and learn about the sun's light. Your student will see how the sun's rays make things brighter. Reinforce the concept of the sun's repeating pattern by repeating the words day, night, day, night and then light, dark, light, dark, light, dark. Talk about ways your student can show this pattern. Suggest a sun, moon, sun, moon. Explain that this pattern shows why we get heat and light from the sun only during the day. To confirm your student's understanding, ask, "Do we get heat
and light at night? Do we get heat and light from the moon?” Your student should identify the pictures of the sun that give off light. Explain to your student that we can see clouds and rocks because of the sun’s light, but they do not make their own light.

Your student should not complete Do the Math!

Now, it is time to learn about the sun’s heat. Go to Dimensions: Unit 4, Lesson 1: How Does the Sun Warm Earth?: The Sun’s Heat, (p. 150), Screens 1-5. Heat from the sun keeps you warm. Animals need heat as well. This lizard takes a nap in the sunlight to stay warm. Have you ever felt the heat from the sun? Talk to your Learning Guide about a time when you touched something on a summer day that was hot to the touch.

Your student will see that animals need sunlight to keep warm.

Ask your student to name a time he or she may have touched something on a summer day that was hot to the touch. Explain that when the sun’s heat is strong on a hot summer day, it heats objects on Earth. Give an example of something that heats up in the sunlight, such as a rock. Ask if the rock is giving off its own heat or if the heat is coming from another place. This will help your student answer the question about what gives off light to help us see.

Please go online to view and submit this assessment.
How Does the Sun Warm the Earth? - Part 4

**Objectives**
- To tell what the sun warms on Earth

**Books & Materials**
- Science Dimensions: Grade K
- Computer
- 2 cups of pebbles
- 2 paper plates

**Assignments**
- Read Science Dimensions: Unit 4, Lesson 1, How Does the Sun Warm Earth?

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**LEARN**

Last time, you learned that the sun gives off light. This helps us see things around us. You also learned that the sun warms things around us. In this part, you will do an experiment. You will see how the sun affects the objects around us.

You can find out how the sun’s heat affects Earth. You can put one plate of pebbles in a sunny place. You can put another plate of pebbles in a shady place. See what happens after an hour.

Use the worksheet called **The Sun’s Heat** to complete your investigation. Find an area where sunny and shady places are close to each other. You need these areas because you are seeing how the sun heats things up.

To complete Step 1, get some pebbles and two paper plates. Pour a cup of pebbles onto each plate. Then, complete Step 2 by placing one plate in the sunshine. Put the other plate in the shade. Your Learning Guide will time for 1 hour.

After the hour, complete Step 3. Feel the pebbles on each plate. Compare how they feel. What do the ones lying in the sun feel like? How about those in the shade? Record your answers on your worksheet.

Make a claim explaining what you found out from your investigation. Then, write your evidence to support your claim.

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**TEACHING NOTES**

It should take about an hour to complete the activity. While the pebbles heating up in the sun, work on another subject with your student. Return to this activity to collect data and make observations after the 1-hour time period.

Guide your student through the activity and discussion. If the sun's light was strong enough, your student should be able to understand that the pebbles in the sunlight feel warmer than the pebbles in the shade. Allow your student to draw the conclusion that the sun heated the pebbles.
Your student should identify that because the pebbles in the shade did not feel hot, then it must be the sun that is heating the pebbles. If your student is unfamiliar with a thermometer, show an example and demonstrate how the thermometer displays a higher number when the air or an object is hotter and a lower number when the air or an object is cooler.

**QUICK CHECK**

Please go online to view and submit this assessment.

**MORE TO EXPLORE**

Want to learn more about the sun? Watch the BrainPOP Jr. video Sun (06:13) to learn more facts about it!

Want to recall the power of the sun to heat and light Earth? Watch Superhero Sun (01:55).

**TEACHING NOTES**

At this point, address any misconceptions that your student has about the sun's heat and light. Review Dimensions: Unit 4, Lesson 1, Sun Warms Earth. Discuss any issues that your student has with the content before moving on to the next part of the lesson.
LEARN

You have been learning about the sun's heat and light. Now, you will learn about other ways the sun is an important part of our lives. Living things need the sun. We use it to grow food. We use it for heat and light.

To learn more about the sun, watch the video *Stars and the Sun* (04:45).

To give your student background information about the sun and its physical features, watch the video.

Guide your student to list five things he or she learned from the video by writing it in his or her Science Notebook. For example, your student may list that stars are giant balls of hot gases; the sun is the closest star to Earth; the sun is made of very hot burning gases; the sun is about 10,000° F; the sun's energy is made at its core; the sun is the center of our solar system; the planets move around the sun; plants make their own food with the sun's energy.

After watching the video, summarize what your student learned. Make a list of questions your student has about the sun. Choose at least two questions from the list and guide your student to research the answer in books or online sources.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
How Does the Sun Warm the Earth? - Part 6

In Part 4, you learned that the sun can heat pebbles. What else can the sun heat? What will happen if we leave an ice cube in the sun? Let’s find out.

Choose a warm, sunny day to do the activity. Use two plastic cups. Place an ice cube in each cup. Place one cup in a shady place. Place the other cup in a sunny place. If it is a cold winter day, do the activity inside. Place one cup in a sunny window sill. Place the other cup away from the sun.

Draw a picture of what you think will happen to each ice cube in your Science Notebook. Wait 10 minutes. What happened? Go back and visit your ice cubes over the day. Record what you see happening to them. Talk about it with your Learning Guide.

If your student does the activity on a winter day, check that the sunny windowsill is not directly over a heater so that the results will show melting that occurred due to the sunlight, not the heat.

Based on what he or she has learned about the sun so far, and the results of the The Sun’s Heat activity, ask your student to predict what will happen to the ice cubes after 10 minutes. Have your student use his or her Science Notebook to draw a picture of how he or she thinks each ice cube will look. Help your student write a caption for the picture to explain the prediction.

After 10 minutes, check the ice cubes. Have your student draw the results and discuss if the prediction was correct. Explain that the sun’s heat can make solid things hot, like the pebbles, but it can also melt some solids into liquids. Your student should observe that the cup in the direct
sunlight melted the ice cube faster than the one that was not in direct sunlight. Challenge your student to name some other things that can melt in the sunlight, such as ice cream, butter, or chocolate.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Imagine a snowy day. You go outside and build a snowman before the sun comes out. Later in the day, the sun comes out. What happens to the snowman?

Draw a snowman before the sun comes out in your Science Notebook.

Then, draw the snowman later in the day when the sun has come out. Upload your drawings of your snowman before the sun comes out and after the sun comes out.

Write a few words or a sentence to tell what happens to the snowman in your drawing before and after the sun comes out.
TEACHING NOTES

Review with your student the major points of the lesson. Go to Dimensions: Unit 4, Lesson 1, How Does the Sun Warm Earth? and have your student do the Lesson Check at the end of the lesson in the e-text or textbook.

USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Draw a picture of a snowman before the sun comes out?
- Draw a picture of a snowman after the sun comes out?
- Use science words like "energy" or "heat" to describe what happens to the snowman before and after the sun comes out?
How Can I Protect Myself from the Sun? - Part 1

Objectives
- To tell some ways people can protect themselves from the sun

Books & Materials
- Science Dimensions: Grade K
- Computer

Assignments
- Read Science Dimensions: Grade K, Unit 4, Lesson 2: How Can I Protect Myself from the Sun?
- Complete You Solve It! simulation: Going Outside to Play.
- Complete Hands-On Activity: Design Shade.

LEARN

Vocabulary
- heat
- shade

It is fun to play on a sunny day. Running around outside is great! It is also a lot of fun to lay on the beach and get a tan.

But what happens when you are in the sun too long? Have you ever gotten a sunburn? The sun gives us the heat and light we need, but too much heat and light can harm our skin.

In this lesson, you will learn about ways to stay safe in the sun.

A playground is a fun place to play. But sometimes the slide gets hot! We need some shade, or cover from the sun's light. We know the sun gives heat and light. So, when is the best time to play outdoors?

Go to Dimensions: Unit 4, Lesson 2: You Solve It Simulation: Going Outside to Play! to find out. Choose two materials to compare. Choose from sand, rock, water, soil, or grass. You will use the thermometer. This will tell the temperature of each material. You will collect temperatures in the morning, afternoon, evening, and at night. Follow the steps in the simulation.

Then, you can tell the best time that you would like to play outside.
Point out to your student that he or she must hover over the garden, sandbox, path, or under the tree to hear the instructions for each option. In order for the activity to start, your student must click on two of the materials to compare.

If your student is unfamiliar with a thermometer as a data collection tool, give examples of typical temperatures in your region during different seasons. Emphasize that the higher the number on the thermometer, the hotter it will feel outside. Reinforce the concepts of higher and lower when reading and comparing temperatures in the activity.

After the data chart is complete, help your student analyze the temperature differences on the playground at different times of the day and night.

Guide your student to read the data in the chart form. Point out the materials at the top of the columns, such as soil and water. Then, point out the time of day down the side of the chart: morning, afternoon, evening, and night. The color-coded chart should indicate that soil is cool during the morning and night, and warm during the afternoon and evening. The water in the pool is cool in the morning, then warm during the rest of the day.

Your student may realize that the simulation shows that even though temperatures of materials change throughout the day, it will let him or her choose to play outdoors any time except when it is dark at night. Discuss your student's favorite time to play outdoors and invite him or her to explain why. Discuss the benefits and drawbacks of playing outdoors at each time of the day.

Please go online to view and submit this assessment.
You learned how the sun affects objects on a playground. In this part, you will learn how the sun affects people. When you play on a sunny day, you must protect yourself so that you do not get hurt by the sun.

How can you stay safe in the sun? Watch the video Sun Safe Play Everyday! (04:24). In it, you will learn about how you can stay safe from the dangers of the sun. Have you ever been sunburned? Why did this happen? Talk about this with your Learning Guide. Then, write your answer in your Science Notebook.

Please go online to view this video ▶

After the video, ask your student if there were any things he or she saw in it that he or she had learned. Review the idea that we get heat and light from the sun. Then, focus on the idea that we must protect ourselves from the sun's heat and light so we do not get a sunburn.

Explain that sunburn changes our skin by making it red and painful. Tell your student that most sunburns will fade and no longer be painful but that sunburns can be harmful. Even though a
sunburn goes away, our skin will change over time if we do not protect ourselves with shade, cover, or sunscreen.

Look back at the drawing and sentences in your student’s Science Notebook. Does it correctly show what someone can do to protect themselves from the sun? If so, your student may have drawn someone wearing a hat or beach coverup or applying sunscreen. He or she may also draw someone under the shade of a tree, beach umbrella, or other sun shelter. Discuss any differences between what your student’s drawing shows and what the video explained.

Playing in the sun is fun. However, when you get too hot, you need to find shade. What kinds of things provide shady spots? Standing under a tree can get you out of the sun.

What other types of things provide shade? Go to Dimensions: Unit 4, Lesson 2, How Can I Protect Myself From the Sun: Engineers at Work, (p. 162), Screens 1-4. See how people build things to protect them from the sun. Talk about how people protect themselves from the sun with your Learning Guide.

People have built many types of structures that help protect them from the sun. Your student will see that an awning can still allow someone to be outdoors but offer a shady place.

Please go online to view and submit this assessment.
How Can I Protect Myself from the Sun? - Part 3

**Objectives**
- To tell some ways people can protect themselves from the sun

**Books & Materials**
- *Science Dimensions: Grade K*
- Science Notebook
- Computer
- Crayons or colored pencils

**Assignments**
- Read *Science Dimensions: Grade K, Unit 4, Lesson 2: How Can I Protect Myself from the Sun?*
- Complete You Solve It! simulation: Going Outside to Play.
- Complete Hands-On Activity: Design Shade.

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**LEARN**

Last time, you learned how to keep safe in the sun. You saw playing in the sun can be a problem. It can get hot. You can get sunburned. In this part, you will work to find a solution to playing in the sun. You will find the best place to build a sandbox to stay safe from the sun.

Go to *Dimensions*: Unit 4, Lesson 2: *How Can I Protect Myself from the Sun?*, Sandbox Problem, (p. 159), Screens 1-4. In *Sandbox Problem*, look at the picture of the playground. Decide where the best place is to build a sandbox. Draw a picture of the playground and draw where the sandbox should go in your Science Notebook or textbook.

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**TEACHING NOTES**

Talk about possible solutions to the problem and where it might be best to build the sandbox. In your student's Science Notebook, write three questions he or she has about the problem. Help your student brainstorm possible solutions to the problem and draw them. For example, instead of just building the sandbox under the shade of the tree, your student might think of adding a shade cover over a sandbox placed in the sun. Another option is wearing sunscreen or a sun hat while playing in the sandbox. Encourage him or her to use what was learned in previous parts of the lesson to help come up with a solution. Then, ask your student to choose one solution. Talk about why he or she chose that solution.

Talk about why the shade under the tree is a good place to build the sandbox, but talk about drawbacks, such as falling leaves or the way shadows might move throughout a day.
RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
In the last part, you learned that shade protects you from the sun. In this part, you will explore different places where shade can be found.

Go to Dimensions: Unit 4, Lesson 2: Can I Protect Myself from the Sun? Heat, Light, and Shade, (p. 160), Screens 1-7 to see how heat, light, and shade are always outdoors. Look for the places in the playground picture that offer shade. Can you find the three places on the playground that offer shade? Talk about the three places with your Learning Guide.

Then, complete Do the Math! and decide which tree gives off the most shade to protect you from the sun. Record your answer in your Science Notebook or textbook.

While doing the activity, point out that we don’t only get shade from under trees, but we can make our own shade by making shelters or wearing hats or sunglasses. Point out each example in the picture, and launch the online version of the activity for your student to explore.

In Do the Math!, your student should identify the picture of the larger tree because it will provide more shade than the smaller tree.
To extend the activity to a different environment, ask your student to name things that he or she can do to create shade when going to a beach. Ask him or her to draw pictures in his or her Science Notebook to show at least three ways (beach umbrella, hat, sunglasses, sunscreen). Talk about each method for protecting ourselves from the sun, and help your student write a caption for each picture.

✅ RATE YOUR ENTHUSIASM

Please go online to view and submit this assessment.
You have learned about ways to stay safe in the sun. You know that you need to protect yourself from the sun's rays. To go over what you learned, watch the video *Sun Heroes Sun Safety* (01:49). In this video you will learn about how to protect yourself from the sun.

Please go online to view this video.

Your student will watch a video that explains to him or her why it is important to protect themselves from the sun. People should cover all parts of their bodies, from their heads to their toes, with sunscreen when they are out in the sun. People should wear a broad brimmed hat and sunglasses to protect their heads and eyes from the sun.

Other methods your student may discuss about protection from the sun without sunscreen is to wear long sleeves on sunny days, wear a hat, and try to stay in shady areas.

Please go online to view and submit this assessment.

Want to learn more about the sun? Watch the video *The Sun* (01:02).
LEARN

Last time, you learned that shade can protect us from the sun. In this part, you will do an activity to make your own shady places. Let’s design a shelter to protect objects.

You will use the worksheet, Design Shade. Look at the materials your Learning Guide has chosen for you. You will complete Step 1 by designing and building a shelter. It will protect Earth’s surface from the sun. Use any materials you think will work. It must make shade for the rock your Learning Guide has given you.

Keep the Design Shade worksheet so that you can continue using it in the next part. If you are using a digital worksheet, save the worksheet so that you do not lose your work.

In the next part, you will put the shelter in a sunny place. One of the rocks will go under the shelter. You will place another rock in the sun. Both rocks will be in the sun for one hour. Make a prediction. What do you think will happen to the rocks? Talk about your prediction with your Learning Guide. Then record your prediction in your Science Notebook.

TEACHING NOTES

Gather as many materials as possible for your student to choose from to build the shelter. Encourage as much creativity as possible in your student’s design solutions.

Talk with your student about what he or she thinks will happen to the rock under the shelter and the rock in the sun. Ask your student to use sensory words, like hot, warm, or cool in the prediction.
Your student will continue to use the **Design Shade** worksheet in the next part. Tell your student to keep the worksheet so that he or she can continue making progress on it during the next part. If your student is using a digital worksheet, tell your student to save the worksheet so that his or her work will not be lost.

✅ **RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
How Can I Protect Myself from the Sun? - Part 7

**Objectives**
- To tell some ways people can protect themselves from the sun

**Books & Materials**
- Science Notebook
- Computer
- 2 rocks of the same size, shape, and color

**Assignments**
- Read Science Dimensions: Grade K, Unit 4, Lesson 2: How Can I Protect Myself from the Sun?
- Complete You Solve It! simulation: Going Outside to Play.
- Complete Hands-On Activity: Design Shade.

**LEARN**

Last time, you made a shelter to protect your rock. In this part, you will complete the investigation. Use the same Design Shade worksheet you started in the last part to make progress in this part.

Begin with Step 2. Find two sunny places in or around your home. Put the shelter in a sunny place. Then, place one rock under the shelter. Place the other rock in the sun. Wait 1 hour. Then, complete Step 3 by touching each rock and recording your observations, making a claim, and recording your evidence on your worksheet.

**TEACHING NOTES**

Your student will finish Design Shade in this part. Your student will use the Design Shade worksheet that he or she began in the last part. Your student should continue to make progress on the same worksheet and will not begin a new worksheet. During the 1-hour wait, move onto another subject with your student. When the 1 hour is up, check on both rocks with your student. Your student should observe that the rock in the shade stayed cooler than the rock in the sun. Your student will also need to make a claim and record evidence. Your student’s claim should be that the rock in the sun is warmer than the rock in the shade because the shade prevented the sun’s light from reaching the rock. The evidence should be that the rock in the sun felt warmer than the rock in the shade.

On a sunny morning, go outside with your Learning Guide. Walk around the neighborhood. Find different areas that are shady. Then, return to your classroom.

Draw the shady places in your Science Notebook. Label them. Tell whether you think an object in this location will feel warm or cool. Talk about why you think so.
Return in the afternoon to the same places. Observe how the shady places have changed. Find new shady places on your walk. Return to your classroom.

Draw the new shady places in your Science Notebook. Label them. Tell how you think an object in this location will feel now. Talk about why you think so.

Talk with your Learning Guide about how the shade changed throughout the day.

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**TEACHING NOTES**

As needed, help your student find places in your neighborhood that are shady in the morning. Talk with your student about the temperature of objects in direct sunlight versus shady places. Guide your student to understand that objects in shady places remain cooler than objects in direct sunlight.

When you return in the afternoon, revisit the same areas and discuss what happened to the shade. Explain to your student that as the sun looks like it moves across the sky during a day, the areas of shade change. Ask your student to predict what would happen to the temperature of the shady place he or she found in the morning as it became a sunny area in the afternoon. Then, discuss how the temperature of objects in that location would have changed after the sunlight on them has changed.

To extend your student’s learning, discuss how the sunlight would affect the body of an animal. Give the example of a lizard or other animal that sits in the sun. Explain that the lizard needs the sun's heat to warm its body even more than dogs, cats, or humans. When the lizard gets too hot, it moves out of the direct sunlight.

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**RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
In this lesson, you learned about how to protect yourself from the sun.

Let’s pretend you have a friend who is always outside. He plays at the beach. He plays sports. He also likes to swim in the pool. He spends a lot of time out in the sun. The bad news is he never wears sunscreen.

What could you tell your friend about staying safe in the sun? Write a sentence or two in the space below to tell your friend why it is important to stay safe when playing outdoors.

0 / 10000 Word Limit
You should also draw a picture showing how your friend can protect him- or herself from the sun. Write a caption for your picture describing how to stay safe. Then, write one other way that your friend can protect him- or herself from the sun. Upload your picture here.

**USE FOR MASTERY GUIDELINES & RUBRIC**

Did you:

- Correctly describe how the friend can stay safe from the sun?
- Draw a picture showing how the friend can protect him or herself from the sun?
- Write a caption describing how to stay safe?
- Recommend a different way to stay safe from the sun?
Can I Use Energy from the Sun? - Part 1

**Objectives**
- To explore how we can use energy from the sun

**Books & Materials**
- Computer

**Assignments**
- Complete ScienceFusion Virtual Lab: How Does the Sun Warm Our Homes?

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**LEARN**

You have been learning about the sun. First, you learned that the sun gives heat and light. Then, you learned how to stay safe in the sun. Now, you will learn how people can use energy from the sun.

