Sampler

MOVING with MATH®

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FREE DVD on using manipulatives

Math Teachers Press, Inc.


**Description**

*Moving with Math*® Extensions is a condensed grade-level program designed to teach the underlying concepts of essential standards. An easy-to-use, integrated system links all learning objectives to tests, teaching activities, and reteaching pages.

Pacing calendars and clear, lightly-scripted lesson plans ensure that teachers know exactly what to do and say each day. Every lesson uses manipulatives to guide students as they explore each math concept.

**Classroom Kits**


**State and National Standards**

The *Moving with Math*® curriculum embraces NCTM curriculum guidelines, and has been correlated to most state and national standards. Call for your state correlation.

**Flexible Time Frame**

The program may be used in summer schools from 4 to 6 weeks and extended day classes from 20 to 80 hours by varying the activities to fit the time available for each lesson. The Teacher Manual includes a 20-lesson pacing plan, and 30-lesson plans are also available.

**Parent Handbooks**

Based on the recommendations of the No Child Left Behind Act, Parent Handbooks provide everything a teacher needs to connect to home. Handbooks share Pre-Test results with parents, give an overview of the program, and contain fun games and activities for parents and students to do together at home.

**Professional Development**

Educators may choose from a variety of options to fit their needs and budget. Professional Development Kits, training DVDs, and workshops with our educational consultants or your in-house trainers are available. All training is content-focused and is designed to help teachers reach students who have low test scores.
Boxed Classroom Kits

*Each boxed classroom kit contains all the printed materials teachers need for a fun and successful extended day or summer school. Manipulative kits are purchased separately.*

Each boxed kit contains:

1 Teacher Manual

- A Pacing Calendar to help teachers stay on track.
- Objectives matched to test items and teaching pages.
- Reproducible Pre- and Post-Tests.
- Writing Prompts with a reproducible journal for each student.
- Activity-Based Lessons for an interactive learning environment.
- Games to make learning fun and keep students engaged.
- Reproducible Reteaching Pages for all grade-level objectives.

20 Student Activity Books

- Activity Pages that match the lessons in the Teacher Manual.
- 32 Daily Reviews to reinforce all grade-level objectives.
- Review Record Sheet for continuous tracking of individual progress.

1 Test Assessment Pack

- 20 Pre- and Post-Tests matched to grade-level objectives.
- 20 Student Progress Reports to gauge progress or use as a report card.
- Class Record Sheet for easy tracking of class progress.
- Final Test Journal Prompt.

20 Parent Handbooks

- 20 Parent Handbooks with a parent letter, a record of the student’s strengths and weaknesses, plus games and activities to do at home.
- 20 Certificates of Achievement
Every fun and engaging lesson guides students through the three stages of learning:

Students use manipulatives to understand math concepts.

Multi-Digit Numeration

To develop understanding of multi-digit numeration, students practice these activities:

1. Writing numerals from blocks. Display a set of ones, tens, and hundreds blocks. Ask students to describe and record what they see.

2. Building blocks from numerals. Write a 3-digit numeral. Ask students to read the number. Then ask them to build the number with base ten blocks.

3. Building blocks and writing numerals from oral presentation. Say a 3-digit number out loud. Students build the number and write the numeral.

4. Drawing pictures of numerals. Students draw pictures using a small square for each hundred (■), a stick for each ten (●), and a dot for each one (●).

Introducing Fractions

These activities help students gain an understanding of fractions. Students translate between concrete models, pictures, and spoken words.

1. Display a fraction bar. Ask 3 questions: How many parts has the whole been divided into? How many parts are shaded? What fractional part is shaded?

2. Write a fraction on the board, e.g., \( \frac{3}{4} \). Have students draw a picture of this fraction.

3. Say a fraction name, e.g., \( \frac{7}{12} \). Have students find a bar to match the fraction and then draw a picture of that fraction.

What’s My Secret?

Partners take turns selecting a set of fraction bars alike in one way. The partner guesses the secret similarity.
Sally was at the beach for the weekend. On Saturday she found 38 shells and on Sunday she found 17 shells. How many more shells did she find on Saturday than on Sunday?

Read and understand.
1. Find question and needed facts.
2. Decide on process.
3. Estimate.
4. Problem Solving Steps

Okay, I’ve read the problem and I know Sally went to the beach and I need to find out something about the shells she found. I think I should subtract because the problem asks “how many more?” I would guess about 20 more shells on Saturday than on Sunday. This answer makes sense when I read the problem again. Sally found 21 more shells on Saturday than on Sunday.

38 – 17 = 21

Solve and check back.
5. Solve and check back.

Question: How many more shells did she find on Saturday than on Sunday?
Facts: 38 shells found on Saturday
17 shells found on Sunday

For Problem Solving: The Hands-on Difference

ALGEBRA

Students discover the conceptual underpinnings of math using manipulatives. Research proves that students who use manipulatives have higher scores on achievement tests and are better problem solvers.

ABOUT Problem Solving: Explicit Steps and Strategies

Students develop and apply a five-step problem solving model. They discover that a variety of strategies may be used to solve the same problem.

VIA Problem Solving: Real-World Problems

Lessons begin with problems from the teacher guide, the student page, or those written by the teacher or student. As students write word problems, they understand the structure of a word problem and the need to focus on the question—the main point in the problem.
The Moving with Math® Learning System

Assessment Linking...
Standards to Tests, Curriculum, and Home.

Using our teacher-friendly curriculum:

The Moving with Math® Extensions is a condensed, grade-level curriculum for grades K–8. The series follows a systematic organization that is modeled in the diagram above. The series begins with a set of objectives that are correlated to state and national standards. These objectives are assessed with a Pre-Test before the course begins and results are interpreted with helpful record sheets. Teachers can then connect with home and share findings and learning objectives with parents.

Next, teachers use manipulative-based lesson plans to teach key math concepts, skills, and problem solving. Throughout the course of instruction, teachers monitor progress and assign reteaching with Daily Reviews and Skill Builders.

Finally, a Post-Test measures progress and identifies further intervention needs.

As this sampler guides you through each step, you will be able to see how the curriculum integrates assessment with a coherent structure of skills that fit together to make a complete, hands-on system for teaching math.
## Correlation to Objectives

Use this table to match pre- or post-test problems to objectives and pages in the teachers manual and students book.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Student Book</th>
<th>Skill Builders</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-1 Identify the place value in a 3-digit number.</td>
<td>1, 2</td>
<td>1-1</td>
</tr>
<tr>
<td>B-2 Compare and order numbers up to 6 digits.</td>
<td>5, 6</td>
<td>2-1</td>
</tr>
<tr>
<td>B-3 Complete patterns of multiples of the numbers 1-6 or 10.</td>
<td>8</td>
<td>3-1</td>
</tr>
<tr>
<td>B-4 Write a 4-, 5- or 6-digit numeral from printed words or sets.</td>
<td>7</td>
<td>4-1</td>
</tr>
<tr>
<td>B-5 Write the words for any numeral up to 6 digits in length.</td>
<td>9</td>
<td>5-1</td>
</tr>
<tr>
<td>B-6 Identify the place value in a 4-, 5-, or 6-digit number.</td>
<td>9, 14</td>
<td>6-1</td>
</tr>
<tr>
<td>B-7 Round a 2-, 3- or 4-digit number to the nearest ten.</td>
<td>10</td>
<td>7-1</td>
</tr>
<tr>
<td>B-8 Round a 3- or 4-digit number to the nearest hundred.</td>
<td>11, 12</td>
<td>8-1</td>
</tr>
<tr>
<td>B-9 Find a missing number.</td>
<td></td>
<td>9-1, 9-2</td>
</tr>
<tr>
<td>Addition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B-10 Add 3-digit numbers with zero or two regroupings. Word problems.</td>
<td>13, 23</td>
<td>10-1, 15-2, 49-3</td>
</tr>
<tr>
<td>B-11 Add three or four 2-digit numbers with regroupings.</td>
<td>14</td>
<td>11-1</td>
</tr>
<tr>
<td>B-12 Add 4- or 5-digit numbers with regroupings.</td>
<td>15</td>
<td>12-1</td>
</tr>
<tr>
<td>B-13 Add up to five numbers of differing lengths, 1- to 5-digits.</td>
<td>16</td>
<td>13-1</td>
</tr>
<tr>
<td>B-14 Knows the meaning of “sum” and the “+” sign in addition.</td>
<td></td>
<td>14-1</td>
</tr>
<tr>
<td>Subtraction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B-15 Subtract 3-digit numbers with up to two regroupings, word problems.</td>
<td>17, 18, 23</td>
<td>15-1, 15-2, 49-2, 49-3</td>
</tr>
<tr>
<td>B-16 Subtract 3-digit numbers with regroupings across zero.</td>
<td>19</td>
<td>16-1</td>
</tr>
<tr>
<td>B-17 Subtract 4- or 5-digit numbers with regroupings, can be across zero.</td>
<td>20</td>
<td>17-1</td>
</tr>
<tr>
<td>B-18 Subtract numbers of varying lengths, 1- to 5-digits.</td>
<td>21</td>
<td>18-1</td>
</tr>
<tr>
<td>B-19 Knows the meaning of “difference” and the “-” sign in subtraction.</td>
<td></td>
<td>19-1</td>
</tr>
<tr>
<td>Multiplication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B-20 Knows multiplication facts with factors 0-9.</td>
<td>25, 26, 27</td>
<td>20-1, 20-2, 20-3</td>
</tr>
<tr>
<td>B-21 Multiply a 3-digit number by a 1-digit number, can be across zero.</td>
<td>29, 30, 31, 32, 33</td>
<td>21-1, 21-2</td>
</tr>
<tr>
<td>B-22 Multiply a 1- or 2-digit number by 10 or a multiple of 10.</td>
<td>28, 34, 35</td>
<td>22-1</td>
</tr>
<tr>
<td>B-23 Multiply a 2-digit number by a 2-digit number with regrouping.</td>
<td>23-1</td>
<td>23-1</td>
</tr>
<tr>
<td>B-24 Knows the meaning of “product” and the “x” sign in multiplication.</td>
<td></td>
<td>24-1</td>
</tr>
</tbody>
</table>

### Learning Objectives and Accountability

*Moving with Math®* learning objectives provide accountability to districts, parents, and students. Learning objectives match both what students need to know for future success and for state and national standardized tests. Call your local representative or (800) 852-2435 for state correlations.
Step 2: Assess

Tests Aligned to Objectives
Pre-Test Identifies Weak Skills,
Post-Test Demonstrates Progress

Testing Ensures Accountability
Each question number on the Pre-Test and the Post-Test assesses the same objective at the same difficulty level. For example, Problem 1 on both tests asks students about 3-digit place value. Each test is approximately 50 questions.
Step 3: Interpret

Using Test Results
Help teachers target and individualize instruction.

