A Three-Part Intervention Solution

Wright Group/McGraw-Hill has carefully designed *Pinpoint Math™* to meet the needs of students requiring mathematics remediation. The curriculum offers a complete intervention solution while making mathematics accessible to all students in grades 1 to 7.

The program incorporates three essential elements necessary to improve mathematic performance among struggling students: diagnostic assessment, targeted instruction, and ongoing progress monitoring.
Program Organization

Topics for each Pinpoint Math grade level are divided into a six-volume set of student books. The Teacher's Guide and assessment materials are organized by volume.

Pinpoint Math provides the option to use a comprehensive, learning-based assessment management system for mathematics. Each diagnostic test, whether administered via paper and pencil or electronically, provides actionable data on student achievement to help teachers target instruction and measure student progress.

Core Components

- **Student Booklets**: Student Booklets 6 per level
- **Teacher's Guides**: Teacher's Guide 1 per level
- **Assessment**: Assessment Resources 1 per level
- **Tutorials**: Student Tutorials CD-ROM 1 per level

Optional Components

- **Online Subscription**
  - A Online assessments
  - B Online student tutorials
  - C Computer-generated individual student action plans based on assessment results
  - D Computer-generated reports summarizing assessment results
- **Manipulative Kit**
  - A Math Flaps
  - B Base 10 Blocks
  - C Fraction Circles
  - D Spinners
  - E Rulers
  - F Pattern Blocks
  - G Counters
  - H Number Cubes

THE CORE COMPONENTS ARE THE SAME FOR EACH LEVEL, A–G
# Program Organization

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Instructional Model

Pretest
Pretest for the first volume is given to all students, either online or by paper and pencil.

Student Action Plan
Teacher prepares individual or group objective-based assignments based on test results.

Teaching a Topic
Students complete the introduction page; teacher demonstrates, questions, and/or presents an overview of the topic based on student introduction responses.
Assignments
Student booklet pages and online computer tutorials are assigned based on individual student needs.

Summary and Review
Students complete Topic Summary, Mixed Review and Progress Monitoring informal assessment pages and receive teacher feedback.

Posttest
Student takes the volume posttest and repeats the process for the next volume.
Volume 2

Whole Number Operations

Topic 9

Basic Properties of Algebra

Materials:
MathFlaps

Distribute MathFlaps and have students create two-color rows. Have students trade with a partner and compose two different addition sentences based on the MathFlaps. Repeat, having students use the MathFlaps to make equal groups and write two different multiplication sentences. Discuss whether the sum or product changes with the order of the numbers.

Informal Assessment

1. How many MathFlaps are white? How many are blue? How many MathFlaps are there in all? Have students complete Part a. What sum is illustrated by the counters? 5 + 8 What addition problem can you write if you start with the number of blue MathFlaps? 8 + 5 What is the sum? Did the order of the addends change the sum? No.

2. What is the product of the first two pairs of numbers? 21 How could you use counters to find the missing numbers? Sample: Arrange 21 counters in three groups of seven and skip count. Can you use number facts to solve? Yes, I know 3 × 7 = 21, so the missing number in Part a is 3.

3. Define the distributive property. It is a property that relates two operations on numbers, usually multiplication and addition or multiplication and subtraction. It distributes the factor outside the parentheses over the terms within the parentheses.

4. Look at the two ways of multiplying 4 × 2 × 3. How are they different? The first two numbers that are multiplied are 4 and 2. In Part b, the first two numbers that are multiplied are 2 and 3. Does it make any difference how you group the numbers? No.

Another Way
Suggest that students use MathFlaps to illustrate the products for Exercises 2 and 4.
Objective 9.1: Use the commutative and associative properties of addition to simplify mental calculations and to check results.

Teach the Lesson

Materials  □ MathFlaps

Activate Prior Knowledge

Write several addition problems on the board, such as 4 + 8, 8 + 4, 10 + 6, 6 + 10, and so on. Have students find the sums. What do you notice about the problems you just did? Sample: Problems such as 4 + 8 and 8 + 4 have the same answer. What is the same about 4 + 8 and 8 + 4? What is different? Sample: They have the same addends, operation sign, and sum but the addends are in a different order. Repeat the activity with sentences such as 4 + (5 + 8) and (4 + 5) + 8.

Develop Academic Language

Write 5 + (8 + 2) on the board. Point to the parentheses. These symbols are parentheses. In math, parentheses mean you do whatever is inside of them first. What should we do first here? 8 + 2 = 10 Then what? 5 + 10 = 15

Model the Activities

Activity 1: Provide students with MathFlaps. Show them 8 + 6. Then show 6 + 8. What is true about the sums? They are the same. Write 8 + 6 = 6 + 8. What property did we illustrate? Commutative

Activity 2: Provide students with MathFlaps and have them illustrate the sums (4 + 3) + 5 and 4 + (3 + 5). What property are we illustrating? Associative

Write About It  🏷️

ENGLISH LEARNERS  If students have difficulty with this question, provide them with specific examples and ask them to explain orally what they see.