Watch the video *What Is Light Energy?* (03:40) to learn how people use energy from the sun. Talk with your Learning Guide about how we get energy from the sun.

Please go online to view this video ▶

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**TEACHING NOTES**

After watching the video, ask your student to ask several questions about what was learned. Ask questions such as "What is the sun? What are sources of light other than the sun? How do we use light in our everyday lives?" List the questions and help your student find the answers to at least one of the questions. Your student should be able to answer the suggested questions by stating that the sun is a star that is a ball of gases, and it provides natural light. Other sources of light are fire and light that uses electricity, such as light bulbs, neon lights, or lasers. We use light in our everyday lives to light our homes or to find our way outside in the dark.

Introduce the concept of energy to your student. Point out the lights in the room and other things that require electricity, such as a television, computer, or appliance. Explain that energy is the power to do work, such as light and heat our homes. Then, explain that the electricity that runs our homes is not the only kind of energy. Light is another kind of energy. Tell your student that we can use energy from the sun to do things, such as heat our homes. Explain that energy from the sun is called solar energy.

Talk about your student's prior knowledge of solar energy. He or she may have seen solar panels before. If so, talk about where they were seen and what your student knows about what they do.

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**RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
In the last part, you learned that light comes from the sun. You learned that light can give energy. In this part, you will learn that the sun can make energy. Light from the sun is called *solar energy*. Solar energy can heat our homes. How does it work? Let's find out. You will be doing a virtual lab to find out how the sun can heat your home.

Go to *ScienceFusion Virtual Lab: How Does the Sun Warm Our Homes?*

Work through screens 1 through 3 with your Learning Guide. On screen 2, talk about each type of house. What would it be like to heat each of these homes?

On screen 3, click on the different part of the house, including the solar panels. Sunlight shines on solar panels. The panels collect energy to be used for the home.

You will continue the virtual lab in the next part.

**TEACHING NOTES**

The virtual lab will guide your student. Have your student read and listen to the virtual lab for screens 1–3. Your student's answers in the virtual lab will not save. Have your student write down anything that seems important in the Science Notebook. Your student will continue working on the virtual lab in the next part.

On screen 2, discuss each type of house as you click through the photos of the igloo, adobe house, log cabin, house on stilts, concrete house, and stone house.

Ask your student what the inside of each house might feel like and how people might heat each kind of home. Explain that the shape of each house and the materials it is made from can help it collect sunlight. For example, a wide, flat roof of wood like the log cabin can collect more sunlight than one that is round and made of ice, like the igloo.

On screen 3, click on the labels and discuss the solar panels. Explain that the house in the picture uses solar panels. Sunlight shines on the panels and collects energy to be used for the home's electricity.
Quick Check

Please go online to view and submit this assessment.

More To Explore

Want to learn more about types of energy? Watch the BrainPOP Jr. movie *Energy Sources* (05:08) to learn more about all kinds of energy.

Want to recall what energy is and what the sun's energy is? Watch *Energy: The Dr. Binocs Show* (04:13). Watch up to 00:55 on the video to learn about the sun's energy.

Please go online to view this video ▶
Can I Use Energy from the Sun? - Part 3

Objectives
- To explore how we can use energy from the sun

Books & Materials
- Computer

Assignments
- Complete ScienceFusion Virtual Lab: How Does the Sun Warm Our Homes?

LEARN

In the last part, you learned that light comes from the sun. You learned that light can give energy. Today, you will learn that the sun can make energy. Light from the sun is called solar energy. Solar energy can heat our homes. How does it work? Let's find out.

Go to ScienceFusion Virtual Lab: How Does the Sun Warm Our Homes?

Work through screens 4 through 8 with your Learning Guide. You will investigate which parts of a house get hottest on a sunny spring day.

Follow the instructions of the virtual lab. Find out which part of the house the sun heats fastest.

You will continue the virtual lab in the next part.

TEACHING NOTES

Guide your student through screens 4 through 8 of the virtual lab. Remind your student that the answers will not save from one day to the next. Your student should record responses in the Science Notebook. Your student will continue working on the virtual lab in the next part.

Start the activity on screen 4 by introducing the thermometer. If possible, show your student a real thermometer to compare with the one on the screen.

Help your student begin the activity by predicting which part of the house will heat up most on a sunny day.

Talk about the plan on screen 6 and ask your student to talk about why he or she chose the order of the images.
Help your student to carry out the virtual lab by clicking on each room and recording the temperatures in the chart. Help your student decide if his or her prediction from screen 5 was correct. As you click on each room to reveal the temperature, point out how the thermometer changes.

As your student reviews the results, point out that the top part of the house, the attic, warmed the most. The two lower rooms, the living room and kitchen, heated the least throughout the day. Guide your student to conclude that the sunlight warmed the roof of the house, making the attic a little warmer than the other rooms.

✅ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
In the last part, you learned that energy from sunlight can warm our homes. The sun's energy makes parts of the house it touches warmest.

In this part, you will discuss about how the design of buildings can help use the sun's energy for heat and light. You will see how different rooms of the house heat up in the sunlight. You will also see how they cool down at nighttime. You will finish the virtual lab today.

Go to ScienceFusion Virtual Lab: How Does the Sun Warm Our Homes? Work with your Learning Guide on screens 9 through 13. Talk about how a house can help use the sun's energy to heat the home naturally.

TEACHING NOTES

On screen 9, your student should choose the adobe home as the one best designed to keep cool in a hot climate. Listen to the explanation together and explain that adobe homes are often found in the American Southwest, where the temperatures are hot.

On screen 10, click on different rooms of the house and guide your student to read the thermometer readings. Explain that the Celsius readings on the thermometer are not typical temperature readings in the United States. Point out that 10° Celsius is equal to 50° Fahrenheit, which is typical spring or fall weather.

For the Look at Your Results activity on screen 11, the parts of the house should be arranged in order from hottest to coolest as follows: attic, kitchen, bathroom, bedroom. Help your student put the temperatures of the Virtual Lab in order on screen 11 and arrange them correctly on screen 12.
In the last part, you learned that energy from sunlight can warm our homes. The sun's energy makes parts of the house it touches warmest. In this part, you will discuss about how the design of buildings can help use the sun’s energy for heat and light. You will see how different rooms of the house heat up in the sunlight. You will also see how they cool down at nighttime. You will finish the virtual lab to day.

Go to ScienceFusion Virtual Lab: How Does the Sun Warm Our Homes?

Work with your Learning Guide on screens 9 through 13. Talk about how a house can help use the sun’s energy to heat the home naturally.

On screen 9, your student should choose the adobe home as the one best designed to keep cool in a hot climate. Listen to the explanation together and explain that adobe homes are often found in the American Southwest, where the temperatures are hot.

On screen 10, click on different rooms of the house and guide your student to read the thermometer readings. Explain that the Celsius readings on the thermometer are not typical temperature readings in the United States. Point out that 10° Celsius is equal to 50° Fahrenheit, which is typical spring or fall weather.

For the Look at Your Results activity on screen 11, the parts of the house should be arranged in order from hottest to coolest as follows: attic, kitchen, bathroom, bedroom. Help your student put the temperatures of the Virtual Lab in order on screen 11 and arrange them correctly on screen 12.

For the Check Your Understanding activity on screen 12, your student should match the 33° temperature with the attic, 30° with the bedroom, 24° with the bathroom, 26° with the living room, and 26° with the kitchen.

Summarize with your student what was learned during the Virtual Lab by reviewing screen 13.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Can I Use Energy from the Sun? - Part 5

**Objectives**
- To explore how we can use energy from the sun

**Books & Materials**
- Computer
- Crayons or colored pencils

**Assignments**
- Complete ScienceFusion Virtual Lab: How Does the Sun Warm Our Homes?

**USE**

In this lesson, you learned about how the sun can warm our homes. Think about what you learned.

**USE FOR MASTERY**

Draw two pictures showing how the sun can heat our homes in your Science Notebook. One house should have solar panels. One house should not have solar panels. Upload your picture here.

Supported file formats: PDF, JPG, GIF, PNG
Write about how your pictures use sunlight to heat the homes in the box.

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**USE FOR MASTERY GUIDELINES & RUBRIC**

Did you:

- Draw a house without solar panels before drawing a house with solar panels?
- Correctly describe how sunlight is used to heat both homes?
Unit Quiz: Sun Warms Earth

Please go online to view and submit this assessment.
Unit 4 - How Can We Observe Weather Patterns?
Project: How Can We Observe Weather Patterns

Books & Materials
- Dimensions: Grade K
- Science Notebook
- Computer
- Activity Sheet: Weather Log
- Paper lunch bags
- Crayons

PROJECT DESCRIPTION

Some days it’s cold. Brrr!

Some days it’s hot.

Some days it’s wet. Plip. Plop.

Some days it’s dry.

There are lots of kinds of weather. Weather has patterns. In the project, you will observe the weather for 5 days and record what you see. You will observe the temperature outside and look to see if the weather is sunny, cloudy, stormy, snowy, rainy, or windy. Then, you will guess how the weather will be the next day. You will also learn about severe weather. For your project, you will use your observations to see if you are correct and if you can predict the weather.

Let’s begin learning about what weather is. Watch the video Weather (01:38). The video shows different types of weather. Watch it to learn about rain, sunshine, and snow! After the video, draw your favorite kind of weather in your Science Notebook.

TEACHING NOTES

This unit is about weather and weather patterns. Access the video. Read the poem in the video with your student. After the video, discuss the different types of weather he or she observed. Ask your student if he or she can think of any other types of weather. Direct your student to draw a picture of his or her favorite type of weather in his or her Science Notebook.

Explain that in this project, your student will have the opportunity to observe the weather and predict it. Your student will record the observations and share what he or she learned. Your student will also study one type of severe weather and explain how it occurs.
Here is what you will need to include in your project:

- Your forecast worksheet
- A written response of how accurate your predictions were
- The reason why severe weather occurred or why the most common type of severe weather in your state occurs

**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**

Do you think you can predict the weather? Do you think it will be easy or difficult to do? Write what you think to your group. If you do not have a group, talk about this with your Learning Guide.

**TEACHING NOTES**

In this project, your student will keep a log of the weather for 5 consecutive days, with a space for your student to record the temperature. Note that your student will begin the weather log at the end of this lesson, so you may wish to plan ahead to assure that your student can observe for 5 consecutive days. Making a forecast for 5 consecutive days will give your student the best results. If this is not possible with your student's schedule, try to record the weather as close to every day as you can.

In the weather log, there will be space for your student to record the temperature and draw a picture of the weather condition such as sunny or cloudy. There will also be a space for your student to record a prediction for the next day's weather. The prediction does not need to include temperature, but should include the weather condition.

There will be two times your student will make progress on his or her project, and one SHOW for your student to make conclusions about the forecast and determine how to make his or her forecast more accurate. The first time your student makes progress on the project will occur after *How Can We Observe Weather Patterns?* During this time, your student will start his or her weather log and record the day's weather. Your student will complete his or her log for 5 consecutive days during *How Can We Measure Weather?* Your student should make his or her predictions for 5 days first, and then record the actual weather as it happens for 5 consecutive days. Your student will then determine how close his or her prediction was to being accurate in the final SHOW.
After *What Are Kinds of Severe Weather?* your student will continue to make progress on the project and will examine severe weather. If severe weather happens during any of the 5 days, your student will take the opportunity to explain why severe weather occurred. If no severe weather occurs, your student will select the most common severe weather in his or her state to explain why it occurs. Your student will need to write his or her answer with your help as the Learning Guide as a scribe.

During SHOW, *My Weather Forecast*, your student will conclude if his or her forecast was accurate or not and determine how the forecast could be more accurate. The deliverable for this project includes:

- your student’s forecast worksheet.
- an audio or written response of how accurate his or her predictions were.
- the reason why severe weather occurred (or why the most common type of severe weather in his or her state occurs).

Both the [Teacher Rubric](#) and [Student Rubric](#) are available as blackline masters that can be printed for reference throughout the project.

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✅ **RATE YOUR EXCITEMENT**

Please go online to view and submit this assessment.
How Can We Observe Weather Patterns? - Part 1

LEARN

VOCABULARY
• weather pattern
• season

It is sunny today.

Will it be sunny tomorrow?

Maybe. Maybe not.

Weather can change from day to day. One day, it will be sunny, and the next day it could be snowing. Play the video Weather (02:55). The video shows how weather changes. It shows how people dress in different weathers, too. Talk to your Learning Guide about how weather changes.

TEACHING NOTES

After your student watches the video, return to the chorus in the video at 0:36. Ask your student, “Why do you think the song says, 'Weather, it constantly changes. Weather, forever it’s new?’”

Point out that weather changes from day to day. Ask your student to describe a time that he or she has seen the weather change. Tell your student that although the weather changes, we can see patterns in the weather. By observing the weather and thinking about the patterns, we can see what the weather might be like. In the project, your student will have the opportunity to observe and predict the weather.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Previously, you learned about weather. Now you will see some types of weather. You will study weather in the project. You will also guess how weather will be in the future. Knowing about types of weather will help you in your project.

Do you like picnics?

They are fun on a sunny day.

They are not as much fun when it rains.

Let’s study different kinds of weather! You may already know about the types of weather. Write down a type of weather in your Science Notebook. Then go to Dimensions: Unit 5, Weather Lesson 1, How Can We Observe Weather Patterns? Read Kinds of Weather (p.179). This reading shows how rainy, cloudy, and sunny weather looks. Do the Can You Explain It? (p. 179) to identify the best weather for a picnic. Record your answer in your Science Notebook or textbook.

As needed, read the text with or to your student. Direct your student’s attention to the rainbow. Ask, “When do you see a rainbow?” When the sun shines during or immediately after rain.

Discuss weather experiences that your student has had.

For the Can You Explain It? (p. 179) ask your student to identify what type of weather is shown in each picture before answering the question. Your student should identify the sunny day as the best day for a picnic.

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

What is weather? Watch the video Weather (00:52) to learn the weather. Explain what weather is to your Learning Guide.
Previously, you learned about some kinds of weather. This part is about more kinds of weather. You will need to identify types of weather for your project. Knowing about types of weather will help you with your project.

There are different kinds of weather.

Rainy.

Windy.

Snowy.

Sunny.

How is weather where you live? Is it sunny? Is it snowy?

Go to Dimensions: Unit 5, Weather Lesson 1, How Can We Observe Weather Patterns? Read Different Kinds of Weather (p. 180). This reading tells you about different kinds of weather. Identify the pictures that show different kinds of weather for your Learning Guide.

How can you act like a sunny day or a rainy day? Show your Learning Guide how you can act like the weather. Then, identify which pictures show different kinds of weather. Record your answer in your Science Notebook or textbook.

Have your student view the kinds of weather. Encourage your student to describe what he or she observes, such as the color of the sky, the presence or absence of clouds, and the way people are dressed. Your student should identify all of the pictures as showing different kinds of weather. Encourage your student to act out being in each type of weather for you to guess.
Have your student study the image of a tree. You can use the textbook. You can also use the image shown on this webpage. The image shows a tree in different weather in different seasons.

Encourage your student to observe that the picture shows the same tree. What does your student notice? Your student should observe that the weather is different in each picture. Have your student describe the type of weather in each picture: sunny, rainy, cloudy, and windy. Your student should indicate that each image shows a type of weather.

☑ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
How Can We Observe Weather Patterns? - Part 4

Previously, in the last part, you learned about kinds of weather. Now, you will learn that weather can change. Changes in weather will help you with predicting the weather. Predicting weather will help you with your project.

Weather does not remain the same. It changes.

Lucy walks to the bus stop each morning.

Lucy feels cold. She wears a jacket.

She walks home each afternoon.

Lucy feels warm. The jacket is too hot.

Do you see a pattern?

Did you realize it is often cold in the morning? It is warmer at noon. It gets colder at night. This is a pattern.

Go to Dimensions: Unit 5, Weather Lesson 1, How Can We Observe Weather Patterns? Read Weather Patterns (pp. 181-182). You will read about weather patterns during the day and weather patterns during a week. Stop when you reach the Hands-On Activity.

TEACHING NOTES

As needed, read the text to or with your student. If you are using both the e-text and textbook, you will notice that the e-text and the textbook are somewhat different in this part. The e-text is titled Weather Patterns and the textbook is titled Weather Patterns During the Day and Weather Patterns During the Week. Have your student observe the girl in the video or in each picture. Ask, “What do
you observe about her clothing?” She is wearing a jacket in the morning and evening. In the afternoon, because it is warmer, she tied the jacket around her waist.

Ask, “What is evidence that the temperature changes during the day?” The girl not wearing a jacket in the afternoon is evidence that the temperature is higher.

Remind your student that a pattern is something that repeats over and over. Ask, “What pattern do you observe?” It is cool in the morning and at night and warm in the afternoon.

If you are using the e-text, move on to screen 2. If you are using the textbook, continue reading. Remind your student that a pattern is something that repeats over and over. If working on the computer, ask, “What weather pattern do you observe?” It is sunny 3 days in a row.

If you are using the e-text, move on to screen 3. If you are using the textbook, have your student study the previous three images, and ask your student, “When do you think it is warmest?” Remind your student of the story of the girl who went to school wearing a jacket, tied it around her waist in the afternoon, and then wore her jacket again in the evening. After your student identifies the afternoon as the warmest, point out that a weather pattern is that it is cool in the morning, warm in the afternoon, and cool at night.

☑️ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Previously, in the last part, you learned weather can change. Now, you will spot patterns in weather. Knowing patterns in weather will help you with predicting the weather. Predicting weather will help you with your project.

Yesterday it was cloudy.

Today it is rainy.

Tomorrow it will be rainy.

Do you see a pattern?

Weather patterns happen during a day. They happen during a year, too! Watch the video Weather Patterns (02:54). The video tells how weather changes in a year. What kind of weather do you have where you live? Is it summer weather? Is it winter weather? Talk to your Learning Guide.

Go to Dimensions: Unit 5, Weather Lesson 1, How Can We Observe Weather Patterns?, Weather Patterns (p. 181). Do the Apply What You Know: Do the Math! activity (p. 185). Count and circle days that are sunny. Count and circle days that are rainy. What kind of weather has more? Do you see a pattern? Answer the questions in your Science Notebook.
more weeks added. Encourage your student to look for patterns. A basic pattern is that rainy days generally follow cloudy days. Ask, “How will you know you have found a weather pattern?” If the weather for several days repeats itself. Ask, “What evidence supports your claim?” The weather symbols.

Your student will successfully complete the activity if he or she is able to find a weather pattern in the monthly weather calendar, uses evidence to support the claim of a pattern, and sorts the images based on the weather pattern identified.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
How Can We Observe Weather Patterns? - Part 6

Objectives
- To be able to describe kinds of weather and weather patterns

Books & Materials
- Science Notebook
- Computer

Assignments
- Complete ScienceFusion Virtual Lab: What Can We Observe About Weather?

In the last part, you found patterns in weather. Now you will do a Virtual Lab! The virtual lab explains how to observe weather. Making observations about weather will help you with your project.

INTERACTIVE ACTIVITY

There are lots of kinds of weather! You will learn more about the kinds of weather by investigating with a Virtual Lab.

Open the ScienceFusion Virtual Lab: What Can We Observe About Weather?. In the virtual lab, you will investigate and record change in weather. You will record how weather changes. This is called observation. You are observing the weather.

This virtual lab will take two parts to complete. You start today, and finish in the next part. Start with Slide 1. Read what you will be doing in the virtual lab. You will complete Slides 1 to 6 in this part.

Slide 2 is a puzzle. Do the puzzle. What kind of weather is the puzzle?

Slide 3 shows different types of weather. Select the pictures. Watch what the lab tells you.

Slide 4 shows you symbols. People use symbols to describe weather. Match the symbols with the correct weather.

Slide 5 shows what you will do. Study this slide. You will observe the weather. Then, you will use symbols to record weather. Record weather in your Science Notebook.

You make a plan in Slide 6. Order the steps and form a plan! Then, talk to your Learning Guide about what you learned today.
This Virtual Lab allows your student to investigate and record changes in the weather. Access the Virtual Lab and guide your student. The first task is to complete the first four slides. The virtual lab will not save your student's responses, however, your student should only need to record his or her plan from Slide 6. Have your student record his or her plan from Slide 6 in the Science Notebook.