The Class Record Sheet shows:

1. Which objectives each student missed, and the number and percent correct for the Pre- and Post-Test.
2. The mean percent for the class.
3. The average percent correct for each objective.

Questions are grouped by content strand, so teachers can easily see areas of difficulty.

The Teacher Manual Includes Two Ways to View Results
The Class Record Sheet is grouped by objective and content strand, so a teacher can instantly recognize class weaknesses. Class Record Sheets also provide data for accountability.

The Student Progress Report is made for assessing individual progress and identifying at-risk students. It is an excellent tool for creating individualized education plans.
Part 1: Number Sense

Four-Digit Numbers

1. 1,273 means:
   1. 1,273 means:
      - 1 thousand
      - 2 hundreds
      - 7 tens
      - 3 ones

Five-Digit Numbers

2. Write the fraction for the shaded part of a whole.
   - Write the fraction for the shaded part of a whole.
   - Compare fractions less than 1 to fractions more than 1.
   - Add or subtract 2 proper fractions with like denominators.
   - Add or subtract 2 mixed numbers with like denominators.

Whole Number Operations

3. Add or subtract 3-digit numbers.
   - Add or subtract 3-digit numbers.
   - Add or subtract 3-digit numbers.
   - Add or subtract 3-digit numbers.
   - Add or subtract 3-digit numbers.

Geometry & Measurement

4. Identify solid figures such as cones, cylinders, spheres and cubes.
   - Identify solid figures such as cones, cylinders, spheres and cubes.
   - Identify solid figures such as cones, cylinders, spheres and cubes.
   - Identify solid figures such as cones, cylinders, spheres and cubes.
   - Identify solid figures such as cones, cylinders, spheres and cubes.

Problem Solving

5. Read and interpret a graph.
   - Read and interpret a graph.
   - Read and interpret a graph.
   - Read and interpret a graph.
   - Read and interpret a graph.

Multiply a 2-digit number by a multiple of 10.

6. Multiply a 2-digit number by a multiple of 10.
   - Multiply a 2-digit number by a multiple of 10.
   - Multiply a 2-digit number by a multiple of 10.
   - Multiply a 2-digit number by a multiple of 10.
   - Multiply a 2-digit number by a multiple of 10.

Rational Numbers

7. Write the fraction for the shaded part of a whole.
   - Write the fraction for the shaded part of a whole.
   - Write the fraction for the shaded part of a whole.
   - Write the fraction for the shaded part of a whole.
   - Write the fraction for the shaded part of a whole.

Whole Number Operations

8. Add or subtract 3-digit numbers.
   - Add or subtract 3-digit numbers.
   - Add or subtract 3-digit numbers.
   - Add or subtract 3-digit numbers.
   - Add or subtract 3-digit numbers.

Geometry & Measurement

9. Identify solid figures such as cones, cylinders, spheres and cubes.
   - Identify solid figures such as cones, cylinders, spheres and cubes.
   - Identify solid figures such as cones, cylinders, spheres and cubes.
   - Identify solid figures such as cones, cylinders, spheres and cubes.
   - Identify solid figures such as cones, cylinders, spheres and cubes.

Problem Solving

10. Read and interpret a graph.
    - Read and interpret a graph.
    - Read and interpret a graph.
    - Read and interpret a graph.
    - Read and interpret a graph.

Multiply a 2-digit number by a multiple of 10.

11. Multiply a 2-digit number by a multiple of 10.
    - Multiply a 2-digit number by a multiple of 10.
    - Multiply a 2-digit number by a multiple of 10.
    - Multiply a 2-digit number by a multiple of 10.
    - Multiply a 2-digit number by a multiple of 10.

Rational Numbers

12. Write the fraction for the shaded part of a whole.
    - Write the fraction for the shaded part of a whole.
    - Write the fraction for the shaded part of a whole.
    - Write the fraction for the shaded part of a whole.
    - Write the fraction for the shaded part of a whole.

Whole Number Operations

13. Add or subtract 3-digit numbers.
     - Add or subtract 3-digit numbers.
     - Add or subtract 3-digit numbers.
     - Add or subtract 3-digit numbers.
     - Add or subtract 3-digit numbers.

Geometry & Measurement

14. Identify solid figures such as cones, cylinders, spheres and cubes.
     - Identify solid figures such as cones, cylinders, spheres and cubes.
     - Identify solid figures such as cones, cylinders, spheres and cubes.
     - Identify solid figures such as cones, cylinders, spheres and cubes.
     - Identify solid figures such as cones, cylinders, spheres and cubes.

Problem Solving

15. Read and interpret a graph.
     - Read and interpret a graph.
     - Read and interpret a graph.
     - Read and interpret a graph.
     - Read and interpret a graph.

Multiply a 2-digit number by a multiple of 10.

16. Multiply a 2-digit number by a multiple of 10.
     - Multiply a 2-digit number by a multiple of 10.
     - Multiply a 2-digit number by a multiple of 10.
     - Multiply a 2-digit number by a multiple of 10.
     - Multiply a 2-digit number by a multiple of 10.

Rational Numbers

17. Write the fraction for the shaded part of a whole.
     - Write the fraction for the shaded part of a whole.
     - Write the fraction for the shaded part of a whole.
     - Write the fraction for the shaded part of a whole.
     - Write the fraction for the shaded part of a whole.

Whole Number Operations

18. Add or subtract 3-digit numbers.
      - Add or subtract 3-digit numbers.
      - Add or subtract 3-digit numbers.
      - Add or subtract 3-digit numbers.
      - Add or subtract 3-digit numbers.

Geometry & Measurement

19. Identify solid figures such as cones, cylinders, spheres and cubes.
      - Identify solid figures such as cones, cylinders, spheres and cubes.
      - Identify solid figures such as cones, cylinders, spheres and cubes.
      - Identify solid figures such as cones, cylinders, spheres and cubes.
      - Identify solid figures such as cones, cylinders, spheres and cubes.

Problem Solving

20. Read and interpret a graph.
      - Read and interpret a graph.
      - Read and interpret a graph.
      - Read and interpret a graph.
      - Read and interpret a graph.

Multiply a 2-digit number by a multiple of 10.

21. Multiply a 2-digit number by a multiple of 10.
      - Multiply a 2-digit number by a multiple of 10.
      - Multiply a 2-digit number by a multiple of 10.
      - Multiply a 2-digit number by a multiple of 10.
      - Multiply a 2-digit number by a multiple of 10.

Rational Numbers

22. Write the fraction for the shaded part of a whole.
      - Write the fraction for the shaded part of a whole.
      - Write the fraction for the shaded part of a whole.
      - Write the fraction for the shaded part of a whole.
      - Write the fraction for the shaded part of a whole.

Whole Number Operations

23. Add or subtract 3-digit numbers.
       - Add or subtract 3-digit numbers.
       - Add or subtract 3-digit numbers.
       - Add or subtract 3-digit numbers.
       - Add or subtract 3-digit numbers.

Geometry & Measurement

24. Identify solid figures such as cones, cylinders, spheres and cubes.
       - Identify solid figures such as cones, cylinders, spheres and cubes.
       - Identify solid figures such as cones, cylinders, spheres and cubes.
       - Identify solid figures such as cones, cylinders, spheres and cubes.
       - Identify solid figures such as cones, cylinders, spheres and cubes.

Problem Solving

25. Read and interpret a graph.
       - Read and interpret a graph.
       - Read and interpret a graph.
       - Read and interpret a graph.
       - Read and interpret a graph.

Multiply a 2-digit number by a multiple of 10.

26. Multiply a 2-digit number by a multiple of 10.
       - Multiply a 2-digit number by a multiple of 10.
       - Multiply a 2-digit number by a multiple of 10.
       - Multiply a 2-digit number by a multiple of 10.
       - Multiply a 2-digit number by a multiple of 10.

Rational Numbers

27. Write the fraction for the shaded part of a whole.
       - Write the fraction for the shaded part of a whole.
       - Write the fraction for the shaded part of a whole.
       - Write the fraction for the shaded part of a whole.
       - Write the fraction for the shaded part of a whole.

Whole Number Operations

28. Add or subtract 3-digit numbers.
           - Add or subtract 3-digit numbers.
           - Add or subtract 3-digit numbers.
           - Add or subtract 3-digit numbers.
           - Add or subtract 3-digit numbers.

Geometry & Measurement

29. Identify solid figures such as cones, cylinders, spheres and cubes.
           - Identify solid figures such as cones, cylinders, spheres and cubes.
           - Identify solid figures such as cones, cylinders, spheres and cubes.
           - Identify solid figures such as cones, cylinders, spheres and cubes.
           - Identify solid figures such as cones, cylinders, spheres and cubes.

Problem Solving

30. Read and interpret a graph.
           - Read and interpret a graph.
           - Read and interpret a graph.
           - Read and interpret a graph.
           - Read and interpret a graph.

Multiply a 2-digit number by a multiple of 10.

31. Multiply a 2-digit number by a multiple of 10.
           - Multiply a 2-digit number by a multiple of 10.
           - Multiply a 2-digit number by a multiple of 10.
           - Multiply a 2-digit number by a multiple of 10.
           - Multiply a 2-digit number by a multiple of 10.

Rational Numbers

32. Write the fraction for the shaded part of a whole.
           - Write the fraction for the shaded part of a whole.
           - Write the fraction for the shaded part of a whole.
           - Write the fraction for the shaded part of a whole.
           - Write the fraction for the shaded part of a whole.

Whole Number Operations

33. Add or subtract 3-digit numbers.
                  - Add or subtract 3-digit numbers.
                  - Add or subtract 3-digit numbers.
                  - Add or subtract 3-digit numbers.
                  - Add or subtract 3-digit numbers.