Progress Monitoring

Describe the commutative and associative properties in your own words. Sample: You can add numbers in any order and you can group the numbers in any way you want, and you will still get the same sum.

Error Analysis

If students confuse commutative and associative, help students relate commute, as in go back and forth, or change places, to commutative and associative, or get together with someone, with associative. Relate these terms to the properties.

Model It

Small groups or pairs of students use manipulatives or hands-on materials; teachers help as needed.

Activate Prior Knowledge

Every lesson includes suggestions so a teacher can determine what individual students already know about a particular mathematical subject.

Teacher notes recommend demonstrations using models and manipulatives to clarify the processes and concepts in a lesson.
Lesson 9-1  Properties of Addition

Objective 9.1: Use the commutative and associative properties of addition to simplify mental calculations and to check results.

Facilitate Student Understanding

Develop Academic Language

Provide a number of sentences such as
9 + 8 = 8 + 9 and (1 + 8) + 6 = 3 + (8 + 4). Have students identify which property each sentence illustrates.

ENGLISH LEARNERS: To reinforce the new terminology, create a poster or chart with examples of each property labeled. As you identify the properties illustrated by the sentences, remind students that order is changed or grouping is changed.

In some languages, the property names are cognates, such as the Spanish words asociativo and asociativo.

Demonstrate the Examples

Example 1 Draw two groups of MathFlaps on the board and illustrate that 6 + 7 and 7 + 6 are both 13. Have students write the two sentences that you have illustrated.

Example 2 Write 13 + 38 + 7 on the board and ask students if there are any of the numbers that would be easy to add together. 13 and 7 have a 7 as 7 + 7 = 14, so the missing number is 7.

progress Monitoring

Which property of addition allows you to change the grouping without affecting the sum? Associative property Which property of addition allows you to change the order of the numbers being added without affecting the sum? Commutative property

Error Analysis

If students have difficulty remembering what the parentheses mean, give them several practice problems involving parentheses.

Student Booklet Page 60

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Lesson 9-1 Properties of Addition

Observe Student Progress

Develop Academic Language

Exercise 1 Ask students what property is shown in this example. Write the word commutative on the board and have students pronounce it and then restate, in their own words, what the commutative property means.

ENGLISH LEARNERS Students may find it helpful to make cards with the words commutative and associative on the fronts and an illustration of the property on the backs.

Error Analysis

Exercise 2 Students may have difficulty determining the correct number if they are not sure what property is used in each case. Suggest they first decide which property is being illustrated and then determine what number is missing.

Exercise 3 Some students may assume that if parentheses appear in an expression, only the associative property is being used. In each case, suggest that students first identify how the numbers change before identifying the property.

Exercise 4 Have students compare answer choices B and C. Many students make errors because they do not observe that if only the order changes, it is not an example of the associative property.

Exercise 5 Students may also suggest grouping sums of 10, so they end up adding 9 and 1, 8 and 2, 7 and 3, 6 and 4, and finally 10 and 5.

Exercise 6 If students have difficulty with this problem, ask what number can be added to 254 to make it easier to work with. Review the term break apart as meaning expanded notation.

English Learner Notes Many teaching notes point out words or phrases that may give English learners difficulty and suggest how to make these terms more accessible to EL students.
Assessment

Pinpoint Math incorporates formal and informal assessment throughout the program.

Pretests by volume and grade level
These diagnostic assessments include one or more items for all appropriate grade-level objectives. After taking the diagnostic, the teacher will be able to identify which objectives for that volume each student needs to master.

Mixed Reviews
These pages review content from earlier volumes, earlier topics, and earlier lessons within a topic.
Topic 9: Basic Properties of Algebra

Topic Summary

1. What is the product $8 \times 3 \times 5 \times 7$? Use the associative and commutative properties.
   - A 23
   - B 288
   - C 840
   - D 1,120

2. Solve $2(2 + 6) + 3(1 + 4)$. Use the properties to help.
   - A 35
   - B 19
   - C 31
   - D 20

Choose the correct answer. Explain how you decided.

Volume 2 | Whole Number Operations

Progress Monitoring

Like the Topic Summaries, these pages in the Assessment Resources Book check student understanding of a topic before proceeding to the next topic or proceeding to the posttest for that volume.

Teacher Notes

The Teacher’s Guide pages include Ongoing Assessment, Progress Monitoring, and Error Analysis notes that the teacher can apply to those students who need additional assistance.

Posttests by Grade Level and Volume

Each test includes one or more items for all appropriate grade-level objectives and is a parallel form to the pretest. If the student answers an acceptable number of items correctly, the student is ready to move on and take the pretest for the next volume.