Slide 1 is an introduction to the activity. Have your student watch the slide.

Slide 2 asks your student to put together a puzzle and identify what type of weather is pictured. The weather is rainy.

Slide 3 defines weather. Your student chooses different types of pictures to learn about different types of weather. Ask your student to describe each type of weather such as sunny, warm, windy, or snowy before selecting the picture.

Slide 4 asks your student to match weather symbols to pictures that show that type of weather. Explain that weather symbols are an easy way to display weather. Forecasters often put them in their forecasts, and in the project, your student can use symbols to record the type of weather he or she observes.

Slide 5 gives an explanation of the project. Your student should point to the park and understand that he or she should observe the weather that is displayed here. Then, ask your student to point to the weather symbols. Mention that these were the same symbols that she or he matched on the previous screen. Finally, have your student point to the table. Read each day of the week, and have your student point to the appropriate box. Explain that he or she will drag and drop the weather symbols to these boxes to describe the weather that he or she observes.

Slide 6 asks your student to make a plan. Your student will drag and drop the steps to the investigation in the correct order. If your student places the step in the wrong order, it will return and allow your student to try again until the sequence is correct.

Once your student has completed Slide 6, discuss with him or her what he or she has learned today. Today's work is mostly a preparation for the main interaction in the next part. Your student studied different kinds of weather, made a puzzle, and identified rainy weather. Your student also learned symbols that show different parts of weather.

Please go online to view and submit this assessment.
How Can We Observe Weather Patterns? - Part 7

Previously, you started on a Virtual Lab. You studied different types of weather. You saw symbols that show different weathers. You also made a plan. Now, you will complete the virtual lab. The lab explains how to observe the weather. Making observations about the weather will help you with your project.

INTERACTIVE ACTIVITY

Are you ready to observe the weather? Let’s get started!

Open the Science Fusion Virtual Lab: What Can We Observe About Weather? to get started.

Go over the plan you did in the last part. Then, go to Slide 7. This is the main activity. See Monday’s weather. Then, record Monday’s weather with a symbol. Then, see Tuesday’s weather. Record it, too. Complete the chart like this.

Go to Slide 8. Study the table you built. Which days did it rain? Select the days.

Go to Slide 9. Read the question. Answer it.

Go to Slide 10. Study what temperature is. Then, measure temperature in different days.

Next is Slide 11. Which day is coldest? Select the coldest day.

Last slide is Slide 12. This slide is a summary. Read it. Then, talk to your Learning Guide about what you learned.
This Virtual Lab allows your student to investigate and record changes in the weather. Today, your student will finish the lab. Help your student navigate to Slide 7.

Slide 7 has your student do the main activity. If more than one day has passed between the previous part and the current one, you may want to have him or her return to Slide 5 to review what to do. Have your student select the play button to see the weather in the park on Monday. Then, direct your student to drag the appropriate symbol into the box for Monday on the chart. Your student then chooses Play to see Tuesday’s weather, repeating the procedure until the chart is complete. If your student selects the wrong weather symbol, it will bounce back, and your student will continue until the correct one is placed in the box.

Slide 8 asks your student to study the table he or she created. Your student selects the days with rain recorded. Note that there were two symbols for rain (rainy and rain storm). Help your student differentiate between the two. Slide 9 prompts your student to consider if weather changes during a day.

Slide 10 explores temperature and weather. Your student selects pictures to see the type of weather. He or she looks to the right to see the thermometer displaying that temperature. Then, your student drags the appropriate temperature to label the picture. Note that the temperature is shown in degrees Celsius. Your student may need support if he or she is not familiar with this measurement system.

Slide 11 asks your student to compare the temperatures that he or she placed on the photos to determine the lowest temperature. Slide 12 is a summary of what your student has learned. Have your student watch the last slide to conclude the lesson.

QUICK CHECK

Please go online to view and submit this assessment.

MORE TO EXPLORE

How can you record weather? Watch the video Making Weather Observations (01:13). You will learn about recording weather.
Previously, you completed a Virtual Lab. The lab showed how to observe the weather. Now you will learn about seasons! Seasons have certain kinds of weather. Knowing what weather occurs in different seasons will help you with your project.

Spring. Summer. Winter. Fall.

Do you know what these are? They are seasons!

The weather changes in seasons too. Winter is cold. Summer is hot! Go to Dimensions: Unit 5, Weather Lesson 1, How Can We Observe Weather Patterns? Read The Seasons (pp. 186-187). This part tells you about the four seasons. Tell the names of all four seasons to your Learning Guide. Then answer the questions about the seasons in your Science Notebook or textbook.

Have your student observe and describe the pictures, starting with spring. In the textbook, there are static images. In the e-book, the definition of each season appears once you click on it. Your student should match the puddle picture to spring and the beach picture to summer.

Ask your student:

- What claim can you make about summer weather? It is warm outside.
- What evidence supports your claim? The child is wearing clothes for warm weather and is barefoot.
- Are all summer days sunny? No. A lot of days are sunny. Some days are not sunny.
- What other kinds of weather might there be? Rainy, windy, or cloudy weather.
- What is the pattern of weather for summer? Warm weather.
Explain that a season is a time of the year that has a certain pattern. Have your student name all four seasons.

Have your student observe and describe the pictures for fall and winter. In the textbook, there are static images. In the e-book, the definition of each season appears once you click on it. Your student should match the leaves picture with fall and the snow picture with winter.

Starting with fall, ask:

- *Observe the image. What claims can you make about fall weather?* Fall weather is cool.
- *What evidence supports your claim?* The children are wearing clothes for cool weather.

Remind your student that temperature is one part of weather. Ask your student, “What is the pattern of temperature for winter weather?” Winter days are cold. This is the pattern.

Ask your student about other weather conditions, such as sunny, rainy, windy, or cloudy based on where your student lives.

Guide your student in identifying the pattern that the seasons make. Ask your student, “How can this pattern help us predict the type of weather you might see?” Sample answer: Rain is common in fall. Snow and rain are common in winter.

Continue with the matching activity. Direct attention to the pictures one at a time. Ask, “What season does it show? What evidence supports your answer?” Your student should match each season picture to the correct season name.

✅ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
How Can We Observe Weather Patterns? - Part 9

Objectives
- To be able to describe kinds of weather and weather patterns

Books & Materials
- Dimensions: Grade K
- Science Notebook
- Computer

USE

You have learned about weather. You learned about kinds of weather, patterns in weather, and seasons.

USE FOR MASTERY

Look at the picture. Then answer the questions.

One season is missing. Which picture shows the missing season?

- Picture A
- Picture B
- Picture C

Grade K Calvert Science 235 Unit 4
What pattern do the seasons form? Write your answer in the space.

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USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Correctly identify which season is missing?
- Organize the seasons in the correct pattern?

TEACHING NOTES

If your student needs reinforcement, you may wish to have him or her return to Dimensions: Unit 5, Weather Lesson 1, How Can We Observe Weather Patterns? and read the section The Seasons (pp. 186-187). Have your student state the seasons in order, pointing to each image as he or she says the season name. After pointing to the winter picture, ask your student what will come next. Your student should identify that the pattern of seasons will repeat again with spring. Have your student match the images in the book to the one on the quiz to identify that spring is missing.
How Can We Observe Weather Patterns? - Part 10

Objectives
- To be able to describe kinds of weather and weather patterns

Books & Materials
- Computer
- My 5-Day Forecast worksheet

SHOW

FORECAST THE WEATHER
Will it be cold?
Will it be hot?

Guess the weather. Give it a shot!

You will need to record your weather observations on a weather chart. Watch the video What is a Weather Chart? (03:49) to find out how to record your observations. Start the video at the 00:56 mark.

Now, you will start on your own weather chart. Access the My 5-Day Forecast worksheet.

First, you will predict what the weather will be tomorrow in My Weather Predictions part of your worksheet. Write the date on the line and draw a picture of the next day's weather.

Now, you will observe the weather today. You will then record the date on the line, draw a picture of today's weather, and write down the highest temperature of the day in The Actual Weather part of your worksheet.

You will do these steps for 5 days. First, you will make a prediction for tomorrow's weather. Then, you will record the actual weather today. The activity will start now. Your Learning Guide will help you.

Keep the My 5-Day Forecast worksheet so that you can continue using it in the next part. If you are using a digital worksheet, save the worksheet so that you do not lose your work.

TEACHING NOTES

During this part of the project, your student will start his or her weather log and record the day’s weather. Your student will complete his or her log for 5 consecutive days. He or she should begin by making predictions for 5 days first, and then record the actual weather as it happens for 5 consecutive days. After each day, your student will determine how close his or her prediction was to
being accurate. The activity starts now and will continue for the next 5 days. It is important for your student to complete the chart every day to establish a pattern.

Your student will continue to use the My 5-Day Forecast worksheet in the next part. Tell your student to keep the worksheet so that he or she can continue making progress on it during the next part. If your student is using a digital worksheet, tell your student to save the worksheet so that the work will not be lost.

Direct your student to play the video. Ask, “What information was on the weather chart? What else could you put on a weather chart? How was the weather chart used?”

Explain that for the project, he or she will keep a weather chart for 5 consecutive days. Return to the video at 02:46. Ask your student to explain what a forecast is and how it is used. Explain that a forecast is a prediction. This forecast is a prediction that shows what the weather might be for the next week. Point to the My Weather Forecast section on the worksheet. Explain that your student should begin by forecasting, or predicting, what he or she thinks the weather will be like for the next 5 days. Brainstorm ways your student can represent the forecast. Point out that the forecast in the video used pictures, numbers, and words.

Then, show your student the section The Actual Weather. This section is for recording the weather. Explain that your student should record what he or she has observed about the weather, using pictures or words. This will include what the sky looked like (sunny, cloudy, clear) and also the temperature. Describe to your student how he or she will get temperature information (from a website such as weather.com or wunderground.com, a local news station, or an outdoor thermometer). Model how to locate this information.

Explain that in the next lesson, your student will learn about different tools that can be used to measure weather. Many meteorologists use these tools to forecast and describe weather.

Then, review of the rubric to help your student assess progress so far. Display part of your student rubric for the discussion.

<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>Write a forecast.</td>
<td>Writes a forecast for all 5 days.</td>
<td>Writes a forecast for 4 days.</td>
<td>Writes a forecast for 3 days.</td>
<td>Writes a forecast for 2 or fewer days.</td>
</tr>
<tr>
<td>K.ESS2.D.1  K-2. ETS1.A.2</td>
<td></td>
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</tr>
<tr>
<td>Observe the sky.</td>
<td>Uses a picture or words to tell about the sky for 5 days.</td>
<td>Uses a picture or words to tell about the sky for 4 days.</td>
<td>Uses a picture or words to tell about the sky for 3 days.</td>
<td>Uses a picture or words to tell about the sky for 2 or fewer days.</td>
</tr>
<tr>
<td>K.ESS2.D.1  K-2. ETS1.A.2</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
Record the temperature.
K.ESS2.D.1
K-2. ETS1.A.2

- Records the temperature for 5 days.
- Records the temperature for 4 days.
- Records the temperature for 3 days.
- Records the temperature for 2 or fewer days.

Describe severe weather.
K.ESS3.B.1

- Identifies a type of severe weather that occurred or chooses a severe weather that commonly happens in his or her state.
- Describes the severe weather.

Evaluate the forecast.
K.ESS2.D.1
K-2. ETS1.A.2

- Decides if the forecast was accurate or not.
- Gives 3 suggestions for improving the forecast.
- Decides if the forecast was accurate or not.
- Gives 2 suggestions for improving the forecast.
- Decides if the forecast was accurate or not.
- Gives 1 suggestion for improving the forecast.
- Identifies a regular type of weather.

COLLABORATION

Share what kind of weather your area is experiencing with other students. Make sure to comment on their weather, too.

RATE YOUR PROGRESS

Please go online to view and submit this assessment.
How Can We Measure Weather? - Part 1

Objectives
- To be able to explain how to measure weather

Books & Materials
- Computer
- My 5-Day Forecast worksheet

Assignments
- Read Dimensions: Unit 5, Lesson 2, How Can We Measure Weather?
- Complete Weather Instruments slideshow.

LEARN

VOCABULARY
- temperatures

Previously, you learned about weather. Weather changes. There are patterns in weather. You will learn how to measure weather. You will be able to take measurements. In the project, you will measure temperature. You will learn how to measure temperature here. Taking measurements will help you with the project.

Think about this:

You want to play outside.

Mom says, "It's too cold!" How does Mom know?

She can use tools. Let's learn more.

Weather instruments measure weather. Access the Weather Instruments slideshow. Study each tool that measures weather. So many instruments! Wind vane to measure wind direction. Rain gauge to measure rain. Thermometer to measure temperature. Talk to your Learning Guide about what you learn.

Remember the project. You will need to log the weather for today. Predict tomorrow's weather, too. Use the same My 5-Day Forecast worksheet you started in the last part to make progress in this part.

TEACHING NOTES

Remind your student that in the last lesson, he or she learned about different kinds of weather. In this lesson, he or she will learn about ways to measure the weather.
Access the Weather Instruments slideshow. This slideshow introduces your student to different instruments that measure weather, such as the thermometer, hygrometer, anemometer, barometer, rain gauge, and wind vane. There is no accompanying audio for the text, so you will need to read the text to your student.

Begin by selecting the green Slide Show button. The screens progress on their own. Pause after each instrument is described. Have your student repeat the name of the instrument and explain what it measures. Your student may return to a previous screen by using the forward and back buttons located at the bottom and top of the screen icons, and then selecting the screen he or she wishes to view again.

Prompt your student to log the weather on his or her recording sheet. Your student should log weather for day 2, and predict weather for day 3. Your student will use the My 5-Day Forecast worksheet that he or she began in the last part. Your student should continue to make progress on the same worksheet and will not begin a new worksheet.

✅ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Previously, you learned about tools to measure weather. Now, you will start learning how to measure the weather. You will be able to take measurements. Measurements are a part of your project.

Can you measure weather, too?

Look out the window. What do you see?

You can tell about the weather.

You can also measure the weather.

Let’s study tools to measure weather. Go to Dimensions: Unit 5, Weather Lesson 2, How Can We Measure Weather? Read Measuring Weather (p. 195). A kite needs wind to fly. How can we tell it is windy? Complete the Can You Solve It? (p. 195) by identifying the weather tool that would help you know if it is a good day to fly a kite. Answer the question in your Science Notebook or textbook.

Remember to log the weather. Also, predict tomorrow’s weather. Use the same My 5-Day Forecast worksheet you started in the last part to make progress in this part.
standing straight out, which shows it is full of air and the day is windy.

Have your student view the image of a child using a simple weather station. Allow your student to share his or her ideas about the tools and their use.

Before answering the Can You Solve It? (p. 195) your student should identify what is shown in each picture. Your student can select answers until he or she chooses the correct response. Your student should indicate that a weather sock would be helpful in deciding if it is windy enough to fly a kite. If your student answers incorrectly, help your student identify what the tool measures.

Prompt your student to log the weather on his or her recording sheet. Your student should log weather for day 3, and predict weather for day 4. Your student will use My 5-Day Forecast worksheet that he or she began in the last part. Your student should continue to make progress on the same worksheet and will not begin a new worksheet.

✔ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
How Can We Measure Weather? - Part 3

Previously, you started learning how to measure weather. Now, you will learn more about measuring weather. You will be able to take measurements. Measurements are a part of your project.

Plip. Plop.

Plip. Plop.

Tiny, tiny.

Raindrop!

How do you know how much rain?

You can measure it!

Go to Dimensions: Unit 5, Weather Lesson 2, How Can We Measure Weather? Read Weather Tools (p. 196). Draw the tools in your Science Notebook. Then, answer the questions in your Science Notebook or textbook.

Do not do the Apply What You Know: Evidence Notebook.

Remember to log the weather for day 4. Also, predict the weather for day 5. Use the same My 5-Day Forecast worksheet you started in the last part to make progress in this part.

TEACHING NOTES

Explain that temperature, rain, snow, and wind are types of weather. People use tools to measure the temperature, and measure how much rain or snow falls.
Point to the thermometer. Ask your student, “What does a thermometer measure?” Temperature, or how hot or cold it is. Explain that the liquid inside the thermometer shows the temperature.

If you have a thermometer, you can do a small hands-on activity with your student. Place warm water in one cup and cold water in another cup. Have your student place a thermometer in the cold water and look at the temperature. Then, have your student place the thermometer in the warm water and observe what happens. Ask your student, “What pattern do you observe?”

Have your student point to the rain gauge. Ask your student, “What does a rain gauge measure?” How much rain has fallen.

Have your student look at the wind vane and the weather sock. Explain that these tools measure wind. Ask your student, “What does the wind vane measure?” The direction that wind is blowing from.

Ask your student, “What does the windsock measure?” How hard the wind is blowing.

Ask your student to choose the tool that measures how much rain has fallen. Before answering, have your student identify what each picture displays. Your student should indicate that the rain gauge measures rainfall. Point out the open top and measurements along the side.

If you have a thermometer and access to cold or warm water, you can do the activity in Apply What You Know: Evidence Notebook. This is a simple activity where you immerse a thermometer in cold water, and observe it; and then immerse it in warm water and observe it.

Prompt your student to log the weather on his or her recording sheet. Your student should log weather for day 4 and predict weather for day 5. Your student will use the My 5-Day Forecast worksheet that he or she began in the last part. Your student should continue to make progress on the same worksheet and will not begin a new worksheet.

Quick Check

Please go online to view and submit this assessment.

More to Explore

There are other tools that help measure the weather. Go to the Weather Wiz Kids website to learn more.
Previously, you learned about tools to measure weather. Now, you will learn about hot and cold temperatures. This will help you understand temperature. Temperature measurements are a part of your project.

Brr! It is cold.

You can wear a coat.

Wow! It is hot.

You can wear shorts.

How do you know if it is hot or cold?

Let's learn more about measuring hot and cold air. Watch the video Hot and Cold Air (02:42). Talk to your Learning Guide about what you learned.

Let's learn more about thermometers. Watch the video The Thermometer Song (01:58). Remember to log the weather for day 5. This is the last day you will be recording the weather. Use the same My 5-Day Forecast worksheet you started in the last part to make progress in this part.
In this video, students will learn how thermometers work. Ask your student, "What pattern do you observe with the thermometers?” When the temperature is warmer, the thermometer rises. When the temperature is cooler, the thermometer falls.

Prompt your student to log the weather on his or her recording sheet. Your student should log weather for day 5. Have your student look at his or her weather log. Ask him or her to consider how close the prediction was to being accurate. Your student will use the My 5-Day Forecast worksheet that he or she began in the last part. Your student should continue to make progress on the same worksheet and will not begin a new worksheet.

Please go online to view and submit this assessment.
Previously, you learned about thermometers. Now, you will learn about tools to measure wind. This will help you understand wind and rain. It will help you with your project.

You measured hot and cold.

Can you measure wind?

Soft wind blows leaves.

Strong wind blows trees.

Soft wind flies kites.

Hard wind knocks over bikes.

Can you act like the wind? Pretend that you are a tree in the wind. Show your Learning Guide how you would move. How would you move if the wind is strong? How would you move if the wind is light?

Now, let’s learn more about measuring the wind. Watch the video Meteorologists and Wind Tools (03:31). Talk to your Learning Guide. Explain two ways to measure wind.

TEACHING NOTES

Before the video, have your student pretend to be a tree in the wind. Have your student act out how the tree might move when the wind is blowing softly. Then, have your student act out how the tree might move if the wind is blowing harder.

The video explains how meteorologists measure wind using wind vanes and wind gauges. Ask your student, “When would you use a wind vane, and when would you use a wind gauge?” A wind vane tells the direction the wind is blowing from, and a wind gauge tells the speed the wind is blowing.
RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
How Can We Measure Weather? - Part 6

Previously, you learned how to measure wind. You can also measure the weather! Now, you will learn how to use weather tools. This will allow you to measure weather. In the project, you will measure temperature. You will learn how to measure temperature here. Taking measurements will help you in the project.

You are learning about weather tools.

Have you used a tool?

Maybe you used a hammer.

Have you used a weather tool?

Go to Dimensions: Unit 5, Weather Lesson 2, How Can We Measure Weather? Read Using Weather Tools (p. 198).

Your Learning Guide will draw a thermometer. Look at it. Is it showing a cold or warm temperature? How do you know it is cold or warm? What would happen if it got much warmer?