Geometry & Measurement

34. Identify solid figures such as cones, cylinders, spheres and cubes.
                  - Identify solid figures such as cones, cylinders, spheres and cubes.
                  - Identify solid figures such as cones, cylinders, spheres and cubes.
                  - Identify solid figures such as cones, cylinders, spheres and cubes.
                  - Identify solid figures such as cones, cylinders, spheres and cubes.

Problem Solving

35. Read and interpret a graph.
                  - Read and interpret a graph.
                  - Read and interpret a graph.
                  - Read and interpret a graph.
                  - Read and interpret a graph.

Multiply a 2-digit number by a multiple of 10.

36. Multiply a 2-digit number by a multiple of 10.
                  - Multiply a 2-digit number by a multiple of 10.
                  - Multiply a 2-digit number by a multiple of 10.
                  - Multiply a 2-digit number by a multiple of 10.
                  - Multiply a 2-digit number by a multiple of 10.
Step 5: Teaching Tools

Easy Lesson Planning
Teacher-friendly calendars show everything. Vocabulary develops the language of math.

Grade 4

<table>
<thead>
<tr>
<th>Warm-up</th>
<th>Lesson</th>
<th>Math Practice</th>
<th>Journal Prompt</th>
<th>Test Preparation</th>
<th>Games</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials: Base ten blocks, diya, place value mat, index cards, Master 3</td>
<td>Materials: Base ten blocks, diya, place value mat, index cards, Master 3</td>
<td>Test Day</td>
<td>Teacher Guide page 2</td>
<td>Daily Review 12 (in back of student book)</td>
<td>Number to 100 (Place Value Bingo (on Teacher Guide page 1, 4)</td>
</tr>
</tbody>
</table>

A typical lesson includes a Daily Review, a hands-on lesson with practice, and follow-up activities like games, journal prompts, and homework.

The time spent on a lesson may vary from 45 minutes to 4 hours, depending on time available, the amount of student practice, the number of activities to be completed, and the background of the students.

Glossary of Math Terms

- **pattern**: a series of numbers or figures that follows a general rule.
- **place value**: a system of naming numbers in which the value of a digit depends on its position in the numeral.
- **place value names**: ones, tenths, hundreds, thousands, ten thousands, hundred thousands, millions, ten millions, hundred millions, billions, ten billions, hundred billions.
- **positive integer**: any integer greater than zero; shown to the right of or above zero on a number line.
- **positive number**: any number greater than zero; shown to the right of zero on a number line.
- **prime factorization**: expressing a composite number as the product of prime numbers.

Students define vocabulary words in their Math Glossary.

Distribute a copy of the reproducible Math Glossary Master to each student. Definitions of math terms (in the Teacher Manual) can be used to prepare word wall vocabulary cards.
Hands-On Lessons
Each lesson is organized in 3 easy parts.

1. **Introductory Activities** direct guided, hands-on exploration.
2. **About This Page** connects the student book activities to the lesson.
3. **Follow Up Activities** provide games and reteaching opportunities.

**Objective**
To introduce the base ten blocks and 3-digit place value.

**Materials**
Base ten blocks, Place Value Mat (Masters 1 and 2 taped together), 6-sided dice

**Vocabulary**
place value, ones place, tens place, hundreds place

**Introductory Activities**

**Introducing Base Ten Blocks**

- The main reason children make errors with whole number algorithms is that they do not understand multi-digit numeration. They do not know that 43 means 4 tens and 3 ones or 40 + 3.
- Base ten blocks are ideal for teaching numeration concepts because students can see the abstract concept of place value each time they pick up a block. One tens block is always seen both as 1 ten or 10 ones; 1 hundred block is always seen as 1 hundred or 10 tens or 100 ones; 1 thousand block is always seen as 10 hundreds or 100 tens or 1000 ones.
- Carefully introduce the base ten blocks, allowing an appropriate exploratory time. Explain the benefits of manipulatives and ask for individual responsibility as the blocks are distributed.
- After students have spent 10–15 minutes exploring with the base ten blocks, ask them to describe their observations about the blocks. Encourage them to find all the ways they are alike and all the ways they are different. (Alike: made of the same material, all the same color; the sides of each block are made up of 1 centimeter squares. Different: different sizes.)
- Is there any pattern to the size of the blocks? (It takes 10 of 1 small block to equal 1 of the next larger block.) Name the smallest block as “ones” or “units,” the next largest block as “longs” or “tens,” and the largest block as “flats” or “hundreds.” Place each block where it belongs on the mat.

**About This Page**

- Direct attention to the top of the page. Have students match blocks to the pictures, place the blocks on the Place Value Mat and record the number of each block.

**Follow Up Activities**

- **Hammer to 100 Game**
  - Game for 2 players. Use base ten blocks in a pile: one 1 hundred flat, 20 tens and 30 ones. Each player takes turns tossing a 6-sided die and removing the number tossed from the pile. Each time a player gets 10 ones, they are exchanged for 1 ten. The first player to get exactly 10 tens on a toss exchanges it for the 100 flat and is the winner.

- **Chisel to Zero Game**
  - Game for 2 players. Use base ten blocks in a pile: 20 tens and 30 ones. Each player has a hundred flat to start with. A player tosses a 6-sided die and removes the number tossed out of her hundred flat. For example, if a 3 were thrown on the first turn, the player would first have to exchange the hundred flat for 10 tens and then exchange 1 of the tens for 10 ones so that the 3 ones could be removed. The winner is the first player to toss the exact number which will get to 0 blocks in her pile.

Each student page matches the same lesson plan page.

Page 12
Step 6: Review and Reteach

Continuous Reassessment
Spiral Reviews for Long-Term Retention

Daily Reviews
Class starts with a quick, five-question review from the back of the student book. Teachers review and discuss answers.

Identify Objectives Missed by Students
Daily review record sheets provide continuous tracking of each student’s progress.

Easy Reteaching
At a glance, teachers can track each student’s progress and pinpoint weak areas. Reproducible Skill Builders pages (shown here) for every objective are found in the Teacher Manual.

Every reteaching page is matched to an objective. This is the first reteaching page for objective 41.
Optional On-Line Assessment Technology Made Easy!

Standards-Aligned
Moving with Math® is aligned to state and national standards.

Easy to Use
User friendly—no software to install. All you need are computers and the internet.

Accountability
District, school, classroom, and individual reports can be generated automatically.

On-Line Tests
Students using Moving with Math may take their Pre-Test and Post-Test at any internet-connected computer.

Instant Reports
Teachers can print time-saving reports that show their class’ and students’ strengths and weaknesses.

Targeted Instruction
Reports give clear direction on using Moving with Math® to differentiate instruction and increase achievement.

Technology addressing the needs of Response to Intervention provides a blended curriculum experience.

Predictive screening Pre-Test Reports
- Identify students in each tier
- Form learning groups
- Provide Individual Educational Plans (IEPs)

Post-Test Reports
- Measure progress
- Provide accountability
- Indicate future instructional needs
Helping Teachers Reach Under-Prepared Students

Moving with Math® Workshops
Teachers learn the proven Moving with Math® method to reach under-prepared students. Strategies include using models, vocabulary development, and problem solving.
Teachers learn how to differentiate instruction using Moving with Math® assessments to target instruction on weak areas.
Teachers learn by doing. In our hands-on training, teachers practice key manipulative-based lessons that they will use in the classroom.

Even More Training Options
Professional Development Kits
Boxed kits contain all the training materials your staff needs to conduct workshops on their own. Each kit includes a teacher resource manual and student book, presenter’s guide, teacher handbooks, overhead transparencies, overhead manipulative, and a training video with sample manipulative-based lessons.

Training DVDs
In many cases, training DVDs are all teachers need to use the curriculum successfully. Each 30-minute grade-level DVD from K through 8 gives a curriculum overview and demonstrates key manipulative activities with students. Included with each Teacher Manual.

Getting the most out of Moving with Math®
Satisfied customers attribute success to Professional Development.

“The workshops helped teachers reach students who are struggling in math.”
“Teacher evaluations were positive and indicated a great appreciation for the time spent to prepare them for the program.”
“The teachers who taught summer school this year have reported student improvement.”

Martha Askew
Math Supervisor
Newport News, Virginia

Cathleen McStroul
Math Program Consultant 4-7
Regional Center for Teaching and Learning
Reno, Nevada
Grade K

List of Objectives, Tests, and Reviews

Teachers can easily track progress and individualize the program.

Objective K-5 (the cat) is connected throughout the program for easy tracking and reteaching.

Oral reviews allow individual or class review.

This page is found in the Teacher Manual. The 30 kindergarten objectives are identified by number and a unique symbol.
Objective: To introduce the plus sign. To introduce the equals sign.

Materials: Teddy bear counters, Teddy Bear Storyboard (Master 10), numeral cards (Master 6)

Introductory Activities:

Acting Out a Story, Introducing the Plus Sign
Have children model and retell the following story using teddy bear counters on the Teddy Bear Storyboard.

There were 4 teddy bears playing in the sandbox. One more teddy bear joined them. How many teddy bears are in the sandbox?

Ask children to tell you the numbers they heard in this story as you write each number on the chalkboard: 4 1 5.

This is a story about 4 bears, 1 bear and 5 bears. What was the action in the story? (The bears came together in the sandbox.) Very good.

We call the operation or process of joining things together “addition”. We use a special sign to show that the objects or numbers have been added. We use the plus sign.

Write a big plus sign on the board. Have students make a plus sign by crossing the index finger of each hand. Have a volunteer come to the board and draw the plus sign between the two numbers which were joined together.

Repeat with other stories.

Acting Out a Story, Introducing the Equals Sign
Have children tell and act out a story on the top part of the storyboard as you record the number sentence on the chalkboard.

Two bears were playing on the slide. One more bear came to play with them. How many were playing on the slide? Record 2, 1 and 3 on the chalkboard.

What sign should go between the 2 and 1? Why? (the plus sign, because we are putting two numbers together)

What number is present? (the number in all or the number you get when you add 2 and 1)

Because 2 plus 1 has the same value as 3, we say it is “equal to” 3.

Write the equals sign between the 1 and the 3 and say the number sentence aloud with the class, Two plus one equals three.