Study the rain gauge. How does a rain gauge work? What are the marks on the rain gauge for?

If you are using the e-text, study the windsock. Is the wind blowing hard or gently? How do you know how hard the wind blows? How would the windsock look if there was a lot of wind?

TEACHING NOTES

Direct your student's attention to the thermometer. Draw a simple thermometer on a piece of paper showing the indicator up to the 10°F mark. Ask your student, "Does this thermometer show a high temperature or a low temperature?" A low temperature. "What evidence supports your claim?" The liquid inside the thermometer stops at 10. "Which is a low temperature? What if it were very warm? What would the thermometer look like?" The liquid inside the thermometer would go much higher.
Direct your student’s attention to the rain gauge. Ask your student, “What is the pattern for how the rain gauge measures rainfall?” The rain gauge collects rainwater. The marks on the side of the rain gauge show how much rain has fallen.

If your student is using the e-text, guide your student to the windsock. If your student is using the textbook, have your student look at the windsock in Do the Math! (p. 199). Ask your student, “Is the wind blowing hard or gently?” The wind is blowing gently. “What evidence supports your answer?” There is not enough wind to fill the windsock, so it is limp. “How would the windsock look if it were windy?” The windsock would be filled with air and standing straight out.

To learn more about reading a thermometer, watch the video Reading a Thermometer (01:35).

Please go online to view this video.
How Can We Measure Weather? - Part 7

**Objectives**
- To be able to explain how to measure weather

**Books & Materials**
- Dimensions: Grade K
- Science Notebook
- Computer
- Crayons or colored pencils

**Assignments**
- Read Dimensions: Unit 5, Lesson 2, How Can We Measure Weather?

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**LEARN**

In the last part, you learned about thermometers. Thermometers measure temperature. Now, you will learn more about windsocks. A windsock measures wind. Measuring wind will help you with your project since you will need to predict if the next day will be windy.

Go to Dimensions: Unit 5, Weather Lesson 2, Using Weather Tools, (p. 198) to draw what a windsock looks like on a windy day.

What do you think a windsock will look like on a windy day? Draw what you think the windsock will look like in your Science Notebook or textbook.

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**TEACHING NOTES**

The activity is about drawing a windsock. Your student may use the drawing tools on the computer or draw the windsock in his or her Science Notebook. On a windy day, the windsock is full of wind. Encourage your student to use pictures and words. If your student needs help, you may wish to write out sentences.

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**RATE YOUR ENTHUSIASM**

Please go online to view and submit this assessment.
How Can We Measure Weather? - Part 8

Objectives
- To be able to explain how to measure weather

Books & Materials
- Dimensions: Grade K
- Computer

USE

You have learned that you can use tools to measure weather.

USE FOR MASTERY

Look at the pictures. Then answer the question.

What tools are pictured? What do they measure?

Write your answer in the space.

B  I  U  ☐  ☐  0 / 10000 Word Limit
If your student needs support, you may wish to have him or her return to *Dimensions*: Unit 5, Weather Lesson 2, How Can We Measure Weather? Access the section Using Weather Tools (p. 198). Have your student point to the liquid in the thermometer. Have your student move his or finger up the thermometer. Ask your student, "When does the liquid rise in the thermometer?" When it gets warmer. "What part of the thermometer shows a hot day?" When the liquid is near the top of the thermometer.

Then, point out the rain gauge. Have your student point to the collection area and the scale on the side. Ask your student, "What will happen when it rains?" Rain will collect in the gauge.
What Are Some Kinds of Severe Weather? - Part 1

Objectives
- To be able to describe patterns for different kinds of severe weather

Books & Materials
- Dimensions: Grade K
- Science Notebook
- Computer

Assignments
- Read Dimensions: Unit 5, Lesson 3, What Are Kinds of Severe Weather?
- Complete the Can You Explain It? activity

LEARN

VOCABULARY
- severe weather

Previously, you learned about measuring weather. Now you will learn about severe weather. You will research one type of severe weather for your project. Knowing about severe weather will help you choose a severe weather that happens near you. It will help you research it, too.

You know there are lots of kinds of weather.

Woosh! Crash!

It sounds like a storm.

But what is a storm?

Can you play in a park when there is a storm? Go to Dimensions: Unit 5, Weather Lesson 3, Engineer It: What Are Kinds of Severe Weather? Read Severe Weather (p. 209). This part shows what happens when a storm arrives. Look at the Can You Explain It? (p. 209). What would make the children go inside? Answer the question in your Science Notebook or textbook.

TEACHING NOTES

Have your student study the image of the storm. Ask your student, “Does it look like a good day to play outside? Why or why not?” No, because it looks like a storm is coming. “What do you think a picture might look like if it was taken soon after this one?” It would show a lot of rain falling.
Explain to your student what severe weather is. **Severe weather** is harsh weather conditions. There may be too much wind, rain, or snow. Weather that is too hot can also be severe.

The e-text has a video that shows a thunderstorm approaching and causing children to leave the park where they were playing. If you have access to the textbook, discuss the pictures at the top of the page. Focus your student to observe differences in weather.

Direct your student to the **Can You Explain It? (p. 209)**. Your student should identify what is shown in each picture before answering the question “What made the children leave the park?” A dark rain cloud.

✅ **RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
What Are Some Kinds of Severe Weather? - Part 2

In the last part, you started learning about severe weather. Now, you will learn about thunderstorms. Thunderstorms are a kind of severe weather.

Knowing about severe weather will help you in your project. You will need to find out about severe weather near you and explain why it happens.

Big booms!
Flashes of light!
Thunderstorms are loud!


TEACHING NOTES

Have your student observe the image and describe what happens during a thunderstorm. Explain that thunderstorms can happen anywhere that warm air meets cold air. However, this is not the only place thunderstorms can happen. Ask your student, “What problems do you think a thunderstorm might cause?” Strong winds can damage houses and trees. Lightning can harm whatever it strikes.

Then, have your student select the different parts of the storm to describe what happens during a thunderstorm. Have your student use his or her hands to make noises like a thunderstorm. Your student may clap his or her hands for thunder, brush his or her hands together for wind, or pat his or her legs to make rain sounds.
Stop before you start **Engineer It: Modeling Thunder**. That will be done in the next part. The next part has a hands-on activity. Read the teaching notes for the next part and prepare the required materials beforehand.

✅ QUICK CHECK

Please go online to view and submit this assessment.

💡 MORE TO EXPLORE

What happens in a thunderstorm? Watch the video [Thunderstorms](#) (04:01). The video shows thunderstorms.
What Are Some Kinds of Severe Weather? - Part 3

**Objective**
- To be able to describe patterns for different kinds of severe weather

**Books & Materials**
- Computer
- Small paper lunch bag
- Crayons

**Assignments**

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**LEARN**

Previously, you started learning about thunderstorms. Now you will do an activity about thunderstorms. Thunderstorms are a type of severe weather. Knowing about severe weather will help you in your project. You may want to research thunderstorms to explain what causes them.

Thunder is loud.

Really loud!

Let’s try to model thunder.

You will use the worksheet for Hands-On Activity Engineer It: Modeling Thunder (p. 211). You will need a paper bag and crayons for the activity.

You will show what thunder sounds like!

You will make a claim. You will provide evidence, too. Your Learning Guide will help you.

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**TEACHING NOTES**

In this Hands-On Activity, your student will use a model to mimic the sound of thunder. Access the worksheet for the activity, and help your student follow the instructions. Your student will need a paper bag and crayons in this activity.
Step 1: If your student needs support writing questions, remind him or her that questions often begin with words such as who, what, why, when, and where.

Step 2: Suggest that your student take a deep breath and then hold the top of the bag over his or her mouth and exhale into the bag. Have him or her squeeze the top of the bag closed after breathing into it. Then, have your student hit the bag on the bottom hard, as if he or she were clapping hands. Your student may need to repeat this step several times to get the bag full of air in order to make a noise when it pops.

Step 3: Guide your student in seeing the connection that hitting the bag is similar to when lightning strikes and makes thunder.

Your student should make a claim that he or she made a sound similar to the sound of thunder. Your student should cite evidence that the bag burst and made a loud popping sound when he or she hit it. Ask your student, “What questions do you still have about thunder?” Suggest your student research to find the answers to his or her questions. Your student can use the following websites to read more about thunder:

- Weather Wiz Kids
- National Geographic Kids
- Weather for Kids

You may use the following rubric to evaluate the activity.

<table>
<thead>
<tr>
<th>Scoring Rubric for Hands-On Activity</th>
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<tbody>
<tr>
<td>3</td>
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</table>

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
What Are Some Kinds of Severe Weather? - Part 4

Previously, you did an activity to learn about thunderstorms. Now, you will learn about winter storms. Winter storms are a type of severe weather. Knowing about severe weather will help you in your project. You will need to find out about severe weather near you and explain why it happens.

Thunderstorms are a kind of storm.

Do you know any more storms?

Go to Dimensions: Unit 5, Weather Lesson 3, Engineer It: What Are Kinds of Severe Weather? Read Winter Storms (p. 214). Thunderstorms and winter storms are both storms. But they have different kinds of weather. Answer the questions about thunderstorms and winter storms in your Science Notebook or textbook. Skip the section about writing a story.

Have your student study the images. Then, ask your student to communicate what he or she learned from the images. Guide your student to observe details such as ice covering the trees and large piles of snow. Have your student discuss what he or she thinks the temperature might be and why. Guide your student to understand that during a winter storm the temperature is usually very cold.

Discuss if winter storms occurs in your area. Have your student explain why or why not. Your student should cite temperature as evidence to support his or her claim about why winter storms do or do not take place, noting that winter storms happen in cold weather. Ask your student, “In addition to low temperatures, what other patterns about winter storms can you observe?” Winter storms have ice and snow. Sometimes, it can be windy. This section has a section telling your student to write a story about a blizzard. This is a good activity to do after the lesson. Skip it for now.
Continue with the next section. This section shows images of thunderstorms and winter storms or blizzards. Have your student observe the photographs and share what he or she observes about the weather in each picture. Then, have your student categorize each image. The images showing snow are winter storms. The images showing lightning are thunderstorms. Ask your student, “How are the patterns for thunderstorms and winter storms different?” Winter storms happen when there is cold weather and snow. Thunderstorms happen when there is warm weather. “How are the patterns for thunderstorms and winter storms alike?” Both have strong winds. “What kind of place might have both winter storms and thunderstorms?” A place that has cold winter weather and warm or hot spring and summer weather.

You can use the following website to check what kinds of severe weather happen in your state: NOAA's National Weather Service

✅ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Previously, you learned about winter storms. Now, you will learn about tornadoes. Tornadoes are a kind of severe weather. You will research one type of severe weather for your project. Knowing about severe weather will help you choose a severe weather to research.

You know that thunderstorms have a lot of wind.

Winter storms can have wind, too.

What are some storms with really big winds?

Weather Wiz Kids: Tornadoes

Ask your student, “What shapes are these tornadoes?” Long and thin; funnel shaped. Explain that tornadoes have very strong winds.

Ask your student, “What is the effect of strong winds?” They can destroy buildings and uproot trees.

✔ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
What Are Some Kinds of Severe Weather? - Part 6

Previously, you learned about tornadoes. Now, you will learn about hurricanes. Hurricanes are a kind of severe weather. Knowing about severe weather will help you in your final project.

Tornadoes have strong winds!

So do hurricanes.

Let’s learn more.

Go to Dimensions: Unit 5, Weather Lesson 3, Engineer It: What Are Kinds of Severe Weather? Read Hurricanes (p. 217). Hurricanes happen close to the ocean and can cause a lot of damage. They also have very strong winds. If objects are left outside during a hurricane, they can be picked up by the wind. Look at the image of the objects in the yard. Which objects should you bring inside during a hurricane? Answer the question in your Science Notebook or textbook.

TEACHING NOTES

If your student has access to the e-book, have him or her watch the video. If your student has access to the textbook, have him or her study the images. Explain that a hurricane is a tropical (or warm weather) storm with heavy rain and strong winds. Most hurricanes form near warm ocean water. Ask your student, “Would a hurricane form where we live?” Explain that hurricanes have winds strong enough to blow down trees. They can cause huge ocean waves. If the waves reach the shore, they may flood the land.

Ask your student, “What weather patterns are associated with hurricanes?” Strong winds, heavy rain, and possibly flooded land.
Remind your student that a hurricane has very strong winds. Discuss the effect of strong winds on objects outdoors. Ask your student, “What can a strong wind do to a plastic chair?” A strong wind can blow the chair around. “How can you prevent the strong winds of a hurricane from damaging objects that are usually left outdoors?” You can bring the object indoors. Objects like bicycles and toys should be brought in. Pets should also be brought in. “How is this part of a pattern?” Moving things indoors when a hurricane is on its way is done by people over and over, each time we learn a hurricane is coming.

Guide your student to identify which objects should be brought inside during a hurricane. Your student should identify that the pet, ball, and bike should be brought inside, but the swing set would remain. If your student questions the swing set, discuss that the swing set poles are buried in the ground. The owner might remove the swing and bring the rest inside.

☑️ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
# What Are Some Kinds of Severe Weather? - Part 7

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Books &amp; Materials</th>
<th>Assignments</th>
</tr>
</thead>
</table>
| - To be able to describe patterns for different kinds of severe weather | - Computer | - Watch Severe Weather video  
- Watch What Is a Tornado? video |

## LEARN

Previously, you learned about kinds of severe weather. You learned about thunderstorms, blizzards, tornadoes, and hurricanes. Now, you will do drawings of severe weather. You will research one type of severe weather in the project. Knowing about severe weather will help you choose a severe weather. It will help you research it, too.

Watch the video *Severe Weather* (04:25) to review what you have learned. The video shows different types of severe weather. You will stop the video and make drawings in your Science Notebook of each type of severe weather. Stop the video after each severe weather. Talk to your Learning Guide about that weather. Write the name of the severe weather in your Science Notebook. Draw what the weather looks like.

Please go online to view this video ▶

## TEACHING NOTES

This video is an overview of different types of severe weather including tornadoes, blizzards, hurricanes, floods, and droughts. After each type of severe weather is described, ask your student to pause the video to discuss the characteristics of each type. Then, have him or her write the name of the weather and a quick sketch in the Science Notebook. Continue for the remaining examples of severe weather. Ask your student, “If you saw a severe storm, how might you record this in your weather log?”

## QUICK CHECK

Please go online to view and submit this assessment.
What is a tornado? Watch the video *What Is a Tornado?* (03:46) to learn more about tornadoes.

Please go online to view this video ▶
Previously, you learned about types of severe weather. Now, you will see pictures of more types of severe weather. You will research one type of severe weather in the project. Knowing about severe weather will help you choose a severe weather. It will help you research it, too.

You have learned about severe storms. There are other types of severe weather, too.

There are floods.

There are droughts.

Let's keep learning.

Let's learn about other types of severe weather. Look at a website about severe storms. Look at the images. The website shows floods. It shows tornadoes, thunder storms, and blizzards, too. Talk about what you see with your Learning Guide. Then talk with your Learning Guide about what type(s) of severe weather you have seen or if any severe weather occurred during your forecast. You can also talk about what type(s) of severe weather you would like to see.

This slideshow shows different severe storms and their impact on Earth. During the slideshow, your student uses arrows to advance to see images of different storms. Read the text at the bottom of the screen to your student, and then discuss the different forms of severe weather. The slideshow will advance automatically, or your student can use the up and down arrows to the left to navigate and progress through the screens.
RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
What Are Some Kinds of Severe Weather? - Part 9

Objectives
- To be able to describe patterns for different kinds of severe weather

Books & Materials
- Dimensions: Grade K
- Computer

USE

In this lesson you learned about severe weather.

USE FOR MASTERY

Look at the picture. Then answer the question.

What best describes the weather shown in the picture? What else would you see? What do you expect to happen in such weather? Write your answer in the space below.
Look at the picture. Then answer the question.

What best describes the weather shown in the picture? What else would you see? What do you expect to happen in such weather? Write your answer in the space below.

USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Indicate what kind of weather event is shown in the picture?
- Explain what else you would normally see during this kind of weather event?

TEACHING NOTES

If your student needs support, you may wish to have him or her return to Dimensions: Unit 5, Weather Lesson 3, Engineer It: What Are Kinds of Severe Weather? and read Thunderstorms (p. 210).

Have your student describe what he or she sees in the image. Your student should identify dark clouds, lightning, and rain.

To learn how to stay safe in a storm, watch the video Thunderstorm Safety (02:03). The video shows how to stay safe during a thunderstorm.
What Are Some Kinds of Severe Weather? - Part 10

Objectives
- To be able to describe patterns for different kinds of severe weather

Books & Materials
- Computer

SHOW

DESCRIBING SEVERE WEATHER

Wow! Storms can be scary.

Do you have any storms where you live? Did you record any severe weather on your My 5-Day Forecast?

If severe weather happened during your 5-Day Forecast, you will need to research that type of weather to learn more about it. Your Learning Guide will help you choose a type of severe weather to research. You can also use NOAA’s Storm Prediction Center to find the severe weather in your state.

Once you know what type of severe weather you will research, look at The National Severe Storms Laboratory website to see the different types of severe weather. Choose the type of weather that happened in your state to learn more about it.

TEACHING NOTES

Your student will research common types of severe weather in his or her state. Your student will then select one type of severe weather. He or she will predict why the chosen severe weather occurs and do research about it. This will take 2 days to complete.

You can use NOAA’s Storm Prediction Center website to check what kinds of severe weather happen in your state.

You can use The National Severe Storms Laboratory website to research types of severe weather. Have your student read about common types of severe weather seen at your state.

Then, have your student choose one type of severe weather. If any type of severe weather occurred while your student was observing the weather for the project, then your student should select that type of weather. If no severe weather occurred, discuss what types of severe weather are seen in your state, and have your student select one.

Stop after selecting a type of severe weather.
RATE YOUR PROGRESS

Please go online to view and submit this assessment.
You picked a type of severe weather.

Now, let's learn more about it. Think about why this weather happens. Discuss with your Learning Guide. Then, make a prediction: Why does this type of weather occur? Have your Learning Guide help you write your answer in your Science Notebook.

Read more about this weather. Why does the severe weather occur? Is your prediction correct?

Discuss with your student the severe weather he or she chose. Have him or her explain the conditions. Then, discuss why that type of weather may be occurring. Have your student make a prediction and write it in his or her Science Notebook. You can be a scribe for your student if needed. Discuss with your student if his or her prediction is correct.

Review the rubric with your student to discuss your student's progress so far.
**COLLABORATION**

Share the scariest severe weather that you can remember with others in your group.

Also share if any severe weather happened when you were making your forecast. Be sure to comment on others’ experiences.

**RATE YOUR PROGRESS**

Please go online to view and submit this assessment.
How Can Forecasts Help Us? - Part 1

Objectives
- To be able to explain how to get ready for severe weather

Books & Materials
- Dimensions: Grade K
- Science Notebook
- Computer

Assignments
- Read Dimensions: Unit 5, Lesson 4, How Can Forecasts Help Us?
- Complete the Can You Explain It? activity

LEARN

VOCABULARY
- weather forecast

People need to prepare for severe weather. How do people know when severe weather will come? They use weather forecasts!

You made a weather forecast for your project when you completed the My 5-Day Forecast worksheet. Each day, you made a prediction about what weather would happen the next day. People who predict the weather and make forecasts are called meteorologists.

How do you think forecasts can help us? Talk about this with your Learning Guide. Do you think your forecast could be better? Let’s read to find out how to improve your forecast.

To learn about how to get ready for severe weather and how forecasts help us, go to Dimensions: Unit 5, Weather, Lesson 4, How Can Weather Forecasts Help Us? Read Plan for Severe Weather (p. 225). This reading shows different items that can help in severe weather. Complete the Can You Explain It? (p. 225) to think about how the things in the bag can help you during severe weather. Record your answer in your Science Notebook or textbook.

TEACHING NOTES

This lesson is about weather forecasts and preparation for severe weather. Draw your student’s attention to the image of the thunderstorm at the cover of the lesson. Ask your student, “What kind of weather may have lightning like this?” The weather could be a thunderstorm. Lead your student in a discussion of how he or she might stay safe in a thunderstorm.
Go to Dimensions: Unit 5, Weather Lesson 4, How Can Weather Forecasts Help Us? Have your student study the bag in Plan for Severe Weather (p. 225). Have your student point to the bag and then select each object in the bag one at a time. After selecting each object, discuss the different objects needed for a severe weather safety kit. Allow your student to discuss his or her ideas about the importance of each object.

Ask your student what the purpose of these items are. There are some answer options. They are: Keep you safe, make you laugh, and keep you warm. Read the answer options to your student. Your student should choose the phrase that answers the question on the page. The correct answer is that the items keep you safe.

☑ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
How Can Forecasts Help Us? - Part 2

Previously, you saw what can help during a thunderstorm. Now, you will learn about weather forecasts. Weather forecasts predict the weather. Part of the project is predicting the weather. Knowing more about predicting the weather will help you make good predictions. This will help you in your project.

You can prepare for severe weather. You can pack a bag to have some items. These items help keep you safe.

But how do you know a storm is near?

Go to Dimensions: Unit 5, Weather, Lesson 4, How Can Weather Forecasts Help Us? Read Weather Forecast (p. 226). Weather forecasts are predictions of what the weather will be like.

Complete the Do the Math! (p. 227) to observe the kinds of weather in each month. Count the sunny days in each month. Which month has more sunny days? Write the answer in your Science Notebook or textbook.

As needed, read the text to and with your student. Discuss what the word prediction means with your student. Then, explain that weather prediction is about what the weather will be in the future. Discuss that a meteorologist is a weather scientist. Meteorologists use maps and other weather information to predict the weather. This is called a forecast.

Ask your student, “Which meteorologist is preparing a forecast?” The one at the computers. “What is he doing to prepare?” He is studying weather maps of weather conditions.
Explain that part of making a weather forecast is looking for patterns. These patterns can take place over a few days, weeks, or even seasons. Ask your student, “What does a weather forecast include?” Information about temperature, wind, and precipitation.

Discuss how meteorologists use weather maps to show the weather in different places. The map displayed shows weather, so people can prepare. Ask your student, “How many places have rainy weather?” Two. “How many places have sunny weather?” Four.

If your student has difficulty answering, point out that the symbols show the types of weather similar to his or her weather log.

For Do the Math! (p. 227) have your student look at the calendars. Explain that the calendars show weather for 2 months. Explain that one of the months is in winter, and the other is in the summer. Ask your student, “How will you find out which month has more sunny days?” Count the sunny days in each month. Then, compare the number of sunny days in each month to see which month has the greatest number of sunny days.

Your student should indicate that July has more sunny days.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Previously, you learned about weather forecasts. Now, you will watch a forecast. Weather forecasts predict the weather. Knowing more about predicting the weather will help you make good predictions. This will help you in your project.

Weather forecasts can help us stay safe.

Let’s watch one!

Watch the video How Meteorologists Predict Winter Weather (02:09). Watch the meteorologist. He is predicting the weather. Pause the video at 00:48.

What is the meteorologist using to make the prediction? Talk about what the meteorologist is using or write the answers to your Science Notebook. Then play the rest of the video.

Do you think this is a good way to predict the weather? Talk about this with your Learning Guide or write the answers in your Science Notebook.

The video shows a meteorologist using computer and weather data to make a weather forecast. Pause the video at 00:48 and discuss what the meteorologist is using to make the prediction. Then play the rest of the video. Discuss with your student if this is a good way to predict the weather. Your student may respond that computers are reliable so they are good at predicting the weather. Your student may also answer that the computer may have the wrong data and it’s better to look outside to tell the weather. Accept all reasonable responses.
**QUICK CHECK**

Please go online to view and submit this assessment.

**MORE TO EXPLORE**

Do you want to see more symbols? Watch the video *Grover Weather Monster* (02:37). The video shows symbols you see on weather maps.

Please go online to view this video ▶
Previously, you watched a weather forecast. Now, you will learn how to prepare for the weather. You will use weather forecasts.

Have you or your family ever planned a trip? When you plan for a trip, you also need to check the weather forecast. Checking the weather forecast will help you know what to pack for your trip.

Let’s see how a weather forecast can help you plan for a trip.

Go to Dimensions: Unit 5, Weather Lesson 4, How Can Weather Forecasts Help Us? Read Prepare for Weather (p. 228). Study the weather map. Look at Maria's clothing. How did Maria know how to dress for the day? Discuss this with your Learning Guide.

Have your student study the image showing Maria at the bus stop. Explain that the weather map can be used to understand the current weather conditions. Ask your student, "What do you notice about the map?" It uses symbols and color to tell the weather.

Show your student another example of a weather map, such as this weather map. Have your student study the map. Discuss how the map uses colors and symbols to describe the weather. Use the map to predict the weather where you are and how to prepare for it.
There are other ways to get warnings, too. Let’s find out how to get warnings.

How Can Forecasts Help Us? - Part 5

LEARN

INTERACTIVE ACTIVITY

Forecasts can help us!

They can tell if it is too hot.

They can tell if it is too cold.

They can even help you pack for a trip!

Go to the You Solve It! Simulation: Plan a Trip!
Follow the steps and complete the simulation. Your Learning Guide will help you.

This simulation is about an imaginary family vacation. You will look at a 5-day weather forecast to see the predicted weather. Then, you will use that information to plan activities and pack a suitcase.

TEACHING NOTES

This simulation is about an imaginary family vacation. The simulation will be completed in a single day.

Slide 1: Introduces your student to the activity. Ask your student, “What information would you need from a forecast?” Possible responses: temperature, rainfall, and possible storms.

Slide 2: Your student views a 5-day weather forecast and counts the number of days of each type of weather. Answers: sunny (1), cloudy (2), cloudy and rainy (2), cloudy, rainy, and stormy (1).
Slide 3: Your student sees a similar forecast. This time, instead of weather symbols, there are thermometers. Point out that there are three colors. Red represents hot, yellow represents warm, and blue represents cold. Your student counts the number of each type of weather. Answers are hot (1), warm (3), cool or cold (1).

Slide 4: Students look at the data and identify patterns. Your student identifies what the weather is mostly like. Answer: mostly cloudy.

Slide 5: Your student describes what the temperature will be like most of the week. Answer: warm.

Slide 6: Your student will pack a suitcase and choose activities.

Choose an activity: Your student uses the weather data to choose three appropriate activities. If your student selects a cold weather activity, he or she will be prompted to try again. Correct answers include: board games, visit the zoo, camping, hiking, visiting a museum, having a picnic, and going to the beach.

Pack a suitcase: Your student uses the weather data to pack six appropriate items in the suitcase. If your student packs a cold weather item, he or she will be prompted to try again. Correct answers include: shirt, shorts, swim trunks, sandals, sun hat, and sunscreen.

Screen 7: Your student receives a report of all of his or her choices and has the option to print.

✅ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
You planned for a trip during the simulation in the last part. Now, you will prepare your own weather alert. Weather alerts use weather forecasts. Having an accurate forecast is very important so that people can be alerted to severe weather approaching.

What do you remember about weather alerts? Weather alerts may be sirens. They may be phone messages. Weather alerts warn you. They help you prepare for severe weather.

What kinds of severe weather are where you live? You can use the Storm Prediction Center to find out what type of severe weather happens where you live.

Choose a type of severe weather that happens in your state. Write it in your Science Notebook. Then, design a weather alert. Think and decide on the following:

- When does the weather alert go active?
- How does the alert notify people?

Discuss what you think with your Learning Guide. Then, write down the answers in your Science Notebook.
Then, have your student select a severe weather type seen where he or she lives. You can use the following [Storm Prediction Center](https://www.spc.noaa.gov/) website. To find the severe weather in your state, scroll down to the table that reads "State Tabulation" (lower right) and click on your state. It will tell you the frequency of severe storms in your state. Your student can select a severe weather type he or she used during *What Are Kinds of Severe Weather?* or your student can select a new one.

Then, encourage your student to think about what a weather alert is. A weather alert needs a triggering condition. It also needs a communication channel to notify people. Have your student decide on these. The trigger should be related to the severe weather type. A hot weather warning may go active if the temperature rises above 100 degrees, for example.

For communication channels, the textbook listed siren, TV, and cell phone. Possible other channels include radio, newspapers, and email.

✅ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
LEARN

Previously, you made a weather alert. Now, you will learn how to stay safe in severe weather. In your project, you will discuss severe weather. Knowing more about predicting the weather will help you make good predictions. This will help you in your final project.

You selected a kind of severe weather in the last part for your weather alert. Safety kits are important to have in case of severe weather. What would you put in your safety kit? You will use the kit during that type of severe weather. Decide what is in the kit.

Then, in your Science Notebook, draw the kit. Write the names of all the items in the kit.

TEACHING NOTES

Discuss what can go wrong in severe weather. Share that severe weather can cause a community to lose electrical power. Having food, water, batteries, and other supplies on hand can help people keep safe. Have your student identify supplies in a weather safety kit and say why they might be important during severe weather. Ask your student, “Suppose you had to leave your home during severe weather. What things would you need to have?” Food, water, a light source, and a radio or other way to keep track of the storm.

Discuss the different objects in the weather safety kit. Guide your student to understand that a radio and lantern use batteries and do not have to be plugged in. Ask your student, "Why is it important to have water and canned food in the kit?” People need water and food every day. Stores may be closed during severe weather.

Ask your student to draw a picture of an emergency kit and its supplies in his or her Science Notebook. Discuss what your student included and what else might be added.
QUICK CHECK

Please go online to view and submit this assessment.

How can we prepare for severe weather? Watch the video Disaster Dodgers: Severe Weather (07:22). The video shows how to prepare for severe weather. Start the video at the 01:23 mark. Stop at the 06:45 mark.
Previously, you learned to prepare for severe weather. Now, you will learn how to prepare for a certain type of severe weather, tornadoes. Tornadoes can happen in many places where there are severe thunderstorms. In your project, you will talk about severe weather. Knowing more about predicting weather will help you make good predictions. This will help you in your project.

People plan for severe weather, including tornadoes. Watch the video *When the Storm Comes* (01:30) to see how people prepare for tornadoes. Talk to your Learning Guide about what you learn.

Please go online to view this video ▶

This video discusses how to plan for a tornado. It emphasizes finding a shelter, making a kit, and monitoring for weather alerts. Ask your student to explain how he or she might plan for other types of storms. What would he or she do that is the same? What would he or she do differently?

Look at the map. The map shows where tornadoes happen often. Do any tornadoes happen in your area? If they do, how many tornadoes occur?

![Annual Tornado Reports](http://climatemaps.co.cc)
Have your student use the map to determine if tornadoes occur in your state. You may need to help your student identify your state on the map. Then use the key to see how many tornadoes occur in your state.

It is now time to prepare a kit.

Look around where you live. Think of what you learned. Discuss with your Learning Guide what you would put in a severe weather kit.

If tornadoes do not occur in your area, what would you tell someone to put in his or her severe weather kit?

Walk around the home where your student lives. Have your student point out to you what he or she would need in a severe storm. Make a list of things he or she points at. Make sure to include basics like food, water, radio, and batteries.

Please go online to view and submit this assessment.
In this lesson, you learned how forecasts help us. To review the lesson, look at pictures of storms.

USE FOR MASTERY

Look at the picture. Then answer the question.

How is the weather where it is marked with X? The X is at the top of the map. What kind of clothing would a person living near X need? Write your answer in the box.

How is the weather where it is marked with X? The X is at the top of the map. What kind of clothing would a person living near X need? Write your answer in the box.
USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Write 2-3 sentences describing what kind of weather is shown where the X is, and what kind of clothing a person living near X would need?

TEACHING NOTES

If your student has problems locating the X, it is near the rain icon on the top center of the United States map. Point this out to your student. Discuss with your student what a person may need during rain. Sample answers include raincoats and umbrellas. Some students may also mention warm clothing.

If your student mentions a way to avoid rain and mentions warm clothing, give a complete score.
You’ve learned a lot about weather! Now you will continue to work on your project. The project will take two parts to complete. To complete your project, you will need to:

- Decide if your forecast was correct.
- Think of three ways to make your forecast better.
- Turn in your research on severe weather in your area.

In this part, you will think of ways to improve your weather forecast.

Look at your 5-Day Forecast worksheet. Also, look at your severe weather research.

How was your forecast?

What would you change to make it better?

Think of three ways to improve your weather forecast. Think of what you learned about weather. Weather forecasts are on TV. They are on the Internet, too. Write down or record your answers in your Science Notebook.

Review the Project Rubric so that you are sure to cover everything in your project.

TEACHING NOTES

Today is the first part of the final project for the unit. The project will take two parts to complete. Your student will submit two things for the SHOW. Your student will first evaluate if his or her weather forecast was accurate or not. Then, your student will think of three ways to make the weather forecast more accurate. Your student will also submit his or her research on a type of severe weather that is seen in the state where he or she lives.

Your student can write down his or her answers, or you will need to write them for your student. You will need to upload the parts of the project at the end of the second part.
Now, your student’s task is to evaluate his or her weather forecast. Have your student check the weather forecast that he or she completed in *How Can We Measure Weather?* Discuss the accuracy of the forecast with your student. It is okay to be inaccurate—even meteorologists often get the weather wrong.

Discuss ways your student could make the forecast more accurate. Your student has learned about weather forecasts in Lessons 3 and 4. Your student can check daily weather reports on the television or the Internet to make better forecasts. Your student can also check historical weather data, using the Internet, to guess how the weather was before.

✅ RATE YOUR PROGRESS

Please go online to view and submit this assessment.
Show: How Can We Observe Weather Patterns - Part 2

**Objectives**
- To complete the weather forecast

**Books & Materials**
- 5-Day Forecast worksheet
- Computer

Today is the second part of the project. For your project, you will:

- Decide if your forecast was correct.
- Think of three ways to make your forecast better.
- Turn in your research on severe weather in your area.

You did the first two of these in the last part. Today, you will do the third part.

Read the severe weather report you made. Do you think it is accurate? Read more about the severe weather you chose. Make sure you understand why this type of weather happens. Then, explain to your Learning Guide why it happens. Write down or record your answers.

Once you are done, upload your project. Make sure your final project includes:

- Your 5-Day Forecast weather prediction report with predictions, pictures, and temperatures.
- Your evaluation of your forecast.
- Your severe weather report.

**TEACHING NOTES**

Your task now is to review the research your student did the second time he or she made progress on the project.

Have your student explain to you why the selected type of severe weather occurs. Your student may have noticed severe weather that happened during his or her forecast. Or perhaps your student has researched the most common severe weather occurring in his or her state. Have your student read more about the chosen severe weather. You can use the following websites to research types of severe weather:

- [The National Severe Storms Laboratory](#)
- [The National Weather Service: Severe Weather Definitions](#)
Once your student can explain the severe weather, have him or her modify the initial report if he or she thinks it is needed. Your students can write down his or her answers in the Science Notebook. Once the report is ready, upload the weather prediction report and the severe weather report.

Make sure your student submits:

- The weather prediction report with predictions, pictures, and recorded temperatures. This comes from the end of What Are Kinds of Severe Weather? It is the My 5-Day Forecast worksheet.
- An evaluation of his or her predictions. This is a written evaluation from Part 1 of SHOW.
- An evaluation of his or her severe weather report. This is a written evaluation from this part.

**FINAL PROJECT**

Upload your work below.

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

**COLLABORATION**

Talk with other students in your group about the accuracy of your forecast. Share what you can do to improve accuracy. Share the type of severe weather you chose and how it happens.
UNIT QUIZ

Please go online to view and submit this assessment.
Unit 5 - Earth's Resources
What Are Natural Resources? - Part 1

LEARN

VOCABULARY

- natural resources
- resource
- renewable
- nonrenewable

Every day you use resources. All of the resources come from our planet, Earth. A resource is something we use. Resources are things Earth gives us. Some resources are renewable. This means they can be used over and over. Some resources are nonrenewable. This means they get used up and cannot be used over and over again. Sometimes, Earth's resources are called natural resources. These come from Earth. Can you think of any resources we get from Earth? Talk about this with your Learning Guide. Now, let's watch the BrainPOP Jr. video Natural Resources (05:06). Think about this question as you watch: How do you use natural resources?

In your Science Notebook, draw pictures of three natural resources you saw in the video.

TEACHING NOTES

Before watching the video, write these words in your student's Science Notebook: natural, resource, renewable, and nonrenewable. Review each word. Circle new in renewable and nonrenewable. Explain that Earth can make some new resources (renewable). Earth cannot make other resources quickly (nonrenewable).
What Are Natural Resources? - Part 1

LEARN VOCABULARY
natural resources
resource
renewable
nonrenewable

Every day you use resources. All of the resources come from our planet, Earth. A resource is something we use. Resources are things Earth gives us. Some resources are renewable. This means they can be used over and over. Some resources are nonrenewable. This means they get used up and cannot be used over and over again. Sometimes, Earth's resources are called natural resources. These come from Earth. Can you think of any resources we get from Earth? Talk about this with your Learning Guide. Now, let's watch the BrainPOP Jr. video Natural Resources (05:06). Think about this question as you watch: How do you use natural resources? In your Science Notebook, draw pictures of three natural resources you saw in the video.

Objectives
To model the relationship between natural resources and how people use them to meet their needs
To identify air, water, rocks, and soil as natural resources
To use evidence to explain that living things need water, air, and resources from land

Books & Materials
Science Notebook
Computer
Crayons and pencils
Paper

Assignments
Watch BrainPOP Jr.'s Natural Resource video
In Science Notebook, draw pictures of three resources from the video

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
In the last part, you learned about natural resources. Breathe in. Blow out. Guess what you learn about today? You are right. It's air. First, let's look at a picture. Open *Dimensions*: Unit 6, Lesson 1: *What Are Natural Resources?* (pp. 246-257). Remember what you learned already about natural resources. Now, look at the picture of the stream in the forest and point out the natural resources. What do you see? Answer in your Science Notebook.

**ANSWER**

Air or wind

Next, go to *Can You Explain It!* in *Dimensions*, Unit 6, Lesson 1: *What Are Natural Resources?* (p. 247). Read the text about natural resources. Then, read the text for *Can You Explain It!* What resources come from nature? Identify all of them and record your answers in your Science Notebook or textbook.
Now, let's learn about air. First, watch the Discovery Education video *Air Is All Around Us* (01:18). Go to *Dimensions*: Unit 6, Earth's Resources: *Air* (pp. 248–249). Read about why air is a resource. Why do you think a sailboat needs air? What is the boy doing with air? Write your answers in your Science Notebook or textbook.

Explain that wind moves the sailboat. Air fills the sails and pushes the boat over water. The boy is blowing up a balloon. He is using air in his body to blow it up.

Move ahead to the next activity. Read the first part of the text and the directions to your student or have him or her listen to the narration. Then, read the response section.

Next, let's look at the picture of the children in the park. Air is all around us. Select the ways the children are using air.

Did you point to the boy blowing on the dandelion? He is using air to blow. Did you point to the boy blowing bubbles? He is filling each bubble with air. Did you find the girl blowing up the balloon? She is blowing air into the balloon.

Now find the section *Apply What You Know: Do the Math!* in *Dimensions*: Unit 6, Lesson 1: What Are Natural Resources?: *Air* (p. 249). You breathe air in and out of your body all the time. How often do you breathe?

To do this activity, you will need a piece of paper, a timer, and a pencil.
Start by putting your hand on your chest. Your Learning Guide will time 30 seconds. You will count how many times you breathe in that time. Do not try to breathe fast or hold your breath. Just breathe the way you normally do. Ready? Begin. Count the number of breaths you take in 30 seconds.

How many breaths did you take in 30 seconds?

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**TEACHING NOTES**

Add *air* to the word list.

For the activity, your student will place his or her hand on his or her chest and record how many breaths he or she takes in 30 seconds. If a stopwatch is not available, use a clock with a second hand.

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**RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
What Are Natural Resources? - Part 3

### Objectives
- To model the relationship between natural resources and how people use them to meet their needs
- To identify air, water, rocks, and soil as natural resources
- To use evidence to explain that living things need water, air, and resources from land

### Books & Materials
- Dimensions: Grade K
- Science Notebook
- Computer
- Crayons and pencils

### Assignments
- Read Dimensions: Unit 6, Lesson 1, What Are Natural Resources?
- Watch Discovery Education Water video
- Watch the Importance of Water video; see why water is important

### LEARN

In the last part, you learned about air. Tell your Learning Guide one thing you learned about air. Today, you will learn about water. Water is another natural resource. You need water every day. Let’s watch the Discovery Education video [Water](01:05). How do you use water?