Give each student or small group a set of numeral cards, a “+” card, and an “=” card. Tell a sandbox story. This time have students select the numeral cards, “+” card, and “=” card to form a number sentence. For example:

There are 3 bears in the sandbox. Two more bears come to play. How many bears are now in the sandbox?

Follow Up Activities

Journal Prompt


Two Greedy Bears, Ginsburg, Mirra

Summary: A clever fox teaches two bears a lesson about greed and what is equal.

Activity: Use this story to introduce the lesson. The last line of the story says, “But they were equal.” Have the students explain what that means in their own words.

Skill Builders 26-1

Skill Builders may be assigned for further practice.
## Program Objectives

### Grade 1

### Student Progress Report (List of Objectives)

This page is in the Teacher Manual and in the Test Assessment Pack. It lists each skill alongside an objective number. This page provides the foundation for tracking a student’s achievement and may be sent home as a report card.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1</td>
<td>Match objects ≤ 9 with numerals.</td>
</tr>
<tr>
<td>A-2</td>
<td>Order numerals 0-9.</td>
</tr>
<tr>
<td>A-3</td>
<td>Compare sets ≤ 10 objects.</td>
</tr>
<tr>
<td>A-4</td>
<td>Write the numeral from sets of tens and ones.</td>
</tr>
<tr>
<td>A-5</td>
<td>Not tested in this level.</td>
</tr>
<tr>
<td>A-6</td>
<td>Write 5 numbers before or after any number ≤ 100.</td>
</tr>
<tr>
<td>A-7</td>
<td>Write a numeral up to 3 digits from printed words.</td>
</tr>
<tr>
<td>A-8</td>
<td>Write words for up to a 3-digit numeral.</td>
</tr>
<tr>
<td>A-9</td>
<td>Compare and order numbers to 999.</td>
</tr>
<tr>
<td>A-10</td>
<td>Compare lengths – long or short.</td>
</tr>
<tr>
<td>A-11</td>
<td>Compare objects – large or small.</td>
</tr>
<tr>
<td>A-12</td>
<td>Order 5 lengths.</td>
</tr>
<tr>
<td>A-13</td>
<td>Identify ordinals first through tenth.</td>
</tr>
<tr>
<td>A-14</td>
<td>Extend patterns of objects.</td>
</tr>
<tr>
<td>A-15</td>
<td>Add with sums ≤ 10.</td>
</tr>
<tr>
<td>A-16</td>
<td>Subtract with differences ≤ 10.</td>
</tr>
<tr>
<td>A-17</td>
<td>Add up to 3 numbers, sums ≤ 10.</td>
</tr>
<tr>
<td>A-18</td>
<td>Add with sums ≤ 18. Define “+” and “sum.”</td>
</tr>
<tr>
<td>A-19</td>
<td>Subtract a 1-digit from a 2-digit number ≤ 18. Define “−” and “difference.”</td>
</tr>
<tr>
<td>A-20</td>
<td>Add 2 numbers, 2 digits and 1 digit, no regrouping.</td>
</tr>
<tr>
<td>A-21</td>
<td>Add 2 multiples of 10, sums ≤ 90.</td>
</tr>
<tr>
<td>A-22</td>
<td>Add two 2-digit numbers, no regrouping.</td>
</tr>
<tr>
<td>A-23</td>
<td>Not tested in this level.</td>
</tr>
<tr>
<td>A-24</td>
<td>Not tested in this level.</td>
</tr>
<tr>
<td>A-25</td>
<td>Subtract two 2-digit numbers, no regrouping.</td>
</tr>
<tr>
<td>A-26</td>
<td>Not tested in this level.</td>
</tr>
<tr>
<td>A-27</td>
<td>Estimate and solve addition word problems. Use strategies.</td>
</tr>
<tr>
<td>A-28</td>
<td>Estimate and solve subtraction word problems. Use strategies.</td>
</tr>
<tr>
<td>A-29</td>
<td>Solve a subtraction problem asking, “How many more of one than another?”</td>
</tr>
<tr>
<td>A-30</td>
<td>Skip count by 2’s, 5’s, 10’s to 100.</td>
</tr>
<tr>
<td>A-31</td>
<td>Not tested in this level.</td>
</tr>
<tr>
<td>A-32</td>
<td>Identify “top” and “bottom.”</td>
</tr>
<tr>
<td>A-33</td>
<td>Identify “inside” and “outside.”</td>
</tr>
<tr>
<td>A-34</td>
<td>Identify “between.”</td>
</tr>
<tr>
<td>A-35</td>
<td>Identify “next to.”</td>
</tr>
<tr>
<td>A-36</td>
<td>Identify “above” and “below.”</td>
</tr>
<tr>
<td>A-37</td>
<td>Identify a square.</td>
</tr>
<tr>
<td>A-38</td>
<td>Identify a circle.</td>
</tr>
<tr>
<td>A-39</td>
<td>Identify a triangle.</td>
</tr>
<tr>
<td>A-40</td>
<td>Identify a rectangle.</td>
</tr>
<tr>
<td>A-41</td>
<td>Identify portions of a region as halves.</td>
</tr>
<tr>
<td>A-42</td>
<td>Identify portions of a region divided into thirds or fourths.</td>
</tr>
<tr>
<td>A-43</td>
<td>Select 2 figures with the same shape.</td>
</tr>
<tr>
<td>A-44</td>
<td>Select 2 figures with the same size.</td>
</tr>
<tr>
<td>A-45</td>
<td>Not tested in this level.</td>
</tr>
<tr>
<td>A-46</td>
<td>State the value of coins ≤ 9¢. Identify the penny and nickel.</td>
</tr>
<tr>
<td>A-47</td>
<td>State value of 1-9 dimes and 1-9 pennies. Identify the dime.</td>
</tr>
<tr>
<td>A-48</td>
<td>State value of coins and bills ≤ $2.00. Identify the quarter and half-dollar.</td>
</tr>
<tr>
<td>A-49</td>
<td>Tell time to the half hour. Interpret a calendar.</td>
</tr>
<tr>
<td>A-50</td>
<td>Measure to the nearest centimeter or inch. Read a graph.</td>
</tr>
</tbody>
</table>

**Total score (out of 44 possible)**

44 44
Tracking Achievement

Testing
The Test Assessment Pack contains 20 Pre-Test and 20 Post-Test booklets. Each test has 44 questions, one for each objective.

The number of each problem on the test matches the corresponding objective number of the opposite page.

Class Record Sheet
Results show improvement for each student and the class.

Teachers mark an X under the number of each problem the student misses. The total correct on the Pre- and Post-Test is recorded at the far right.
Objective: To develop an understanding that 10 ones have the same value as 1 ten.

Materials: Base ten blocks (ones and tens), 6-sided dice, plastic bags, paper clips

Vocabulary: Ones, units, tens, long

Introductory Activities

Exploring and Discovering Patterns
Each pair should have 25 ones blocks and 10 tens blocks. Allow a short exploratory period. Children might make buildings, roads and parking ramps. Have students share their discoveries.

Encourage children to look for patterns. These blocks are important because of the pattern used to make them. We can find important patterns if we ask ourselves how these blocks are all the same and how they are different.

Write 2 columns on the board: How are the blocks the same? How are the blocks different?

Talk with your partner about ways the blocks are alike or the same. Think of a way to record what you find. You can draw a picture or write a word. What is a way the blocks are the same? (e.g. same material.)

Write the answer under the word “same” on the chalkboard. 

Now find other ways they are alike. (smooth, have 8 points, 6 sides, slide, stack, same color, solids, all made of little cubes)

Ask how the blocks are different. (different size, length, weight)

How many different sizes do you have? (6)

Can you put 1 of each size in front of you? We call the smallest block the “ones” or “units” block. What is the relationship or pattern between the ones block and the other block? (It takes 10 ones blocks to make the next block.)

We will name the next size of block the “tens” or “long” block.

Follow Up Activities

SPIN TO 10
Each pair should have a die, 10 ones blocks and 1 tens block. Each pair puts a pile of ones blocks in the center of the play area. The tens block is put by itself and shared between players.

Player 1 throws the die, removes the number of ones from the pile, and places them by the tens block. Placing the ones blocks next to the tens block helps children see relationships, e.g. a 9 looks like 10 – 1 rather than 1, 2, 3… 9.

The winter is the first player who throws a number exactly to 10. (If a player has 9 ones and throws a 3, the player loses that turn. The player must spin “1” to get to 10 exactly.)

Journal Prompt
List the numbers from 11 to 20. Draw a picture showing how many tens and ones are in each number.
Test Preparation

Daily Reviews
Class starts with a five-question review from the back of the student book. Teachers review and discuss answers.

Daily Review Record Sheets
Students record their results on the record sheet, which identifies missed objectives.

Easy Reteaching
Reteaching is a snap. Teachers can track each student’s progress and pinpoint weak areas. Reproducible Skill Builders pages (shown here) for every objective are found in the Teacher Manual.

This page reteaches objective 47 and is the first page for reteaching that objective.

Problem 1 on Daily Review 15 matches objective 47.
Program Objectives

Grade 2

List of Objectives

Student Progress Report

Mark an X in the Pre- and/or Post-Test boxes to indicate missed objectives.

Student

Teacher

School

Pre-Test

Post-Test

Pre-Test

Post-Test

Numeration

- A-1 Match objects ≤ 9 with numerals.
- A-3 Use <, =, or > to compare sets with < 10 objects.
- A-4 Write the numeral from tens and ones blocks.
- A-5 Write the numeral from hundreds, tens and ones blocks.
- A-6 Write five numbers before or after any number < 100.
- A-7 Write any numeral up to three digits, given printed words.
- A-8 Read and write words for any 3-digit numeral.
- A-9 Order and compare numbers to 999. Complete number patterns.
- A-10 Compare lengths as longest or shortest.
- A-11 Compare objects as largest or smallest.
- A-12 Order five different lengths from shortest to longest.
- A-13 Identify ordinal positions first through tenth.
- A-14 Extend patterns of objects.

Operations

- A-15 Add sums < 10 in horizontal or vertical format.
- A-16 Subtract differences < 10 in horizontal or vertical format.
- A-17 Add two or three numbers, sums < 10.
- A-19 Subtract a 1-digit from a 2-digit number < 10.
- A-20 Add two numbers, 2 digits and 1 digit, no regrouping.
- A-21 Add two numbers, both multiples of 10, sums < 90.
- A-22 Add two numbers, 2 digits each, no regrouping.
- A-23 Add three numbers, 2 digits each, no regrouping.
- A-24 Add two numbers, 2 digits each, with regrouping.
- A-25 Subtract a 2-digit number from a 2-digit number, no regrouping.

Fractions, Geometry, Measurement

- A-26 Subtract a 2-digit number from a 2-digit number, with regrouping.
- A-27 Estimate and solve addition word problems.
- A-28 Estimate and solve subtraction word problems.
- A-29 Solve a subtraction word problem asking, “How many more?”
- A-30 Skip count by 2’s, 5’s, 10’s to 100.
- A-31 Divide a group of objects into equal groups, none remaining.

- A-32 Identify top and bottom in a location problem.
- A-33 Identify inside, outside in a location problem.
- A-34 Identify between in a location problem.
- A-36 Identify above and below in a location problem.
- A-37 Identify a square from a set of figures.
- A-38 Identify a circle from a set of figures.
- A-39 Identify a triangle from a set of figures.
- A-40 Identify a rectangle from a set of figures.
- A-41 Identify portions of a region as halves.
- A-42 Identify portions of a region divided into thirds or fourths.
- A-43 Select two figures with the same shape.
- A-44 Select two figures with the same size.
- A-45 Select two figures with the same shape and size.
- A-46 State the value of coins < 9¢. Identify the penny and nickel.
- A-47 State value of 1-9 dimes and 1-9 pennies. Identify the dime.
- A-48 State value of coins and bills < $2.00. Identify the quarter and half-dollar.
- A-49 Tell time in hours and half hours. Interpret a calendar.
- A-50 Measure to the nearest unit. Interpret graphs.

Total Score (out of 50 possible)

50 50

Assessment

Student Progress Report (List of Objectives)

This page is in the Teacher Manual and in the Test Assessment Pack. It lists each skill alongside an objective number. This page provides the foundation for tracking a student’s achievement and may be sent home as a report card.
Tracking Achievement

Testing

The Test Assessment Pack contains 20 Pre-Test and 20 Post-Test booklets. Each test has 50 questions, one for each objective.

The number of each problem on the test matches the corresponding objective number of the opposite page.

Class Record Sheet

Results show improvement for each student and the class.

Teachers mark an X under the number of each problem the student misses. The total correct on the Pre- and Post-Test is recorded at the far right.
Objective: To use base ten blocks to subtract 2-digit numbers, no regrouping. To find a pattern for subtracting 2-digit numbers.

Materials: Place Value Mat (Master 10 and 11), base ten blocks (tens and ones), tape recorder (optional), 6-sided dice or playing cards.

Introductory Activities

Each pair or group should have a Place Value Mat and base ten blocks. Today I will tell stories and record them on the tape recorder. Listen to the whole story the first time. Look for the question and needed facts. Discuss with your partner how to solve the problem.

Next I will retell the story and pause after each sentence for you to decide what to do. We will use the Place Value Mat and base ten blocks to solve the problem. After you have found the answer with blocks, think of a way to record the story with paper and pencil.

Story 1: You buy a box of 78 peanuts at the circus. You eat 34 peanuts. How many peanuts do you have left?

Students might record by drawing a picture using sticks or dots for tens and ones, or they might record:

Possible explanations or patterns:
1. I subtracted 30 from 70 and 4 from 8
2. 78 - 30 is 48 and 48 - 4 is 44
3. 70- 30 is 40 and 8 - 4 is 4, so the answer is 44.
4. Subtract the number in the ones place.
   Subtract the numbers in the tens place.

Story 2: You have 79 hot dogs. You sell 28 hot dogs. How many hot dogs do you have?

Story 3: You have 75 peanuts. Your friend Bill has fewer peanuts than you do. How many fewer peanuts does Bill have? (not enough information)

Work the example at the top of the page together. Have students use base ten blocks.

What is the pattern for subtracting 2-digit numbers? (Subtract the ones, then subtract the tens.) Have students complete the page.

BINGO

Skill Builders 25-3

Journal Prompt

Pat has 25 tickets. He uses 13 of them to go on a ride. How many tickets does he have left? Draw pictures of base ten blocks to solve and to explain your answer.

This is an activity to help students develop a deeper understanding of place value. By using base ten blocks, students can visualize the subtraction process and see how the numbers relate to each other. This hands-on approach helps students to develop a more intuitive understanding of subtraction, which can be particularly beneficial for students who are struggling with abstract concepts.

As students discover different ways to solve a subtraction problem, they gain self-confidence in their own ability to solve problems. This is a major reason for errors in computation is a lack of understanding of multi-digit numeration. Students use base ten blocks to understand place value concepts.
Test Preparation

Daily Reviews
Class starts with a five-question review from the back of the student book. Teachers review and discuss answers.

Daily Review Record Sheets
Students record their results on the record sheet, which identifies missed objectives.

Easy Reteaching
Reteaching is a snap. Teachers can track each student’s progress and pinpoint weak areas. Reproducible Skill Builders pages (shown here) for every objective are found in the Teacher Manual.

This page reteaches objective 4 and is the first page for reteaching that objective.
Program Objectives

Student Progress Report (List of Objectives)

This page is in the Teacher Manual and in the Test Assessment Pack. It lists each skill alongside an objective number. This page provides the foundation for tracking a student’s achievement and may be sent home as a report card.
43. What is the measure of the line to the nearest 0.5 cm?

44. 1 foot = ________ inches

45. 1 meter = ________ centimeters

46. Find the perimeter: ________

47. Alex has saved $10.00 to spend during a family trip. If he buys a sundae for $3.25, how much will Alex have left?

48. Find the perimeter: ________

49. There are 18 baseball player cards in a set. 3 friends wish to share a set equally. How many cards will each person receive?

50. How many students drink juice with their school lunch?

Class Record Sheet
Results show improvement for each student and the class.

Testing
The Test Assessment Pack contains 20 Pre-Test and 20 Post-Test booklets. Each test has 38 questions, one for each objective.

The number of each problem on the test matches the corresponding objective number of the opposite page.

Grade 3

Teachers see a snapshot of each student and the class at the beginning and end of the session.

Teachers mark an X under the number of each problem the student misses. The total correct on the Pre- and Post-Test is recorded at the far right.
Rounding to the Nearest Ten with Base Ten Blocks

Sometimes you do not need an exact answer. You need an answer that is close, or approximately equal to the exact number. Numbers can be rounded off to find an approximate answer.

Round 15 to the nearest ten. Use base ten blocks to round each number to the nearest ten. Look for a pattern.

Example: Round 17 to the nearest 10.
15 is a halfway number.
We round halfway numbers up.
Build a 17 train, a 10 train and a 20 train.
17 rounds to 20.

1. _______
2. _______
3. _______
4. _______
5. 61 _______
6. 87 _______
7. 8 _______
8. 25 _______
9. 73 _______
10. 73 _______
11. 41 _______
12. 65 _______
13. 27 _______
14. 89 _______
15. 48 _______

Objective: To round to the nearest ten, using a model.

Materials: Base ten blocks, interlocking cubes, real or play coins (Master 9)

Vocabulary: round

Rounding Pattern
Write on the board: There are 28 students in Room 114, 21 students in Room 115 and 25 students in Room 116. About how many students are in each room?

Have students use base ten blocks to discover a pattern for rounding each number.

We round numbers to find out “about how much” a number is. Build the number 28, (2 tens blocks and 8 ones blocks) About how many tens would you say 28 is? Have students skip count by tens from 10 to 100. Place the number 28 between 20 and 30.

Twenty-eight is between 2 tens and 3 tens. Build 2 tens and build 3 tens. Is 28 closer to 20 or 30? Work with your partner to decide if 28 is closer to 20 or 30 and how you know.

(It is closer to 30 because it would only take 2 more ones blocks to get to 30, but it would take 8 fewer blocks to get to 20. 28 is more than halfway between 20 and 30.)

Repeat with 21 and 25. Students should discover that numbers above the halfway number are “rounded up” and numbers below the halfway number are “rounded down.”

Point out that the halfway number, 25, is “rounded up” by agreement. This pattern also makes the rounding rule fair because five of the numbers in the twenties will round to 20 (20, 21, 22, 23, 24) and the other five numbers will round to 30 (25, 26, 27, 28, 29).

Follow Up Activities

Rounding Money
Write 43¢ on the chalkboard. Display 43¢ with dimes and pennies.

If we round 43¢ to the nearest dime, how many dimes is it closer to? (4 dimes) Repeat with 41¢, 42¢, 44¢, 46¢…49¢.

Write 45¢ on the chalkboard. What number of dimes is it closer to? (neither; halfway)
We agree that the halfway number is to be rounded up. Point out that there are 5 amounts with a 4 in the tens place which round down (40¢ to 44¢) and 5 which round up (45¢ to 49¢).

Journal Prompt
Round the number 76 to the nearest 10. Prove why it is nearest to that number. Use words, pictures and symbols to explain.

Skill Builders 7-1

Estimation is a difficult skill for many students. In this activity, students discover the pattern for rounding on their own.
Daily Reviews
Class starts with a five-question review from the back of the student book. Teachers review and discuss answers.

Daily Review Record Sheets
Students record their results on the record sheet, which identifies missed objectives.

Easy Reteaching
Reteaching is a snap. Teachers can track each student’s progress and pinpoint weak areas. Reproducible Skill Builders pages (shown here) for every objective are found in the Teacher Manual.

This page reteaches objective 41 and is the first page for reteaching that objective.
### Program Objectives

**Student Progress Report**

Mark an X in the Pre- and/or Post-Test boxes to indicate missed objectives.