Now, let's go to Dimensions: Unit 6, Lesson 1: What Are Natural Resources? [Water](pp. 250-251). Do the activity showing how natural resources are being used. Record your answers in your Science Notebook or textbook. Then, tell your Learning Guide how the people are using water.

Next, open your Science Notebook. Draw a picture of an animal using water. Explain to your Learning Guide why animals need water.

### TEACHING NOTES

There is a difference between the e-text and textbook for the activity. If your student is using the e-text, he or she should identify the girl blowing a whistle and the glider as using air. The person washing hands and the sprinkler are using water. If your student is using the textbook, he or she only needs to identify the person washing hands and the sprinkler as using water.

Have your student add water to the natural resources vocabulary list in the Science Notebook. Your student will be drawing a picture of an animal using water. He or she may draw a picture of an animal drinking or bathing in the water. Discuss with your student why this water is a natural resource. Your student should discuss that it happens naturally in the environment and does not get used up.

### QUICK CHECK

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

To learn more about water and why it important, watch the video *Importance of Water* (05:40). Talk with your Learning Guide about why water is important.

Please go online to view this video ▶

TEACHING NOTES

As your student watches the video *Importance of Water*, talk with him or her about the different uses of water and why water is important.
What Are Natural Resources? - Part 4

You wash in water. You drink water. Tell your Learning Guide something else you learned about water. Sometimes, you throw a rock in water. A rock is another natural resource. In this part, you will learn about rocks. They are useful in many ways. Let's watch the video *What Are Rocks?* (1:16) to see why rocks are useful.

Discuss the video content with your student. What are rocks? They are mixtures of minerals combined to form a solid substance. Ask: Where have you seen rocks? Your student has probably seen rocks in a field, while on a hike, or along a river. Your student may have thrown a rock in the water or skipped a stone.

Now, let's go to *Dimensions*: Unit 6, Lesson 1: What Are Natural Resources? *Rock* (pp. 252-253). Learn about ways rock are used. In your Science Notebook or textbook, draw a picture of another way to use rocks.

Read the text and directions for your student. You will need plain paper and crayons for this part. If you have any rocks available, you might wish to have a tangible model for your student to handle.

After your student has finished circling the ways that rock is being used, review the answers. The picture shows a rock wall and rock in the road.
Move to the picture of the castle in *Dimensions: Unit 6, Lesson 1: What Are Natural Resources? Rock* (p. 253). Which parts of the castle are made of rock? Choose those parts and tell your Learning Guide why you think rocks are a resource.

Next, open your Science Notebook. Draw a picture of something that is made of rock. Explain to your Learning Guide how rock is useful.

Add the word *rock* to the list in your Science Notebook.

**TEACHING NOTES**

Try to look for unusual uses of rock. Rock such as agate is made into jewelry. Rock such as marble is carved into statues. Ground-up rock such as malachite is used to make lipstick. Rock makes gravestones, beach sand, glass, and fireplaces. Before your student does a drawing, talk about all the different uses we have for rock. You will find minerals, such as gold and copper, in your computer and cell phone. These minerals are found buried within rocks. They are mined or dug up, and then processed into their usable forms.

The castle is made of rock. The building itself, the walls, the bridge, and the fence surrounding the castle are all made of rock.

**RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
What Are Natural Resources? - Part 5

**Objectives**
- To model the relationship between natural resources and how people use them to meet their needs
- To identify air, water, rocks, and soil as natural resources
- To use evidence to explain that living things need water, air, and resources from land

**Books & Materials**
- *Dimensions*: Grade K
- Science Notebook
- Computer

**Assignments**
- Read *Dimensions*: Unit 6, Lesson 1, What Are Natural Resources?
- Complete the ScienceFusion Virtual Lab: What Can We Observe About Rocks?

**LEARN**

**INTERACTIVE ACTIVITY**

In the last part, you learned about rocks. You know rocks are hard. They come in different sizes. They are very useful. They can be used to build castles. They can be used to make fences. Now, you will start a ScienceFusion Virtual Lab: What Can We Observe About Rocks?

A virtual lab is a science experiment you do on your computer. It is a lot like a video game. If you do not understand how to do this virtual lab, ask your Learning Guide for help.

Are you ready? Let’s find out what we can observe about rocks! Follow the steps in the virtual lab. You will complete screens 1 to 5 in this part. You will continue working on the virtual lab in the next part.

**TEACHING NOTES**

As your student works through the virtual lab, ask questions to ensure comprehension. The virtual lab will guide your student. The virtual lab will not save your student’s answers. If you think that your student would benefit from having answers recorded, you will need to record them in your student’s Science Notebook.

Screen 1: **Ask**: What do you notice in this picture? [large rocks, different colors of rock, some look striped, small broken rock in the corner]
Screen 2: **Ask:** What different ways you see rock in this picture? [sand, pebbles, boulders, mountains] Are they all the same size? [no] Which rocks are the largest rocks? [the mountains] Which are the smallest? [grains of sand]

Screen 3: **Ask:** How do rocks become round? [sand, grit, and ocean water rub off the rough edges/student will need help with understanding this] What shapes are the rocks you see? [round, lumpy, flat, point] What is a boulder? [large rock] Which rock is rough? Which one is smooth? [the red rock is rough, the gray one is smooth]

Screen 4: Remind your student what texture is: Smooth, rough, scratchy, and bumpy are textures.

Screen 5: Have your student observe the two tools. **Ask:** Which one is a measuring tool? Which one gives you a closer view? [The hand lens is used to make a closer view of a rock. The ruler is the tool used to measure its length.]

Tell your student that this is as far as you will go in this part. In the next part, you will do continue with the virtual lab. Remind your student that so far he or she has learned that rocks have many different traits (size, texture, shape), and that he or she is going to be investigating and comparing these traits tomorrow. Review the tools they will be using – hand lens and ruler.

✅ **RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
What Are Natural Resources? - Part 6

**Objectives**
- To model the relationship between natural resources and how people use them to meet their needs
- To identify air, water, rocks, and soil as natural resources
- To use evidence to explain that living things need water, air, and resources from land

**Books & Materials**
- *Dimensions: Grade K*
- Science Notebook
- Computer

**Assignments**
- Read *Dimensions: Unit 6, Lesson 1, What Are Natural Resources?*
- Complete the ScienceFusion Virtual Lab: What Can We Observe About Rocks?

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**LEARN**

You have learned ways to observe rocks. Let's review what you learned. Are all rocks the same size? How do you know? What do rocks feel like? Is it true that all rocks feel the same?

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**TEACHING NOTES**

Ask the introductory questions to review the content of the previous day's information. Your student should know that rocks come in many different sizes, from mountains to grains of sand. Rocks can be rough, smooth, bumpy, sharp, crumbly, and gritty, to name a few textures. Once the review is complete, go to the virtual lab.

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**INTERACTIVE ACTIVITY**

In this part, you will continue with the ScienceFusion Virtual Lab: What Can We Observe About Rocks? You will continue working on the virtual lab in this part and will complete screens 7 to 9. You will complete the virtual lab in the next part.

Click the arrow to move to screen 6. Listen to the directions. If you have trouble moving the hand lens, ask your Learning Guide for help.
Go on to the screen 7. You can change the length of the ruler by dragging the arrows. Practice changing the ruler length. The circle with the arrows changes the ruler’s direction. Measure over the longest part of each rock.


Now, go to screen 9. Use the hand lens to look at the new rock. Which size group does it belong to?

**TEACHING NOTES**

Today, your student will do screens 7–9 in the virtual lab. As your student works through the screens, ask questions to ensure comprehension. The virtual lab will not save your student’s answers. If you think that your student would benefit from having answers recorded, you will need to record them in your student’s Science Notebook.

Screen 7: Make sure your student can drag-and-drop the ruler and adjust the ruler’s size. Then, monitor the measuring of each rock. Provide assistance as needed.

Screen 8: The shortest rock is black and very smooth. The largest rock is rough and gray/white.

Screen 9: The rock in the collection that is the same size is the first rock that is about 6 cm long.

**RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
You have measured rocks. You looked at them through a hand lens. Let’s review what you learned. What can you tell about a rock using a ruler? What do you learn looking through a hand lens?

Ask the introductory questions to review the content of the previous day’s information. Measuring tells the rock’s size. The hand lens shows the texture. Once the review is complete, go to the virtual lab.

In this part you will complete the ScienceFusion Virtual Lab: What Can We Observe About Rocks?

Click the arrow to move to screen 10. Listen to the directions.

Go to screen 11. Look at each rock through the hand lens.

Match each of the colors to the rock that is that color.

Now, move on to screen 12 and match the rock patterns.

Click the arrow to go to screen 13. Watch the show video to see many different kinds of rocks. Then, listen to the review on screen 14.

Review with your Learning Guide what you learned about rocks from this virtual lab.
Monitor your student’s progress through the lab. If your student has trouble with the hand lens, remind him or her about dragging and dropping material on a screen. The virtual lab will not save your student’s answers. If you think that your student would benefit from having answers recorded, you will need to record them in your student’s Science Notebook.

The color match should be simple, as the colors represent the most common colors of rocks.

The matching game matches patterns. If your student has trouble with the game, take time to look at the patterns of the rocks shown. Guide your student in describing the shape, texture, and color of each rock to make the appropriate selections.

Please go online to view and submit this assessment.
What Are Natural Resources? - Part 8

In the last part, you learned about rocks. How can you tell the differences between rocks? In this part, you will learn about soil. Soil is a valuable natural resource. Plants need soil to grow. Some animals live in soil. Let's watch the video Soil (01:44).

Now, let's go to Dimensions: Unit 6, Lesson 1: What Are Natural Resources? Soil (p. 254). Find ways soil is used. In your Science Notebook or textbook, draw a picture of another way to use soil.

Next, open your Science Notebook. Brainstorm a list of things that depend on soil to live. Add the word soil to the list in your Science Notebook.

TEACHING NOTES

You will need to be the scribe for the brainstormed list. Possible answers include worms, moles, bugs, snakes, grass, flowers, shrubs, and trees.

QUICK CHECK

Please go online to view and submit this assessment.

MORE TO EXPLORE

Natural resources come from the earth. Water, air, and soil are examples. Go to BrainPOP Jr. and play the Natural Resources Matching Game to learn more.
Natural resources are all around us. They can be air, water, or soil. If you had trouble choosing the correct pictures, watch the video *Natural Resources of the Earth - Part 1* (01:06).

Please go online to view this video ▶

**TEACHING NOTES**

The Matching Game covers the natural resources discussed in this lesson. The video in More to Explore gives a broader perspective on resources and conserving resources.
What Are Natural Resources? - Part 9

Objectives
- To model the relationship between natural resources and how people use them to meet their needs
- To identify air, water, rocks, and soil as natural resources
- To use evidence to explain that living things need water, air, and resources from land

Books & Materials
- Dimensions: Grade K
- Science Notebook
- Computer

Assignments
- Read Dimensions: Unit 6, Lesson 1, What Are Natural Resources?
- Complete the ScienceFusion Virtual Lab: How Do Soils Differ? (Screens 1-4)

LEARN

INTERACTIVE ACTIVITY

In the last part, you learned about soil. Soil is important for growing plants. Soil is an important natural resource. We need soil for plants, trees, and grass. Without soil, we would have no fruit or vegetables. But, not all soil is the same. Today, you will start a ScienceFusion Virtual Lab: How Do Soils Differ?

If you do not understand how to do this virtual lab, ask your Learning Guide for help.

Are you ready? Let's find out how soils differ!

You will begin the virtual lab today and continue working on it in the next three parts. In this part, you will complete screens 1 to 4.

TEACHING NOTES

Your student has learned some things about soil. Now, he or she will begin a three-part virtual lab about soil. Make sure your student understands how to work all the parts of the lab as you work through each page.

Read the text and assist your student with going online for the virtual lab. The virtual lab will not save your student’s answers. If you think that your student would benefit from having answers recorded, you will need to record them in your student’s Science Notebook.
As your student works through the virtual lab, you will need to ask questions to ensure comprehension.

Screen 1: **Ask:** What do you think you will learn in this lab? [how plants grow in different types of soil]

Screen 2: **Ask:** What things make up soil? [air, humus, rock, water] What are the smallest bits of soil made from? [tiny pieces of rock]


Screen 4: **Ask:** How would you find out what kind of soil you have in your yard or local park? [A possible answer is that your student can put some soil in a jar and add water. When the jar is shaken and left to settle, the sand, silt, and clay in the soil separate.]

Tell your student that this is as far as you will go in this part. In the next part, you will do more of the virtual lab.

✅ **RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
What Are Natural Resources? - Part 10

**Objectives**
- To model the relationship between natural resources and how people use them to meet their needs
- To identify air, water, rocks, and soil as natural resources
- To use evidence to explain that living things need water, air, and resources from land

**Books & Materials**
- Dimensions: Grade K
- Science Notebook
- Computer

**Assignments**
- Complete the ScienceFusion Virtual Lab: How Do Soils Differ? (Screens 5-8)

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**LEARN**

In the last part, you learned about the things that make up soil. Let's review what you learned. What are the four things that make up soil?

**TEACHING NOTES**

Ask the introductory question to review the content of the previous day's information. Soil is made up of air, water, rock, and humus. Once you review the four things that make up soil, go to the virtual lab. Read the text for your student.

**INTERACTIVE ACTIVITY**

Open the ScienceFusion Virtual Lab: How Do Soils Differ?

Open the virtual lab. Click the arrow to move to screen 5. You will complete screens 5 to 8 in this part. You will finish the virtual lab in the next part. How will you test different types of soil? What will you do?

Go to screen 6. Make a prediction. Which soil do you think will grow the most plants and tomatoes?

Click the arrow to go to screen 7. Can you tell a healthy plant from one that is struggling? Sort the plants into the right boxes.
Now, it's time to test your plant growth. Click to move to screen 8. Follow the directions. When you measure your plant, you need to turn your ruler. Use the circle with arrows to turn the ruler. Record the height measurement and number of tomatoes grown. Repeat the experiment by changing the type of soil each time.

TEACHING NOTES

The virtual lab will not save your student's answers. If you think that your student would benefit from having answers recorded, you will need to record them in your student's Science Notebook.

For the virtual lab, your student will need to turn the ruler to a vertical position. Click and hold the circle with arrows. Drag the end of the ruler until it is vertical. Monitor the measuring and the counting of the tomatoes. Monitor your student's progress through the lab. If your student has trouble with any part of the process, teach the skill, but let your student do the work.

Tell your student that he or she will complete the virtual lab in the next part.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
What Are Natural Resources? - Part 11

LEARN

In the last part, you did an experiment with growing tomatoes in different soils. Let’s review what you learned. What are the soils you tested?

In this part of the lesson, you will finish the ScienceFusion Virtual Lab: How Do Soils Differ?

Now, open the virtual lab. Click the arrow to move to screen 9. Which soil produced the best tomatoes?

Go to screen 10. Which soil would you choose for your garden?

Click the arrow to go to screen 11. Arrange the three soils. Order them by how much water they can hold.

Now, click to move to screen 12. Which soil has the largest pieces of rock? Which soil has the smallest pieces of rock? Put the pots in the correct boxes.

Listen to the Sum It Up. Tell your Learning Guide at least three things you know about soil.

TEACHING NOTES

The virtual lab will not save your student’s answers. If you think that your student would benefit from having answers recorded, you will need to record them in your student’s Science Notebook.
Monitor your student's progress through the lab. If your student has trouble with any part of the process, teach the skill, but let your student do the work.

Review the answers as you go. Topsoil is the best soil for tomatoes.

For screen 11, it is important to understand that water flows quickly through larger rocks.

**Ask:** What do you know about soil? [Your student may say that soil has different particles in it. It can hold different amounts of water. It can also be used to grow plants.]

✅ **RATE YOUR ENTHUSIASM**

Please go online to view and submit this assessment.
# What Are Natural Resources? - Part 12

## Objectives
- To model the relationship between natural resources and how people use them to meet their needs
- To identify air, water, rocks, and soil as natural resources
- To use evidence to explain that living things need water, air, and resources from land

## Books & Materials
- Science Dimensions: Grade K, Unit 6, Lesson 1: What Are Natural Resources?
- Science Notebook
- Computer
- Crayons and pencils
- Paper

## Assignments
- Read Science Dimensions, Grade K, Unit 6, Lesson 1, What Are Natural Resources?
- Complete the ScienceFusion virtual lab: What Can We Observe About Rocks?
- Complete the ScienceFusion virtual lab: How Do Soils Differ?
- Do the activity: Apply What You Know: Do the Math!

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**USE**

**USE FOR MASTERY**

You have learned about natural resources. Now, you can show what you know.

Draw a picture that shows four natural resources: air, water, rock, and soil in your Science Notebook. Write the words of each resource. Draw a line from the word to the resource. Upload your work below.

![Upload files](#)  
Supported file formats: PDF, JPG, GIF, PNG  
0 / 12 File Limit
USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Draw each of the four natural resources?
- Write and label each of the natural resources correctly?

TEACHING NOTES

Your student will draw the picture and should label the air, water, rock, and soil. Your student may do the drawing in the Science Notebook. Provide your student with a plain piece of paper, a pencil, and crayons.
How Can We Save Natural Resources? - Part 1

**Objectives**
- To identify ways people can save natural resources
- To find ways to solve problems in the environment that come from using resources

**Books & Materials**
- Dimensions: Grade K
- Science Notebook
- Computer
- Crayons and pencils

**Assignments**
- Read Dimensions: Unit 6, Lesson 2, How Can We Save Natural Resources?
- Complete the Can You Solve It? activity
- Watch BrainPOP Jr.'s Reduce, Reuse, Recycle video

**LEARN**

In *What Are Natural Resources?* you learned about natural resources. These are things such as air, water, rock, and soil. You did a virtual lab about what you could observe with rocks. You did another virtual lab about which soil was best for growing. Now, you will start a new lesson. You will begin learning about how people can save natural resources. You will also learn how people can harm natural resources.

Let’s start by watching the BrainPOP Jr. video *Reduce, Reuse, Recycle* (04:48). After you watch the video, talk with your Learning Guide about what reduce, reuse, and recycle means.

**TEACHING NOTES**

In your student’s Science Notebook, write *reduce, reuse,* and *recycle*. This lesson will deal with those ideas. Explain to your student that to *reduce* means to cut down or lessen that amount of something. For this lesson, that means cutting down the amount of waste produced. *Reuse* means to use again. *Recycle* means to use the natural resource again to make new things.
**VOCABULARY**
- reduce
- reuse
- recycle
- conservation
- pollution

Go to *Dimensions*: Unit 6, Lesson 2: *How Can We Save Natural Resources?* (pp. 262-271). Look at the picture of the art. Look closely. From what is this art made?

### TEACHING NOTES

The art on the lesson opening is made from many different plastic caps and lids. Ask your student if this might a good way to recycle trash. **Ask:** What other ways can we recycle trash?

Have your student move on to **Can You Solve It?** Have your student determine how each child is reducing waste.

**ANSWER**

Writing on both sides of a page, bringing lunch in a reusable container, and recycling paper and magazines.

Next, there is a mystery to solve. Go to **Can You Solve It?** in *Dimensions*: Unit 6, Lesson 2: *How Can We Save Natural Resources?* (p. 263). How is each child reducing the amount of garbage? Answer the question in your Science Notebook or textbook.

What can you do to reduce and recycle natural resources? Talk to your Learning Guide about your ideas.

### TEACHING NOTES

To reduce and recycle natural resources, your student can write on both sides of the paper, place paper waste into a recycling bin, and use electronic mail instead of writing on paper. He or she can also bring a lunchbox and thermos to school instead of paper bags and buying milk cartons.

### RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
How Can We Save Natural Resources? - Part 2

Sometimes, people do not take care of natural resources. They may use too many resources. Cutting down too many trees is a way to use too many. Sometimes, they make the air or water dirty. Smoke from big fires is one way air becomes dirty.

In the last part, you began learning about ways to save natural resources. What were the ways? In this part, you will see that some things people do harm our resources. Let’s watch the video Pollution (01:46). Pollution harms our resources and the planet. What kinds of things hurt Earth’s natural resources? Talk about the things that hurt our planet with your Learning Guide.