#### Grade 4

**Pre-Test**

**Post-Test**

<table>
<thead>
<tr>
<th><strong>Numeration</strong></th>
<th><strong>Addition</strong></th>
<th><strong>Subtraction</strong></th>
<th><strong>Multiplication</strong></th>
<th><strong>Division</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>B-1 Identifying the place value in a 3-digit number.</td>
<td>B-10 Add 3-digit numbers with 2 regroupings.</td>
<td>B-15 Subtract 3-digit numbers with 2 regroupings.</td>
<td>B-20 Know multiplication facts up to 9’s.</td>
<td>B-25 Know division facts with divisors 0 to 9.</td>
</tr>
<tr>
<td>B-2 Comparing and ordering numbers up to 6 digits.</td>
<td>B-11 Add three or four 2-digit numbers.</td>
<td>B-16 Subtract 3-digit numbers with regroupings across 0.</td>
<td>B-21 Multiply a 3-digit number by a 1-digit number across zero.</td>
<td>B-26 Divide a 2-digit by a 1-digit number.</td>
</tr>
<tr>
<td>B-3 Completing patterns of multiples.</td>
<td>B-12 Add 4- or 5-digit numbers.</td>
<td>B-17 Subtract 5-digit numbers with regroupings across 0.</td>
<td>B-22 Multiply a 2-digit number by a multiple of 10.</td>
<td>B-27 Divide a 4-digit by a 1-digit number.</td>
</tr>
<tr>
<td>B-4 Writing a numeral from printed words.</td>
<td>B-13 Add up to 5 numbers of differing lengths.</td>
<td>B-18 Subtract numbers of varying lengths.</td>
<td>B-23 Multiply a 2-digit number by a 2-digit number with regrouping.</td>
<td></td>
</tr>
<tr>
<td>B-5 Writing the words for a numeral up to 6 digits.</td>
<td>B-14 Define the word “sum” and the “+” sign.</td>
<td>B-19 Define the word “difference” and the “–” sign.</td>
<td>B-24 Define the word “product” and the “x” sign.</td>
<td></td>
</tr>
<tr>
<td>B-6 Identifying the place value in a 6-digit number.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B-7 Rounding to the nearest ten.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B-8 Rounding to the nearest hundred.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B-9 Finding the missing number in an addition sentence.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Rational Numbers**

<table>
<thead>
<tr>
<th><strong>B-28</strong></th>
<th><strong>B-29</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Divide a 4-digit by a 1-digit number. 0’s in the quotient.</td>
<td>Define the word “quotient” and the “÷” sign.</td>
</tr>
</tbody>
</table>

**Geometry**

<table>
<thead>
<tr>
<th><strong>B-35</strong></th>
<th><strong>B-36</strong></th>
<th><strong>B-37</strong></th>
<th><strong>B-38</strong></th>
<th><strong>B-39</strong></th>
<th><strong>B-40</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify plane figures.</td>
<td>Identify and draw line positions.</td>
<td>Identify types of lines.</td>
<td>Identify a line of symmetry.</td>
<td>Identify congruent figures, name polygons.</td>
<td>Identify solid figures.</td>
</tr>
</tbody>
</table>

**Measurement**

<table>
<thead>
<tr>
<th><strong>B-41</strong></th>
<th><strong>B-42</strong></th>
<th><strong>B-43</strong></th>
<th><strong>B-44</strong></th>
<th><strong>B-45</strong></th>
<th><strong>B-46</strong></th>
<th><strong>B-47</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tell time to 5 minutes.</td>
<td>Read a thermometer, scale and calendar.</td>
<td>Measure to the nearest ½ inch or .5 cm.</td>
<td>Recall equivalency of customary units of length, weight and capacity.</td>
<td>Recall equivalency of metric units of length, weight and capacity.</td>
<td>Find the perimeter of a polygon. Find area.</td>
<td>Make change for $10.00.</td>
</tr>
</tbody>
</table>

**Problem Solving**

<table>
<thead>
<tr>
<th><strong>B-48</strong></th>
<th><strong>B-49</strong></th>
<th><strong>B-50</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Solve a word problem with multiplication.</td>
<td>Solve a word problem with division.</td>
<td>Read and interpret a graph.</td>
</tr>
</tbody>
</table>

**Total Score (out of 50 possible)**

50

---

**Student Progress Report (List of Objectives)**

This page is in the Teacher Manual and in the Test Assessment Pack. It lists each skill alongside an objective number. This page provides the foundation for tracking a student’s achievement and may be sent home as a report card.
31. What fraction of the set of birds has speckled wings? 

32. Which symbol (>, <, =) goes in the box to make this sentence true? 

33. Jeff’s mother exercises on Saturday mornings. She jogs \( \frac{3}{5} \) mile and then walks \( \frac{2}{5} \) mile. How far has she traveled? 

34. \( 5 \) – \( 2 \)  

35. Which is a line segment? 

36. The map shows the street near Martha’s school. Which street runs in a vertical direction on the map? 

Tracking Achievement

Testing

The Test Assessment Pack contains 20 Pre-Test and 20 Post-Test booklets. Each test has 50 questions, one for each objective. The number of each problem on the test matches the corresponding objective number of the opposite page. 

Class Record Sheet

Results show improvement for each student and the class.

Teachers mark an X under the number of each problem the student misses. The total correct on the Pre- and Post-Test is recorded at the far right.
Objective: To use models to relate multiplication and division as opposites.

Materials: Base ten units blocks, interlocking plastic cubes, number line (Master 12), soft ball

Relating Multiplication and Division

Review the meaning of multiplication as putting together groups of equal size by acting out a problem.

Jane, Jack and Kim, would you each bring 4 books and place them on a pile on my desk? How many books are on my desk? (12) How did you get the answer? (skip counting by 4’s or multiplying 3 x 4) The answer could be found by adding groups of equal size or multiplying.

Write on the board: 4 + 4 + 4 = 12 or 3 x 4 = 12.

Show that division is the opposite of multiplication by putting the 12 books together in one pile. Then ask one student at a time to each remove 4 books from your desk. How many students removed groups of 4 books each? (3) How did you get your answer? I watched the problem being acted out and I saw that 4 could be subtracted three times.

Write on the board: 12 = 8 = 4 = 0 (3 groups of 4)

Follow Up Activities

Division on the Number Line

Mount a number line (made on page 25) on the wall. Pretend you have a board 12 feet long. You want to cut 4-foot shelves. How many shelves can you cut? Place 12 cubes above the number line. Remove 4 cubes at a time, showing 3 groups of 4.

Relating Multiplication and Division Game

Divide students into small groups of 4 to 6 students. A player in the middle throws a soft ball to a player in the outer circle saying a multiplication fact at the same time, “6 times 8...” The other player catches the ball and says the answer, “48,” and throws the ball back to the center, saying a related division fact at the same time, “48 divided by 6...”.

Journal Prompt

Describe how multiplication and division are opposites. Use the problems 3 x 7 = 21 and 21 ÷ 3 = 7 in your explanation.

Skill Builders 25-2
Test Preparation

Daily Reviews
Class starts with a five-question review from the back of the student book. Teachers review and discuss answers.

Daily Review 15
1. What time is it?
2. What is the temperature?
3. How far is the line to the nearest half inch?
4. Tom typed 24 words per minute for 3 minutes. How many words did he type?
5. There is room for 4 students at each table in the library. How many tables will 36 students fill?

Daily Review Record Sheets
Students record their results on the record sheet, which identifies missed objectives.

Easy Reteaching
Reteaching is a snap. Teachers can track each student’s progress and pinpoint weak areas. Reproducible Skill Builders pages (shown here) for every objective are found in the Teacher Manual.

Daily Review 15
1. Cut out the 1 inch measure. Use it to mark off 1 inch lengths along the edge of the ruler. Label each mark 0, 1, 2, 3, and so on.
2. Cut out your ruler. Measure the lines below to the nearest inch. Write the objective.
3. Cut out the 2 inch measure. Use it to mark off ½ inch lengths along the edge of the ruler. Label each mark 0, 1, 2, 3, and so on.
4. Cut out your ruler. Measure the lines below to the nearest 1 inch. Write the objective above each line.

This page reteaches objective 43 and is the first page for reteaching that objective.

© Math Teachers Press, Inc.
Daily Review 9
Name _____________________
Date _____ Post-test _____
Skill Builders 43-1
Daily Review 10
Name _____________________
Date _____ Pre-test _____
### Student Progress Report (List of Objectives)

This page is in the Teacher Manual and in the Test Assessment Pack. It lists each skill alongside an objective number. This page provides the foundation for tracking a student’s achievement and may be sent home as a report card.
Tracking Achievement

44. What number goes in the box?
   18, 24, □, 36, 42

45. The regular price of a jacket is $39.60. It was marked \( \frac{3}{5} \) off. What is the amount of discount (the amount of reduction)?

46. Find the average (mean) of these numbers:
   8, 5, 7, 4

47. Menu
   Hot Dog \$0.65
   Chili .95
   Soda .70

   What is the cost of 1 hot dog and 2 sodas?

48. How many more plate lunches were sold on Monday than on Friday?

49. Estimate by rounding each number to the nearest hundred and then subtracting.
   783 – 219 = ________

50. Estimate by rounding each number to the nearest ten and then multiplying.
   78 \times 31 = ________

Testing

The Test Assessment Pack contains 20 Pre-Test and 20 Post-Test booklets. Each test has 45 questions, one for each objective.

The number of each problem on the test matches the corresponding objective number of the opposite page.

Class Record Sheet

Results show improvement for each student and the class.

Teachers mark an X under the number of each problem the student misses. The total correct on the Pre- and Post-Test is recorded at the far right.
Objective: To name fractions from fraction bars. To identify similarities and differences among fraction bars.

Materials: Fraction Bars®, overhead Fraction Bars® (optional)

Vocabulary: fraction, similarities, differences, pattern

Introductory Activities

Discover the Concept of a Fraction

Distribute a set of fraction bars to each group of 2 to 5 students.

Each fraction bar in this set represents one whole or one unit such as one whole cracker or one whole brownie. Look through your set of fraction bars with your group. Discuss in what ways your bars are all alike and in what ways they are different. Record your findings in a table with two columns headed “Similarities and Differences.”

After 5–10 minutes, ask volunteers from each group to suggest the similarities and differences they have found. 

**SIMILARITIES**
- same shape
- same size
- congruent
- same width/length
- same area/perimeter
- same thickness
- same weight
- same material
- *all divided into parts of equal size*

**DIFFERENCES**
- colors
divided into different numbers of parts
number of shaded parts is different
number of bars of any one color

Parts of equal size

*It is very important that the last similarity, i.e., each bar is divided into parts of equal size, be verbalized. This is the essential concept of a fraction. To guide this discovery, ask What do the lines do to the fraction bar? (divide the bar into parts of equal size)*

What's My Secret?

With a partner or small group, students take turns selecting a subset of fraction bars which are alike in one way. Others in the group try to guess the secret. Demonstrate an example by showing all the bars of one color and have students guess the secret of the sorting. Other ways the students will sort by: everything shaded, nothing shaded, one part shaded, equivalent parts (such as 1/2, 2/4, 3/6, 5/10, 6/12) shaded, more than 1/2 shaded, and so on.

About This Page

This page provides examples of ways students may have sorted their fraction bars. Students generalize how three fractions are alike according to some attribute. Illustrate the first problem with overhead fraction bars or by drawing a picture.

Follow Up Activities

Journal Prompt

Draw a picture and use symbols to illustrate what Jon did each time.
1. Jon cut his whole pizza into 4 slices of equal size. What fraction is one slice?
2. Jon cut 1 slice into 2 smaller parts of equal size. What fraction names the smaller part?

Skill Builders 11-1, 11-2

Math games require students to apply their knowledge to “stump” their partner.

As students answer the question “How are these bars alike and how are they different?” they discover the essential concept of a fraction—a whole divided into parts of equal size.
Grade 5

Test Preparation

Daily Reviews
Class starts with a five-question review from the back of the student book. Teachers review and discuss answers.

Daily Review 13
1. What decimal fraction is shown at Point A on the number line? ________

2. Lines ______ are perpendicular. (A) (C) (B) (D)

3. Which angle is 90°? (A) (C) (B) (D)

4. What digit is in the tenths' place in the numeral 0.123? ________

5. CD is what part of the circle? ______ (A) center (B) diameter (C) radius (D) circumference

Daily Review Record Sheets
Students record their results on the record sheet, which identifies missed objectives.

Easy Reteaching
Reteaching is a snap. Teachers can track each student’s progress and pinpoint weak areas. Reproducible Skill Builders pages (shown here) for every objective are found in the Teacher Manual.

This page reteaches objective 33 and is the first page for reteaching that objective.
**Program Objectives**

### Grade 6

#### List of Objectives

**Numeration**
- C-1: Identify the place value in a 7-digit number.
- C-2: Read, write and compare 9-digit numbers.
- C-3: Round to the nearest thousand.
- C-4: Identify prime numbers and the factors.
- C-5: Use the commutative, associative or the distributive property.

**Whole Number Operations**
- C-6: Add numbers up to 6-digits.
- C-7: Subtract numbers up to 6-digits.
- C-8: Multiply a 3-digit number by a 2-digit number. Multiply by multiples of 10.
- C-9: Divide a 6-digit by a 1-digit number.
- C-10: Divide a 4-digit by a 2-digit number.

**Fractions**
- C-11: Write fractions from shaded regions, number lines and printed words.
- C-12: Find equivalent fractions.
- C-13: Compare 2 like or unlike proper fractions and order 5 like or unlike proper fractions.
- C-14: Interchange mixed numbers and improper fractions.
- C-15: Add/subtract fractions with common denominators.
- C-16: Add/subtract mixed numbers with common denominators.
- C-17: Add/subtract unlike proper fractions.
- C-18: Can find the common denominator.
- C-19: Multiply 2 proper non-reducible fractions or a proper fraction by a whole number.
- C-20: Divide proper fractions by proper fractions or whole numbers.

**Decimals**
- C-21: Write decimals from a picture or from a number line.
- C-22: Read and write decimals up to thousandths.
- C-23: Identify place value up to ten-thousandths.
- C-24: Convert/order decimals up to hundredths.
- C-25: Interchange fractions having denominators of 10 or 100 with decimals.

**Geometry & Measurement**
- C-31: Identify a point, line, line segment, ray and angle.
- C-32: Identify lines.
- C-33: Identify angles.
- C-34: Identify basic shapes and solids.
- C-35: Identify parts of a circle.
- C-36: Measure to the nearest ¼ unit.
- C-37: Use a protractor to measure and draw angles.
- C-38: Find the perimeter or area.
- C-39: Find the volume of a rectangular solid.
- C-40: Tell time to the nearest minute.
- C-41: Use the appropriate unit for weight.
- C-42: Use the appropriate unit for liquid capacity.
- C-43: Give the total value of a combination of coins and bills; make change for a $20 bill.

**Problem Solving**
- C-44: Can find the missing number in patterns.
- C-45: Can solve a 1-step word problem with whole numbers.
- C-46: Find the average of whole numbers or decimals.
- C-47: Read and interpret pictographs, bar graphs, tables and charts.
- C-48: Read and interpret line graphs and circle graphs.
- C-49: Estimate sums and differences of numbers up to and including 4 digits.
- C-50: Estimate products of a 3-digit number.

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**Student Progress Report (List of Objectives)**

This page is in the Teacher Manual and in the Test Assessment Pack. It lists each skill alongside an objective number. This page provides the foundation for tracking a student’s achievement and may be sent home as a report card.
37. What is the measure?
(A) 40°
(B) 135°
(C) 140°
(D) 145°

38. If 1 square unit, what is the area in square units?

39. 1 cubic centimeter
What is the volume in cubic centimeters?

40. What time will it be 2 hours and 20 minutes after 6:15?

41. The weight of a paper clip is approximately _______.
(A) 1 pound
(B) 1 gram
(C) 1 kilogram
(D) 1 ton

42. 1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
3 quarts = _______ cups

43. How much money? _______

Class Record Sheet
Results show improvement for each student and the class.

Teachers mark an X under the number of each problem the student misses. The total correct on the Pre- and Post-Test is recorded at the far right.

Testing
The Test Assessment Pack contains 20 Pre-Test and 20 Post-Test booklets. Each test has 50 questions, one for each objective.

The number of each problem on the test matches the corresponding objective number of the opposite page.
**Objective:** To identify angles as right, acute, obtuse or straight.

**Materials:** Geoboards (or Master 12), masking tape, overhead geoboards (optional)

**Vocabulary:** right, obtuse, acute, straight, congruent

### Geoboard Activities

**Using a 25 peg geoboard, put a strip of masking tape below each row of pegs. Starting at the top left peg, write the letters A–E below each peg in the first row, F–J below each peg in the second row, K–O in the third row, P–T in the fourth row and U–Y in the bottom row. Use an overhead geoboard to demonstrate and to parallel the activities with the students.**

**Have students find and label a pair of line segments that are the same length. These line segments are congruent.** Show an angle on a geoboard. Name another angle that is congruent. Prove they are congruent by using Master 12 and cutting out the first angle and placing the cutout on the other angle.

### Geoboard Activities

Draw a right angle HRT on the chalkboard or overhead geoboard. Have students form the angle on their geoboards. Describe \( \angle HRT \) (a right angle, an angle with square corners, sides HR and RT are perpendicular.)

Draw an acute \( \angle JRT \) on the chalkboard. Have students form the same angle on their geoboards, using a contrasting color to \( \angle HRT \).

**How does \( \angle JRT \) compare to \( \angle HRT \)?** [has a smaller measure] Is \( \angle JRT \) more than, less than or equal to 90°? [less than] Estimate the measure of \( \angle JRT \). (45°) Angles measuring less than 90° are called acute angles.

Draw \( \angle GRT \) on the chalkboard and repeat the activity to identify the angle at \( \angle GRT \) as measuring more than 90°.

### About This Page

Ask students to study the two right angles drawn in the first illustration. **How does the size of the second angle compare to the size of the first?** (same) **How do you know?** (The small box always means 90°, the size of the angle does not change as the whole angle is rotated.)

### Follow Up Activities

#### Journal Prompt

Think of the three types of angles: right, obtuse and acute. Explain how these angles are different.

#### Skill Builders 33-1

Students use geoboards to show models of geometric concepts.
Test Preparation

Daily Reviews
Class starts with a five-question review from the back of the student book. Teachers review and discuss answers.

Daily Review Record Sheets
Students record their results on the record sheet, which identifies missed objectives.

Easy Reteaching
Reteaching is a snap. Teachers can track each student’s progress and pinpoint weak areas. Reproducible Skill Builders pages (shown here) for every objective are found in the Teacher Manual.

This page reteaches objective 39 and is the first page for reteaching that objective.
## Program Objectives

### Student Progress Report (List of Objectives)

This page is in the Teacher Manual and in the Test Assessment Pack. It lists each skill alongside an objective number. This page provides the foundation for tracking a student’s achievement and may be sent home as a report card.
40. What is the area of the figure above in square inches? ______________

41. What is the volume of the rectangular solid in cubic centimeters? ______________

42. What number goes in the box? ______________

7, 13, 19, ______________

43. A large sack of dog food weighs 20 lb. and costs $2.80. What is the cost per pound? ______________

44. Which of the following is not a reasonable estimate? A 521 \times 495 = 250,000 
B 892 \div 29 = 300 
C 9,742 \times 212 = 2,000,000 
D 28,200 \div 400 = 70 

45. In three games, Leif had the following batting averages: .312, .301, and .362. What was his average for the three games? ______________

46. A car travels 11 miles in 20 minutes. At that rate, how far would the car go in 60 minutes? ______________

47. If you toss a die, what is the probability that you will land on an even number? ______________

48. The temperature readings were $-15°$ at midnight and $20°$ at noon. What amount of change had taken place? ______________

49. The coordinates of point $Q$ are (____, ____).

50. What is the value of $x$ in the equation in the box? ______________

$$2x + 3 = 13$$

The Test Assessment Pack contains 20 Pre-Test and 20 Post-Test booklets. Each test has 50 questions, one for each objective.

The number of each problem on the test matches the corresponding objective number of the opposite page.

Class Record Sheet

Results show improvement for each student and the class.

Teachers mark an X under the number of each problem the student misses. The total correct on the Pre- and Post-Test is recorded at the far right.
Objective: To find the volume of a rectangular solid.

Materials: Centimeter graph paper, centimeter cubes, scissors, tape, base ten blocks, one inch graph paper (Master 1)

**Introductory Activities**

**A Cubic Centimeter**

Each small group should have graph paper, scissors, and tape.

Use your centimeter graph paper, scissors, and tape to build a model of a cube measuring 1 cm on each edge. The space inside your cube is called its capacity or volume.

The 1 cm cube has a volume of 1 cubic centimeter.