TEACHING NOTES

Talk with your student about the harmful effects of pollution. Pollution in the air can make it hard to breathe and it damages the resources on Earth. You may want to talk about ways that you have reduced your pollution by riding a bike or purchasing low-emission products.

Now, find out how to save resources in Dimensions: Unit 6, Lesson 2: How Can We Save Natural Resources? Harming Natural Resources (p. 264). What do the pictures show? What resources are being harmed in the pictures? Talk about this with your Learning Guide.
Read the information about harming resources. Read the directions for this activity.

The pictures show a factory putting toxins into the air and a polluted water supply. The other pictures are a calm mountain scene and puffy clouds in the sky. Matching them together puts the factory and the sky together and the water and the mountains.

Tell your student that some of the objects in the classroom were probably made in a factory. Have your student name some of the objects. Comment that factories can cause air pollution. Explain to your student what the term pollution means.

Ask: What is coming out of the factory? dirty smoke

Ask: Does the smoke help or harm living things? The smoke harms living things.

Look at the other picture. Discuss with your student what is happening in the picture. Ask your student to name things made from paper. Explain that paper is made from trees.

Ask: Why do you think these trees are being cut down? So they can be used to make paper

Ask: How could people change the pattern of so many trees being cut down? People could use less paper or recycle paper.

Now, do the activity How is the natural resource being harmed? in Dimensions: Unit 6, Lesson 2: How Can We Save Natural Resources? (p. 265). What is causing the harm? Can you think of something that could be done to reduce this harm? Write your answers in your Science Notebook or textbook.

Have your student observe and describe each picture.

Ask: Which picture shows the cause of the air being harmed? What is your evidence? The smokestacks with smoke coming out of them cause the air to become dirty.

Ask: Which picture shows a cause of water being harmed? What is your evidence? The trash in the river causes the water to become dirty.

Now do Apply What You Know in Dimensions: Unit 6, Lesson 2, How Can We Save Natural Resources (p. 265). Talk with your Learning Guide. Make a list of ways that humans cause pollution in your Science Notebook. Talk about how one person could harm natural resources.
TEACHING NOTES

Have a brief discussion with your student about ways to reduce harm to natural resources. Remind your student that pollution can be caused by a person harming natural resources. Littering, smoking, and throwing away materials that can be reused or recycled are ways people harm natural resources.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
How Can We Save Natural Resources? - Part 3

**Objectives**
- To identify ways people can save natural resources
- To find ways to solve problems in the environment that come from using resources

**Books & Materials**
- Science Notebook
- Computer

**Assignments**
- Watch Discovery Education: You and Natural Resources video
- Watch the video: Learn Why Recycling Is So Important

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**LEARN**

In the last part, you learned ways that people may harm natural resources. Think of all the natural resources you know about. Watch this Discovery Education video You and Natural Resources (02:36).

Now, you will make a list of the things you can recycle. Think about what you use that is made of plastic. Think about what is made from paper or metal. Work with your Learning Guide to make the list in your Science Notebook.

**TEACHING NOTES**

In this part, you will need to be your student's scribe. You may choose to sort the resources into groups. Talk to your student about ways of identifying resources, such as a plastic cup or a newspaper. Tell your student that sometimes there are products that have recyclable pieces to them. For example, a wrapper for cookies may have a cardboard inside, but a cellophane outside. Tell your student he or she should always look to see which parts, if any, can be recycled.

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**QUICK CHECK**

Please go online to view and submit this assessment.

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**MORE TO EXPLORE**

Recycling is very important to help our planet. Watch the video Learn Why Recycling Is So Important (05:43). Talk with your Learning Guide about the ways you can recycle at home.

Please go online to view this video ➤
Previously, you made a list of things that can be recycled. You wrote down what you use. Some of those things might end up as waste. For example, the wrapper of your favorite snack might not be recyclable. You wrote on a piece of paper. Where is that paper now? Let's watch the video Reduce, Reuse, Recycle (01:43). How can you reduce your use of plastic bags? What can you do with them when you are done?

Discuss ways of reducing the amount of plastic produced. To reduce the number of plastic bags used, your student may say he or she can bring canvas bags to the store when he or she goes shopping.

Now, go to Dimensions: Unit 6, Lesson 2: How Can We Save Natural Resources? Reduce (p. 266). What do the pictures show? How can the use of resources be reduced?
Discuss the effect of reducing the use of natural resources. **Ask:** How could reducing the use of resources become a pattern that saves other resources? *If people use fewer resources over and over, they will save more and more resources.*

Discuss the pictures. **Ask:** What is each child’s solution to saving resources? *The boy uses a cloth to dry his hands. He can use it again and again. The girl only runs the water before and after she brushes her teeth.*

**Ask:** Is this child making a choice to use fewer resources? What is your evidence? *The children on the right are using fewer resources. The girl is brushing her teeth with the water off; the boy is using a reusable plate, not a paper plate.*

**Ask:** What resources are these children saving? *They are saving water and trees.*

**Ask:** What are the children on the left doing that results in their using more resources? *The girl is using a paper plate, which she will throw away. The boy is running water while he brushes his teeth, which wastes water.*

**Ask:** What is the pattern? *Paper and water are wasted over and over.*

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**RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
LEARN

You already know that it is important to reduce waste. Let's see how some people are doing just that! One such way is through composting. Plants use nutrients in the soil to grow. Leftover food can be composted in a special bin. The food gets broken down here. The leftovers can be added to the soil. This adds more nutrients to the soil to help new plants grow. Watch this video Composting for Kids (05:56). You can compost anywhere!

Please go online to view this video ►

Go Dimensions: Unit 6, Lesson 2: How Can We Save Natural Resources? Reduce (p. 266). What do the pictures show? How are the children reducing the use of resources?

Some children are making choices to reduce the resources they use. Some are not. Look at each picture and describe it to your Learning Guide. Follow the directions your Learning Guide tells you.

How do you reduce the use of resources? Draw a picture in your Science Notebook to show your solution.

✅ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
How Can We Save Natural Resources? - Part 6

In the last part, you learned how to reduce waste. Today, you will learn how to reuse and recycle. First, watch this video: 10 Creative Ways to Reuse Plastic Bottles (09:08). What do you need to make the pencil case?

Please go online to view this video ▶

The video shows several clever ways a plastic bottle can be reused to keep it out of the trash. One such way is to make it into a pencil case. Your student will need to identify that a zipper is also needed to create this craft.

Now, go to Dimensions: Unit 6, Lesson 2: How Can We Save Natural Resources? Reuse and Recycle (p. 268). Reusing means using something again. Giving clothes away so someone else can have them is reusing. The things sold at a yard sale are being reused.

There are some interesting ways to reuse things. What shows something being reused? What did it use to be? What is it now?

Look back at the Dimensions: Unit 6, Lesson 2: How Can We Save Natural Resources? Lesson Opener (p. 262). Is this art recycling, reducing, or reusing resources? How do you know?

Learn about reusing materials. The item being reused is a milk container, which is now used as a bird feeder.
The art is reusing plastic caps and lids that would normally go in the trash.

Have children share ideas about what can be reused. Point out that plastic, glass, aluminum, and paper are some things that can be reused.

**Ask:** How does reusing things help reduce the effect on air, water, land, and living things? Fewer things go in the trash. Fewer resources are used.

✅ RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
In the last part, you learned about reusing materials. Let's revisit that idea. Watch the video Recycling (03:42). How would you recycle a can, a plastic cup, or a newspaper?

Now, it's time to Do the Math! in Dimensions: Unit 6, Lesson 2: How Can We Save Natural Resources? Reuse and Recycle (p. 268). Count the number of items that were in the recycling bin. Write the number of items in your Science Notebook or textbook.

Remind your student of the difference between reusing and recycling. Recycling is using materials to make something new. An example of recycling is a plastic bottle being turned into something else made of plastic. Rubber tires are often recycled into playground material. They cover the ground under the rides so if a child falls, he or she does not get hurt.

Now, you can show all the things you have learned about the 3 Rs—Reduce, Reuse, Recycle. First, tell your Learning Guide what it means to reduce resource use. Then, explain how you can reuse resources. Next, tell your Learning Guide what is means to recycle resources.

Then, go to Dimensions: Grade K, Unit 6, Lesson Check (p. 273). Look at each picture. Which picture shows reusing? How are resources being reused?

Which picture shows reducing? How is resource use being reduced?

Which picture shows recycling? How are the children recycling?
ANSWER KEY
Your student answers should include the following:

- Reducing is to use less of a resource.
- Reusing is to find a way to reuse the resource again.
- Recycling is taking a resource and making something new from it.
- The center picture shows reusing. The boy brings his lunch in a plastic container and his drink in a reusable bottle. He uses these items every day for lunch.
- The top picture shows reducing. The girl is reducing the use of paper by using the back of the page.
- The bottom picture shows recycling. The children are collecting paper and recycling it.

RATE YOUR UNDERSTANDING
Please go online to view and submit this assessment.
How Can We Save Natural Resources? - Part 8

Objectives
- To identify ways people can save natural resources
- To find ways to solve problems in the environment that come from using resources

Books & Materials
- Dimensions: Grade K
- Science Notebook
- Computer

Assignments
- Read Dimensions: Unit 6, Lesson 2, How Can We Save Natural Resources?
- Complete the You Solve It Simulation: Grocery Shopping to Help the Environment.
- Watch How Recycling Really Works as a review

LEARN

INTERACTIVE ACTIVITY
You know all about reducing, reusing, recycling. Now, you can apply what you know. You can do a You Solve It! simulation. This is like a video game. Go to You Solve It! Simulation: Grocery Shopping to Help the Environment.

What experience have you had grocery shopping? How do you think people decide what to buy? Your Learning Guide will help you get started. Look for the symbols that say Reduce, Reuse, and Recycle. Look at the thumbs. Green thumbs are great! Red thumbs are bad. Yellow thumbs are not good or bad.

Are you ready? Go shopping!

TEACHING NOTES
Access the You Solve It! simulation. In this activity, your student will go virtual grocery shopping. As your student buys items off his or her shopping list, he or she needs to evaluate how eco-friendly the items are and make decisions based on that.

Your student may say that he or she has gone shopping with a parent and bought many types of foods. Your student may say he or she likes the cookie and cereal aisles. The produce section is full of food that can be composted because it is all organic. It breaks down easily. People decide what to buy based on price, what they are cooking, and their particular diets.

Have your student select the Play button to find out more about the investigation. Once your student selects Close, the main investigation screen will open.

This investigation will use symbols to represent each of the three Rs: reduce, reuse, and recycle. Make sure your student can tell the difference between these symbols before continuing with the investigation. There are also three color-coded thumb symbols to represent if an item is good for the environment.
environment (green thumbs-up), bad for the environment (red thumbs-down), or could be improved (yellow thumb pointing sideways). Tell your student to select the Hint button if he or she forgets what the colors or symbols look like.

Your student will be given a grocery list with six items on it. The activity begins by selecting an item. Although your student may be able to make decisions as to which of the options he or she should select, encourage him or her to click each image to learn more about that option. When your student has selected the option he or she wants to purchase, complete the activity by dragging the image to the shopping cart. Your student will be asked to verify his or her choice before returning to the shopping list. Items already selected will be marked with a filled-in circle.

Continue to follow the directions. When the grocery cart is full, check out the report.

---

**INTERACTIVE ACTIVITY**

When the grocery cart is full, you will get a report. The report will show you how well you did. It shows if you chose items that are good for the environment.

How can you use this in your real life? Think about the last time you went to the store. Did you buy a pack of juice boxes? Or did you buy a big bottle of juice?

It is up to you to reduce the amount of waste you make. Choosing friendly items at the store is a good way of doing this.

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**QUICK CHECK**

Please go online to view and submit this assessment.

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**MORE TO EXPLORE**

Sometimes, it is obvious what materials can be recycled. You know that waste paper is good for recycling, and so are newspapers and paperback books. Hardbound books, however, are not recyclable.

Reusing is more about taking a product and reusing it in a different way. That might be a bowling ball that is given to a younger sister or a front door that is turned into a kitchen table.

In recycling, the resource changes form in some way, even if it goes from being one type of paper to being another type of paper. In reusing, the material is used in another way or by another person.
If you got the answer correct, you might want to learn a bit more about recycling, reusing, and reducing. You may not know all the items that can be recycled or reused. Do the Drag and Drop Recycle Game by BrainPOP Jr.

If you got the answer incorrect, you might be confusing recycling and reusing. You may not know what recycling really is. Watching this video How Recycling Works (04:09) to learn more.

Please go online to view this video ▶
How Can We Save Natural Resources? - Part 9

**LEARN**

Look at this picture of a bike, a whistle, and a stack of napkins. One of these items was made from recycled phone books. One was made by recycling plastic bottles. The other has parts made from aluminum drink cans. Can you tell which is which? How do you know? Discuss your answers with your Learning Guide.

You are a reducing, reusing, recycling star! Did you know that some people do recycling for a job? Go to Dimensions: Unit 6, Lesson 2: How Can We Save Natural Resources? Take It Further (p. 271). Learn about a Career in Science and Engineering: Recycling Center Operator. Look at the pictures. What is happening at the recycling center?

When the resources have been sorted, what happens to them?

In your Science Notebook, draw a picture of something plastic, something paper, and something glass. Tell what each item could be turned into. Be creative!

**TEACHING NOTES**

A recycling center operator helps sort the resources that are collected. The resources are divided into paper, plastic, aluminum, and glass. Draw your student’s attention to the cube in the bottom picture. The cube is hundreds of aluminum cans squashed together. It is easier to ship the cans this way. They will go to a factory where the aluminum will be used to make new cans or other products.

Your student will have drawn a picture of something plastic, glass, and paper. The plastic item could be recycled into another plastic item, such as more water bottles. The glass item can be reused to make a pencil holder or a flowerpot. The paper can be recycled to make more paper or reused to fill a package being sent in the mail.
There are many things in your home that can be recycled. You use many of them every day. Look around your home. Find items that you could recycle. Find items that could be reused. Are there items of which you could use less? Work with your Learning Guide. Brainstorm possible items. Think about how they can be reused. What clever ideas can you come up with?

Make a Reduce–Reuse–Recycle plan for your home. Write your plan in your Science Notebook.

**TEACHING NOTES**

Help your student make a recycling plan for home. Help him or her brainstorm the possible items. Sort the items into different categories. Then, work on making a plan. Brainstorm the things that need to be done, such as collection containers, where to take goods to be reused or recycled, and a way to make sure the items are recycled.

**RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
How Can We Save Natural Resources? - Part 10

**Objectives**
- To identify ways people can save natural resources
- To find ways to solve problems in the environment that come from using resources

**Books & Materials**
- *Dimensions*: Grade K
- Computer

**Assignments**
- Read *Dimensions*: Unit 6, Lesson 2, How Can We Save Natural Resources?
- Look at pictures of the children and write how they are reducing their trash in first, second and third pictures

**USE**

Recycling is a way to reduce how much trash we make. This can make the planet healthy. Go to *Dimensions*: Unit 6, Lesson 2: How Can We Save Natural Resources? [Lesson Check].

**USE FOR MASTERY**

Look at the three pictures. In each picture, write how the children reduced the amount of trash being thrown away. Organize your response. Write how the children are reducing their trash in the first picture first. Then, write how the children are reducing their trash in the second and third pictures.

How did the children help?

Upload your answers here.
USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Tell how the children are identifying their trash in the first picture?
- Tell how the children helped sort their waste in the second and third pictures?

TEACHING NOTES

If your student needs support in identifying the ways to reduce the amount of trash, use his or her Science Notebook as an example. Your student uses the same Science Notebook for all of his or her science work. This is an example of reusing a resource.
Reduce, Reuse, Recycle! - Part 1

LEARN

In a year, Americans make 1,600 pounds of garbage for every person. Some make more. Some make less. Let's say you weigh 40 pounds. In 1 year, you would make enough garbage to equal 40 5-year-olds. Wow! That's a lot of garbage.

So, how can we reduce all that garbage? You can follow the 3 Rs. You can Reduce, Reuse, and Recycle. Let's watch this movie Reduce, Reuse, and Recycle (03:39). How did you reduce waste today?

Please go online to view this video ▶

TEACHING NOTES

Review the things your student knows about natural resources and how to save them. This lesson will help connect the resources and the means of saving them. Assist your student in making the list. Accept all resources, including wood (plants), oil, wind, water, and other natural resources.

Sometimes, we do not think about all the things we use. Let's watch the video Recycle and Reuse (01:28). Did you see anything we need to recycle or reuse that we didn't think about before?

TEACHING NOTES

Your student should notice that tires, steel, copper, lead, batteries, and old textiles (cloth) are things that haven't be discussed before but can be reused or recycled.

RATE YOUR UNDERSTANDING

Please go online to view and submit this assessment.
Reduce, Reuse, Recycle! - Part 2

**Objectives**
- To identify ways to use, save, and recycle natural resources

**Books & Materials**
- Science Notebook
- Computer

**Assignments**
- Complete the Recycle City interactive.

**LEARN**

You know why you should reduce, reuse, and recycle. You know what types of things will save resources. Today, let’s visit Recycle City! This is a place where people take waste seriously. Everyone makes an effort to reduce, reuse, and recycle as much as he or she can. You will find ways that people take care of their waste. See if they are reducing waste, reusing resources, or recycling materials as you go through Recycle City. What do you think people in Recycle City are doing?

Click on one part of town. Work with your Learning Guide to find out what is happening in this section of Recycle City. Work with your Learning Guide to investigate each section of the town. Each building has its own activity. Select several areas and complete the activities. You do not have to do all of them.

**TEACHING NOTES**

Have your student click the link to Recycle City. Read the text under Welcome to Recycle City! Have your student click on one section of town. **Ask:** What do you see in this part of town?

Read the note on the panel and have your student investigate different parts of the picture. For example: Tell your student, “Click on the Southwest. There is a school there. Let's see what the school is doing for recycling. First click on the playground.”

You will need to read each panel that pops up. Areas of interest in the school include the class, library, playground, compost area, paper drive, and school bus. When your student finishes the school, go back to the Southwest and have your student select one of the houses. **Ask:** What do you think will be recycled in this house?

Remind your student that he or she does not need to click every building in every section of town.

**KEY PLACES TO VISIT IN EACH SECTION:**
- Southwest: School and large 2-story house
- Northwest: Auto Wreckers, City Hall, and the Hazardous Waste Center
- Northeast: Community Warehouse, Materials Recovery Center, the café and used bookstore, and the landfill
- Southeast: Maria's Market, Shaq's Garage, and the Widget Manufacturing Co.
End the session with a discussion. **Ask:** What did you learn in Recycle City? Does everyone seem to be working to save resources? What evidence do you have that this is true?

Your student should say that it appears as if everyone in town is working to recycle. For example, Miss Redux in the school tells that students bring lunchboxes instead of paper bags for their lunch. She also teaches about the three Rs.

✅ **RATE YOUR UNDERSTANDING**

Please go online to view and submit this assessment.
Reduce, Reuse, Recycle! - Part 3

**LEARN**

In the last part, you visited Recycle City. What did you see? The Savemor family reused an old tire by turning it in to a swing. At City Hall, the community talks about getting waste under control. At Maria's Market, here are recycling bins, bulk fruit, and products packed in recycled materials. What else did you see?

How do people in Recycle City perform the 3 Rs? Remember that each area of town had information about how the people there are reducing, reusing, and recycling. Remember that in the school, Miss Redux had students bring a lunchbox instead of paper bags. In the junkyard, the old cars are stripped down for reusable parts.

Today, you will take the **Recycle City Challenge**. This game will test how well you understand how to reduce, recycle, and reuse. Your Learning Guide will help you. Listen to the directions.

Are you ready for the challenge? Go to the **Recycle City Challenge**!

When you are finished, you can post your score.

How did you do? Are you a recycling wizard?

**TEACHING NOTES**

You will want to review the **Recycle City Challenge** before your student attempts the game. Make sure you know how it works.

Read the directions to your student. Make sure your student understands how to play, what the symbols mean, and the way to win tokens. If you think the music will be distracting, toggle the music off.
Please go online to view and submit this assessment.

Review the videos from Lessons 2 and 3. If you need more help with this topic, go to Dimensions: Unit 6, Earth’s Resources, Unit Review (pp. 278-280). Work with your Learning Guide to answer questions 4 to 8.