Write on the board: The volume of a 1 cm cube = 1 cubic centimeter (or 1 cu cm or 1 cm^3)

Display 1 unit block from a set of base ten blocks. This block or cube is 1 centimeter on each edge. It is a 1 centimeter cube and has a volume of 1 cubic centimeter. Show a solid with a volume of 2 cubic centimeters. (2 cubes placed together)

Have students build different models of solids having a capacity or volume of 4 cubic inches. Discuss how the models are alike and different. (They all have the same volume but have different shapes.)

Next build a box that is 6 centimeters by 4 centimeters wide and 2 centimeters high.

Find the number of cubic centimeters inside the box. Students should build the model with their graph paper to find the answer.

**Follow Up Activities**

**A Cubic Inch**

Use your one-inch graph paper, scissors, and tape to build a model of a cube measuring 1 inch on each side. The space inside your cube is called its capacity or volume. A one-inch cube has a capacity or volume of 1 cubic inch.

**Journal Prompt**

Would you use perimeter, area or volume to measure:

1. the length of wood needed to frame a picture
2. the water needed to fill a bathtub
3. carpet needed to cover the living room floor
4. fencing to enclose a small garden

Explain each of your answers by drawing and labeling diagrams.
Daily Reviews
Class starts with a five-question review from the back of the student book. Teachers review and discuss answers.

Daily Review Record Sheets
Students record their results on the record sheet, which identifies missed objectives.

Easy Reteaching
Reteaching is a snap. Teachers can track each student’s progress and pinpoint weak areas. Reproducible Skill Builders pages (shown here) for every objective are found in the Teacher Manual.

This page reteaches objective 38 and is the first page for reteaching that objective.
### Student Progress Report (List of Objectives)

This page is in the Teacher Manual and in the Test Assessment Pack. It lists each skill alongside an objective number. This page provides the foundation for tracking a student’s achievement and may be sent home as a report card.
55. Flags shaped like triangles are cut from canvas. What is the area of the flag in square inches?

\( A = \frac{1}{2}bh \)

\[ \text{_________ sq. in.} \]

56. Arnie made a circular flower bed. What is the approximate area of the flower bed?

\( A = \pi r^2 \)

\[ \pi = 3.14 \]

\[ \text{_______ sq. ft.} \]

57. If the distance from the sun to the earth is 95,000,000 miles, this distance may be expressed in scientific notation as

\[ 9.5 \times 10^8 \text{ miles} \]

58. What number goes in the box?

\[ (4)(-2) = \square \]

59. The correct evaluation for the expression in the box is

\[ \frac{1}{2} \times 3 - 4 - 2 \]

A \[ \frac{1}{2} \]  
B 9  
C 11  
D 28

60. If \( A = 8 \) and \( B = 6 \), find the value of \( A + B \).

\[ A + B = \square \]

Class Record Sheet

Results show improvement for each student and the class.

Testing

The Test Assessment Pack contains 20 Pre-Test and 20 Post-Test booklets. Each test has 60 questions, one for each objective.

The number of each problem on the test matches the corresponding objective number on the opposite page.
Objectives: To square a number. To find the square root of a number. To find the Pythagorean relationship in right triangles.

Materials: Centimeter Graph Paper (Master 5), crayons, scissors, glue

Vocabulary: Square, squared, exponent, factor, square root, Pythagorean theorem, legs, hypotenuse, radical sign

**Introductory Activities**

**Squaring a Number**

Display a 1 centimeter square and describe the number of units on each side. This is the smallest square shape we can make with these squares. Each side of the square has a unit of 1. How many units on the horizontal side? (1) How many units on the vertical side? (1)

Write on the board: The square of 1 = 1 x 1 = 1

Build the next smallest square shape. How many units on the vertical side? (2) How many units on the horizontal side? (2)

Write on the board: The square of 2 = 2 x 2 = 4

Introduce the exponent as a shortcut way of expressing each relationship, e.g. 2^2 = 2 x 2 or 4.

Have students continue the following table:

<table>
<thead>
<tr>
<th>Units</th>
<th>Horizontal</th>
<th>Squares</th>
<th>Relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 by 1</td>
<td>1</td>
<td>1^2 = 1 x 1 = 1</td>
</tr>
<tr>
<td>2</td>
<td>2 by 2</td>
<td>4</td>
<td>2^2 = 2 x 2 = 4</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>10</td>
<td>10 by 10</td>
<td>100</td>
<td>10^2 = 10 x 10 = 100</td>
</tr>
</tbody>
</table>

**Square Roots**

Now we will undo squaring a number. We will build the squared number with small squares and then find how many units on each side to find the original number.

Build a square using exactly 9 of your small squares. How many small squares in the large square? (9) How many units on each side of the large square? (3)

The number of units on each side is called the square root. We say the square root of 9 is 3 and we write this relationship with a special symbol called the radical sign.

Write on the board: \( \sqrt{9} = 3 \)

**Discovering the Right Triangle Pattern**

Each student will need a sheet of centimeter graph paper and base ten blocks. Have students outline and cut a square with 1 cm on each side, 2 cm … 10 cm on each side.

Write on the board: How many right triangles can be formed by joining 3 different sides of your 10 squares?

Ask students to describe each right triangle they find. (Students will find the 3-4-5 right triangles and the 6-8-10.) There is a pattern for the sides of every right triangle. The sum of the squares on the 2 small ends of a right triangle equals the square on the large side.

**About This Page**

Work the top of the page together, then have students complete the page on their own.

**Follow Up Activities**

**Journal Prompt**

Evon said a triangle with units of 6 cm, 3 cm and 12 cm is a right triangle. Draw a picture of the triangle. Explain why you agree or disagree with Evon.

In this lesson, students use squares of different sizes to discover the Pythagorean Theorem.
Scale Drawings

A scale drawing allows you to represent large distances on a small sheet of paper.

REGULATION BASKETBALL COURT
Scale: 1 cm = 5 ft.

Use a centimeter ruler to help answer the questions.

1. Use a scale of \( \frac{1}{4} \) in. = 1 ft. and make a scale drawing of a room of your choice (bedroom, classroom, etc.).

2. \[\text{length of drawing} = \frac{1}{4} \text{in.} \]
\[\text{actual length of court} = 5 \text{ft.} \]

3. \[\text{width of free throw line} = \frac{1}{4} \text{in.} \]
\[\text{actual width of free throw line} = 1 \text{ft.} \]

4. \[\text{distance from center court to free throw line} = \frac{1}{4} \text{in.} \]

Daily Review 13

To find how much capacity a solid holds, you would find its _________.

1. (A) length (C) perimeter (B) area (D) volume

2. What is the average of .78, .83, .91, .82 and .86?

3. In a scale drawing, 1 cm stands for 5 meters. How long a line would be drawn to represent 100 meters?

4. What is the probability that the spinner will land on a 6?

5. What are the coordinates of point Q?

Daily Review Record Sheets
Students record their results on the record sheet, which identifies missed objectives.

Easy Reteaching

Reteaching is a snap. Teachers can track each student’s progress and pinpoint weak areas. Reproducible Skill Builders pages (shown here) for every objective are found in the Teacher Manual.

Daily Reviews
Class starts with a five-question review from the back of the student book. Teachers review and discuss answers.
Boxed Class Kits in Spanish

A boxed class kit in Spanish includes:
1 English Teacher Manual
1 Spanish Resource Pack
20 Spanish student workbooks
20 Spanish Parent Handbooks

Getting Started in Spanish...

The Extensions series is made to fit seamlessly into any classroom, whether it’s taught in English, part English and part Spanish, or entirely in Spanish. This program is ideal for second language and ELL students because manipulatives convey the abstract concept even when students have difficulty understanding the spoken language.

Content-based instruction is combined with language development activities to increase ELL students’ understanding of math concepts and skills.

The Grade 4 Pre-Test in Spanish tests the same objectives as the English Pre-Test shown on page 8.

The Spanish Resource Pack contains matching Pre- and Post-Tests plus Skill Builders reteaching pages and vocabulary words in Spanish. All are reproducible.
Matching Books

English and Spanish pages match exactly!

After exploring with base ten blocks, students understand that ten of any one block equals one of the next larger block.

Easy Review and Reteaching in Spanish


Call 1-800-852-2435 to receive a copy of results achieved with second language students.
Response to Intervention

Moving with Math® materials integrate all eight of the Best Practices published by What Works Clearinghouse.

Moving with Math® Extensions addresses all the essential math content standards for grades K through 8. Moving with Math® Extensions is RTI Ready™ and includes all of the recommendations listed below.

Moving with Math® Extensions RTI Check List ✔

✔ Predictive Screening:
  - Pre-Tests, Post-Tests, Daily Reviews, and weekly Check Points
    identify at-risk students and monitor progress

✔ In-Depth Instruction:
  - Focus on whole numbers in grades 1 through 4
  - Focus on rational numbers in grades 4 through 8 (decimals and fractions)

✔ Systematic and Explicit Instruction:
  - Lightly-scripted lesson plans guide instruction
  - Classroom activities use explicit models and strategies
  - Students given opportunities to verbalize, write, discuss, and practice skills learned

✔ Solving Word Problems:
  - Explicit steps and strategies for solving word problems
  - Practice solving word problems using alternative strategies
  - Use of word frames [underlying structures] in solving word problems

✔ Visual Representations of Math Concepts:
  - Manipulative-based activities introduce each math concept
  - Pictorial representations on every student page

✔ Fluency-Building Activities:
  - Skill Builder worksheets include flash cards, timed exercises, speed games
  - Include research-based strategies such as fact families

✔ Monitoring:
  - Pre-Tests, Post-Tests, Daily Reviews, weekly Check Points,
    and embedded assessments monitor the progress of at-risk students

✔ Motivation:
  - Activity-based instruction offers rich opportunities for student success
    and natural occasions for praise and encouragement

“RTI intentionally cuts across the borders of special education and general education and involves school-wide collaboration.”

Assisting Students Struggling with Mathematics: Response to Intervention (RTI) for Elementary and Middle Schools, National Center for Education Evaluation and Regional Assistance, 2009

Moving with Math® Foundations and Math by Topic (IM/MH) are also RTI Ready™. Visit our website to learn more.

www.movingwithmath.com