ANSWERS FOR THE UNIT 6 REVIEW:
#4: boy drinking, girl watering plant, giraffe drinking
#5: the water bottle, the glass jar, the newspapers
#6: tossing the bottle matches the rubbish on the beach, the smoke from the car matches the air pollution
#7: the lunch box, the boy eating off a regular plate, and the boy using a cloth towel
#8: all four options are correct
You have learned how Recycling City handles resource use. You have taken the Recycle City Challenge. Now, you need to look at how you use resources.

Your Learning Guide will help you. You need to make a list of everything you and your family use in a day. That would include what you ate. It includes what you wore. It also includes the things you used. These could be pencils, forks, combs, and soap. Be sure to include energy resources, too. Write down things like electricity to power lights and computers or gas to run a car. Start from when you woke up yesterday. Go until you woke up today.

Now, you need to decide which materials could be reduced, reused, or recycled. Look at what the Environmental Protection Agency (EPA) has to say about Reducing, Reusing, and Recycling Waste. Go over the website with your Learning Guide. Then, go through your list. Decide which items on the list could be reduced, reused, or recycled.
Read the information on the website and look at some of the examples with your student. As you go over each entry, ask your student which items on the list fall into the categories of reducing, reusing, or recycling.

Your student may determine he or she used water to wash or cook. He or she may also say that he or she used electricity to run the computer or the television. Your student also ate food, of which some may be compostable. If your student ate vegetables or eggs, the remains could be used as compost.

Your student may have recycled plastic water bottles or newspapers. He or she may have even recycled aluminum cans or cereal boxes. Your student might have reused an old paper bag to cover a book or written on both sides of a sheet of paper before recycling it.

Please go online to view and submit this assessment.
You know about resources. You know how to save them. Now, you can show what you know.

This is one way to get people thinking about saving resources. Today, you will make a poster for your home. You can make your poster in your Science Notebook or a large sheet of paper. Your poster will get family members thinking about the things you use. What can you do to save resources?

Draw your own 3 Rs poster. Remember that the 3 Rs are reduce, reuse, and recycle. Use items from your What Did I Use? list. Be sure to show at least two items for each section. If you need help, you can ask your Learning Guide.

Your poster should include ways of:

- Reducing two items to cut waste.
- Reusing two items to save resources.
- Recycling two items so they can become new products.
- An explanation, caption, or label for each section.

You can review any of the videos you have seen or information in your text to help you design your poster.
Your student’s poster should include the following:

- Reducing two items to cut waste.
- Reusing two items to save resources.
- Recycling two items so they can become new products.
- An explanation, caption, or label for each section.

For example, your student might suggest that a way to reduce waste would be to only take a small amount of food at first and then go back for seconds instead of piling on a huge helping and not being able to finish it. Your student may suggest writing on both sides of a piece of paper or tearing junk mail into pieces to use as scrap.

Your student might discuss placing newspapers and glass into a bin to send to a recycling plant. Here, these products will be changed into other things (plastic bottles often are turned into more bottles).

You may need to assist your student with writing on the poster. You may also need to navigate to find videos your student wants to review.

Please go online to view and submit this assessment.
Reduce, Reuse, Recycle! - Part 6

Objectives
- To identify ways to use, save, and recycle natural resources

Books & Materials
- Science Notebook
- Computer

Assignments
- Explain the 3 Rs and why they are important

USE

USE FOR MASTERY

In this lesson, you learned about the 3 Rs. Pretend that you are teaching someone about the 3 Rs for the first time. Explain what the 3 Rs are and why they are important. Write your answer in the box.

0 / 10000 Word Limit

Upload files

Supported file formats: PDF, JPG, GIF, PNG

0 / 12 File Limit
USE FOR MASTERY GUIDELINES & RUBRIC

Did you:

- Correctly identify the three Rs?
- Correctly explain why the three Rs are important?

TEACHING NOTES

If your student needs support, review the Recycle City Challenge and remind your student that we can decrease how much we waste by practicing the 3 Rs.
In this unit, you have learned about resources. You have learned how to save them. You learned that you could reduce, reuse, and recycle materials. In this lesson, you will use do a hands-on project about reusing a cereal box. You will use the Reuse a Cereal Box worksheet for the parts in the lesson.

How do you think you can reuse an empty cereal box? Look at a cereal box you have in your home. What resources do you see? Do you see a tree? Reusing that box saves trees. Think of two different ways to use the empty cereal box.

Consider these questions to help you with your idea:

- How will you reuse the cereal box?
- How can you show the cereal box has been reused?
- What cause-and-effect relationship will happen when you make a way to reuse the cereal box?

Then choose one of your ideas. In the space on your worksheet, write your plan for how you reuse an empty cereal box.

Read the text in the worksheet for your student. Have one or two cereal boxes and other materials prepared in advance for your student. Suggest that your student draw the plan for their reused box on the worksheet on in the Science Notebook. Before beginning the project, review with your student the reason why reusing objects helps save resources.
In this unit, you have learned about resources. You have learned how to save them. You learned that you could reduce, reuse, and recycle materials. In this lesson, you will do a hands-on project about reusing a cereal box. You will use the Reuse a Cereal Box worksheet for the parts in the lesson.

How do you think you can reuse an empty cereal box? Look at a cereal box you have in your home. What resources do you see? Do you see a tree? Reusing that box saves trees. Think of two different ways to use the empty cereal box.

Consider these questions to help you with your idea:

- How will you reuse the cereal box?
- How can you show the cereal box has been reused?
- What cause-and-effect relationship will happen when you make a way to reuse the cereal box?

Then choose one of your ideas. In the space on your worksheet, write your plan for how you reuse an empty cereal box.

You will need materials to reuse your cereal box. What materials do you think you will use? Draw the materials and label them on your worksheet.

Your student should draw and label the materials he or she will need for the reused cereal box on the worksheet. The following are possible materials for this project: cereal box, construction paper, crayons or markers, string, glue stick, and safety scissors.

Now you are ready to write the steps you will do to reuse your cereal box. On your worksheet, write the steps you will do to reuse your cereal box.

You will follow your steps in the next part to reuse your cereal box. Keep the Reuse a Cereal Box worksheet so that you can continue using it in the next part. If you are using a digital worksheet, save the worksheet so that you do not lose your work.

Your student may have trouble coming up with ideas. Do an online search before beginning this activity for reuse activities appropriate for your student. Try the following for ideas:

- Creative Cereal Box Crafts for Kids
- DIY Cereal Box Board Game

Ask: Why is it important to reuse objects when possible? What effect does reusing objects have?

Answer: Reusing objects is a way to help save resources. When I reuse a cereal box as something else, I will not be using resources needed to make that thing.

Possible answers to the questions are:

1. A cereal box can be turned into a holder for important papers or into a storage container for small toys.
2. The evidence that could be collected includes showing a picture of what the cereal box is used for normally and then another picture of what it is being used for now.
3. By reusing the cereal box, it prevents having to throw it away. This keeps it out of the landfill and is better for the environment.
Draw a sketch of the plan for the box
Decorate the box
Show how to use the box

Your student will continue to use the Reuse a Cereal Box worksheet in the next part. Tell your student to keep the worksheet so that he or she can continue making progress on it during the next part. If your student is using a digital worksheet, tell your student to save the worksheet so that the work will not be lost.

You will need materials to reuse your cereal box. What materials do you think you will use? Draw the materials and label them on your worksheet.

Your student should draw and label the materials he or she will need for the reused cereal box on the worksheet. The following are possible materials for this project: cereal box, construction paper, crayons or markers, string, glue stick, and safety scissors.

Now you are ready to write the steps you will do to reuse your cereal box. On your worksheet, write the steps you will do to reuse your cereal box.

Your student will continue to use the Reuse a Cereal Box worksheet in the next part. Tell your student to keep the worksheet so that he or she can continue making progress on it during the next part. If your student is using a digital worksheet, tell your student to save the worksheet so that the work will not be lost.

Please go online to view and submit this assessment.
Reuse a Cereal Box - Part 2

Objectives
- To identify ways to reuse materials and reduce waste

Books & Materials
- Computer
- Paper
- Crayons
- Construction paper
- One or two cereal boxes
- Scissors
- Glue stick
- Worksheet Reuse a Cereal Box

Assignments
- Complete the unit project Reuse a Cereal Box.
- Complete the Checkpoint
- If answer is correct, watch Importing Garbage for Energy is Good Business in Sweden; discuss
- If answer is incorrect, watch Zero Waste City, discuss

LEARN

In the first part of this activity, you designed a way to reuse a cereal box. Use the same Reuse a Cereal Box worksheet you started in the last part to make progress in this part. Now, follow your steps to complete your design. Be sure to clean up any waste you have and put it into a wastebasket or recycling bin.

Draw a picture of your finished project in the Data section of your worksheet. You will complete the worksheet in the next part.

TEACHING NOTES

Your student will use the Reuse a Cereal Box worksheet that he or she began in the last part. Your student should continue to make progress on the same worksheet and will not begin a new worksheet.

Monitor your student's progress in reusing the cereal box. Cleanup is an important part of crafting. Your student should clean the work area and put waste materials in a recycling bin.

QUICK CHECK

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

If you got the answer correct, you understand the need to save resources. Discover how one country is using its waste to produce energy by watching Importing Garbage for Energy is Good Business in Sweden (04:02). Why does Sweden buy waste? Should your state or city use Sweden's ideas about managing waste? Discuss your ideas with your Learning Guide.

Please go online to view this video ▶
### Reuse a Cereal Box - Part 3

#### Objectives
- To identify ways to reuse materials and reduce waste

#### Books & Materials
- Computer
- Worksheet *Reuse a Cereal Box*

#### Assignments
- Complete Reuse a Cereal Box worksheet
- Upload answers in the box afterwards

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### USE

You have shown that you can reuse a cereal box. You made something new with it. Now, answer the final questions on the *Reuse a Cereal Box* worksheet. Use the same *Reuse a Cereal Box* worksheet you started in the last part to make progress in this part. Complete the following on your worksheet:

- Restate your purpose. How can a cereal box be reused? What did you want to show with your project? Look back at your question from Part 1 and write it in different words on the worksheet.
- Make a claim that answers your question. How can the cereal box be reused?
- Review the data. What evidence from the investigation supports your claim? Write about how reusing a cereal box can help save resources.

You have completed the worksheet once you have answered all the questions. Upload your *Reuse a Cereal Box* worksheet below.

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### USE FOR MASTERY

![Upload files](https://via.placeholder.com/150)

Supported file formats: PDF, JPG, GIF, PNG

0 / 12 File Limit
Did you:

- Write a restated question that is different from the original question but has the same meaning?
- Make a claim that answers your restated question?
- Cite evidence from the investigation to support your claim?

Your student will use the Reuse a Cereal Box worksheet that he or she began in the last part. Your student should continue to make progress on the same worksheet and will not begin a new worksheet.

Once your student has restated the purpose for different ways a cereal box could be reused, have your student describe how he or she reused the cereal box.

Your student should understand that reusing objects helps save natural resources. He or she should cite evidence to support his or her claims in writing.

Ask, “What resources were saved by reusing the cereal box?” Your student may say he or she saved paper and energy because the box does not need to be thrown away. It has been repurposed.

Review with your student what it means to make a claim. Then, ask him or her how his or her cereal box is going to be used.
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

Student’s Name

Course Name

Lesson Title

Provide your answer in the space below.
# Game of Motion

## Student Facing Project Rubric

Read the chart below to understand how your project will be scored. Your goal should be to earn all 20 possible points.

<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>Two games included</strong></td>
<td>One game uses pushes, and one game uses pulls. A change of speed and direction is included in one of the games.</td>
<td>One game uses pushes, and one game uses pulls. Either a change of speed or a change of directions is not included in one of the games.</td>
<td>One game uses pushes, and one game uses pulls. A change of speed and direction is not included in one of the games.</td>
<td>One or both games are missing. A change of speed and direction is not included in one of the games.</td>
</tr>
<tr>
<td><strong>Drawings and pictures of games</strong></td>
<td>Includes a drawing with labels that shows how pushes, pulls, speed, and direction are used in the game. A picture of the game is submitted.</td>
<td>Drawing is included with labels but one of the pushes, pulls, speed, or direction is not labeled. A picture of the game is submitted.</td>
<td>Drawing is included with labels, but more than one of the pushes, pulls, speed, or direction are not labeled. A picture of the game is submitted.</td>
<td>Drawing is not included, or more than two labels are missing. A picture of the game is not submitted.</td>
</tr>
<tr>
<td><strong>Description of games</strong></td>
<td>Completely describes how each game uses pushes and pulls. One of the games describes how a change of speed and direction is included.</td>
<td>Mostly describes how each game uses pushes and pulls. One of the games does not describe either a change of speed or direction.</td>
<td>Description of how each game uses pushes and pulls is present but the description is not complete or easy to understand. One of the games does not describe either a change of speed or direction.</td>
<td>Description of how each game uses pushes and pulls is very incomplete or missing. The description, if present, is not easy to understand. One of the games does not describe either a change of speed or direction.</td>
</tr>
<tr>
<td><strong>Make your games</strong></td>
<td>Makes two games that accurately match the drawings and descriptions. The game is easy to play.</td>
<td>Makes two games that mostly match the drawing and descriptions.</td>
<td>Makes one game that mostly matches the drawing and descriptions.</td>
<td>Makes one game or no games that matches the drawing and descriptions.</td>
</tr>
<tr>
<td><strong>Make rules and tell how to score the games</strong></td>
<td>Makes rules and a scoring system for each game. Rules and scoring system are complete and easy to understand.</td>
<td>Makes rules and a scoring system for each game. Rules and scoring system are mostly complete and mostly easy to understand.</td>
<td>Rules or scoring system are present, not both. Either rules or scoring system is mostly complete and mostly easy to understand.</td>
<td>Rules or scoring system are present, not both, or neither rules or scoring system is present. Either rules or scoring system is difficult to understand.</td>
</tr>
</tbody>
</table>

**Total Possible Points: 20**
## How "Wood" Environments Change?

**Student Facing Project Rubric**

Read the chart below to understand how your project will be scored. Your goal should be to earn all 20 possible points.

<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><strong>Describe building the dam.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tell how you build the dam.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tell how the dam changes plant life.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tell how the dam changes animal life.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tell how the dam changes the rest of the environment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Describe how beavers make dams.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tell how beavers use things from the environment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tell three ways that beavers change their environment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Describe how beavers make dams.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tell how beavers use things from the environment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tell two ways that beavers change their environment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Describe how beavers make dams.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tell how beavers use things from the environment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tell one way that beavers change their environment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Describe how beavers make dams.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tell how beavers use things from the environment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does not tell how beavers use things from the environment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Possible Points: 20
## How Can We Observe Weather Patterns

### Student Facing Project Rubric

Read the chart below to understand how your project will be scored. Your goal should be to earn all 20 possible points.

<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>Write a forecast.</td>
<td>Writes a forecast for all 5 days.</td>
<td>Writes a forecast for 4 days.</td>
<td>Writes a forecast for 3 days.</td>
<td>Writes a forecast for 2 or fewer days.</td>
</tr>
<tr>
<td>Observe the sky.</td>
<td>Uses a picture or words to tell about the sky for 5 days.</td>
<td>Uses a picture or words to tell about the sky for 4 days.</td>
<td>Uses a picture or words to tell about the sky for 3 days.</td>
<td>Uses a picture or words to tell about the sky for 2 or fewer days.</td>
</tr>
<tr>
<td>Record the temperature.</td>
<td>Records the temperature for 5 days.</td>
<td>Records the temperature for 4 days.</td>
<td>Records the temperature for 3 days.</td>
<td>Records the temperature for 2 or fewer days.</td>
</tr>
<tr>
<td>Describe severe weather.</td>
<td>Identifies a type of severe weather that occurred or chooses a severe</td>
<td>Identifies a type of severe weather that occurred, or chooses a severe</td>
<td>Identifies a type of severe weather.</td>
<td>Identifies a regular type of weather.</td>
</tr>
<tr>
<td></td>
<td>weather that commonly happens in his or her state.</td>
<td>weather that commonly happens in his or her state.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Describes the severe weather.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluate the forecast.</td>
<td>Decides if the forecast was accurate or not.</td>
<td>Decides if the forecast was accurate or not.</td>
<td>Decides if the forecast was accurate or not.</td>
<td>Decides if the forecast was accurate or not.</td>
</tr>
<tr>
<td></td>
<td>Gives 3 suggestions for improving the forecast.</td>
<td>Gives 2 suggestions for improving the forecast.</td>
<td>Gives 1 suggestion for improving the forecast.</td>
<td></td>
</tr>
</tbody>
</table>

**Total Possible Points: 20**
How can I protect Earth’s surface from the sun?

**Step 1**
Design and build a shelter to protect Earth’s surface from the sun.

**Step 2**
Put the shelter in a sunny place. Place one rock under the shelter. Place the other rock in the sun. Wait one hour.
Step 3

Touch each rock and compare. Record your observations.

Make a claim.

What is your evidence?
Hands-On Activity

Engineer It • Make a Ramp

Materials

Which ramp makes the toy car go faster?

Step 1
Make a ramp. Tape the ramp to the table.

Step 2
Let the car go so it rolls down the ramp.
Step 3
Change the height of the ramp by removing two books.

Step 4
Repeat the test.

Step 5
Draw conclusions. Did the height of the ramp change the speed of the car?

Make a claim

What is your evidence?
Hands-On Activity

Engineer It • Model Thunder

Materials

A paper bag

Some crayons

What sound does thunder make?

Step 1

Think of a question you have about thunder. Write or draw a picture to show your question.
Step 2
Form a C-shape with your hand, and grasp the paper bag tightly at the top. Blow it up like a balloon.

Step 3
Holding the bag tightly closed, use your other hand to smash the bag and make it pop. Describe the cause of the noise from the smashed bag. Write or draw how the noise is like thunder.
Make a claim.

What is your evidence?
My 5-Day Forecast

Meteorologist: ________________________________

Look at the pictures in each box. The pictures show what different weather looks like.

<table>
<thead>
<tr>
<th>Sunny</th>
<th>Cloudy</th>
<th>Stormy</th>
<th>Windy</th>
<th>Snowy</th>
<th>Rainy</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Sunny" /></td>
<td><img src="image2" alt="Cloudy" /></td>
<td><img src="image3" alt="Stormy" /></td>
<td><img src="image4" alt="Windy" /></td>
<td><img src="image5" alt="Snowy" /></td>
<td><img src="image6" alt="Rainy" /></td>
</tr>
</tbody>
</table>

My Weather Predictions:

Write the date on the line under each day. Then, draw a picture in the box showing what kind of weather you think will happen during that day.

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
</tbody>
</table>
The Actual Weather

Write the date on the line under each day. Then, draw a picture in the box showing what kind of weather happened on that day. Also write the highest temperature for the day.

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>_______</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
</tbody>
</table>

Temperature: | Temperature: | Temperature: | Temperature: | Temperature:
Hands-On Activity
Engineer It • Pushing Objects

Materials

What happens when two objects push each other?

Step 1
Design a marble track.
The marble should change direction, change speed, and push another marble.

Step 2
Build the track.
Step 3

Test the track. Observe.

Step 4

Make changes. Test it again.

Step 5

Analyze your results.

Make a claim

What is your evidence?
How can you reuse an empty cereal box? Can you think of two different ways to use one? Write or draw your ideas below. Then, choose one. Plan and conduct an investigation to show how to use an empty cereal box.

___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

Materials

Draw and label the materials you will need.
Name________________________

Steps Write the steps you will do.

___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

Data

Record your data.
Analyze Your Result
Look for patterns in your data.

Restate Your Purpose
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

Claims, Evidence, and Reasoning
Make a claim that answers your question.
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

Review the data. What evidence from the investigation supports your claim?
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________
How does heat from the sun affect Earth?

Step 1

Place a cup of pebbles on each paper plate.

Step 2

Put one of the plates in a sunny place. Put the other plate in a shady place. Wait one hour.
Step 3

Compare and record how they feel. Tell why they feel the way they do.

<table>
<thead>
<tr>
<th>Sunny Pebbles</th>
<th>Shady Pebbles</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Make a claim.</th>
<th>What is your evidence?</th>
</tr>
</thead>
</table>

Name __________________________

Hands-On Activity Worksheet 2 of 2 How Does the Sun Warm Earth?

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