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Bridges Correlations to Common Core State Standards, Grade 1 i–x

Published by The MATH LEARNING CENTER Salem, Oregon
Bridges in Mathematics Grade 1 Supplement
Common Core State Standards Sets

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Bridges in Mathematics is a standards-based K–5 curriculum that provides a unique blend of concept development and skills practice in the context of problem solving. It incorporates the Number Corner, a collection of daily skill-building activities for students.

The Math Learning Center is a nonprofit organization serving the education community. Our mission is to inspire and enable individuals to discover and develop their mathematical confidence and ability. We offer innovative and standards-based professional development, curriculum, materials, and resources to support learning and teaching. To find out more, visit us at www.mathlearningcenter.org.
Bridges in Mathematics Grade 1 Supplement
Common Core State Standards Sets

Introduction

The Bridges Grade One Supplement is a collection of activities written to help teachers address the Common Core State Standards published in 2010. These materials are available for free as downloadable files on The Math Learning Center Web site at www.gotomlc.org/ccss. This supplement will continue to be refined and subsequent versions will also be available online at no charge.

Many of the activities included here are designed to be used in place of selected sessions in Bridges Grade One starting in Unit 2. Others replace one or more days of Number Corner, starting in September. All of the activities are listed on pages 2–6 in the order in which they appear in the Supplement. They are listed in recommended teaching order on pages 7–9. On pages 11–28, you’ll also find a set of sheets designed to replace the Planning Guides found at the beginning of Units 2, 3, and 5 in the Bridges Teacher’s Guides. These sheets show exactly how the Supplement activities fit into the flow of instruction. We suggest you insert these sheets into your Bridges guides so you can see at a glance when to teach the Supplement activities throughout the school year.

The majority of activities and worksheets in this supplement come in sets of three or more, providing several in-depth experiences around a particular grade level expectation or cluster of expectations. Many of the activities will take 30–45 minutes of instructional time, though some are longer, requiring an hour. Activities that replace Number Corner workouts should be allocated 15–20 minutes. Suggestions for optional literacy links and/or extensions to provide additional challenges have been included throughout the Supplement.

In addition to the activities offered in this supplement, you will find a set of alternative plans for Units 4 and 6, and the materials needed to support these plans in Supplement Sets A10 and A11 in this document. These two units do a great deal to address the Common Core expectations for first graders, but as currently written, require about 18 full days of classroom instruction each, due to the fact that they integrate many areas of instruction, including science, social studies, language arts, and art. As it can be challenging to find that kind of time for integrated instruction, the plans for these two units, found on pages A10.4–A10.6 and A11.3–A11.5, have been modified to be taught over the course of 30 one-hour math periods each.

Almost all of the activities are hands-on and require various math manipulatives and/or common classroom supplies. The blacklines needed to make any overheads, game materials, and/or student sheets are included after each activity. See pages 29 & 30 for a complete list of materials required to teach the activities in each Supplement set.

Note First grade standards not listed on pages 2–6 are adequately addressed in Bridges and/or Number Corner sessions. For a full correlation of Bridges Grade One to the Common Core State Standards, see pages i–x.
## Activities & Common Core State Standards

### (Activities Listed in Order of Appearance in the Supplement)

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<tr>
<td>A1.1</td>
<td>Activity 1: The Classroom Number Line</td>
<td>1.NBT 1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.</td>
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<tr>
<td>A1.3</td>
<td>Activity 2: Guess My Number</td>
<td>1.NBT 2. Understand that the two digits of a two-digit number represent amounts of tens and ones.</td>
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<tr>
<td>A1.7</td>
<td>Activity 3: Estimate and Count the Cubes</td>
<td>1.NBT 3. Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols &gt;, =, and &lt;.</td>
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<td>A1.11</td>
<td>Activity 4: Rainbow Numbers</td>
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<td>A3.1</td>
<td>Activity 1: Hopping along the Number Line</td>
<td>1.OA 1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.</td>
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<td>A3.7</td>
<td>Activity 2: The Frog Jump Game</td>
<td>1.OA 2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20.</td>
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<td>A3.15</td>
<td>Activity 3: Adding &amp; Subtracting on the Number Line</td>
<td>1.OA 5. Relate counting to addition and subtraction.</td>
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<td></td>
<td>1.OA 6a. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.</td>
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<td></td>
<td>1.OA 7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.</td>
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#### SET A4 NUMBER & OPERATIONS: EQUIVALENT NAMES

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<td>A4.1</td>
<td>Activity 1: Sixes &amp; Sevens, Day 1</td>
<td>1.OA 2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20.</td>
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<td>A4.5</td>
<td>Activity 2: Sixes &amp; Sevens, Day 2</td>
<td>1.OA 3. Apply properties of operations as strategies to add and subtract.</td>
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<td></td>
<td>1.OA 6a. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.</td>
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<tr>
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<td></td>
<td>1.OA 7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.</td>
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<td>1.NBT 1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.</td>
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<td>A5.5</td>
<td>Activity 2: Button Boxes</td>
<td>1.NBT 2. Understand that the two digits of a two-digit number represent amounts of tens and ones.</td>
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<td>A5.9</td>
<td>Activity 3: Put Them in Order</td>
<td>1.NBT 3a. Compare two two-digit numbers based on meanings of the tens and ones digits.</td>
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<td></td>
<td>1.MD 1a. Order three objects by length.</td>
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<td></td>
<td></td>
<td>1.MD 2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.</td>
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### SET A6 NUMBER & OPERATIONS: FRACTIONS

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<td>A6.1</td>
<td>Activity 1: Sandwich Fractions</td>
<td>1.G.3. Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.</td>
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<td>A6.5</td>
<td>Activity 2: Paper Pizzas</td>
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<tr>
<td>A6.9</td>
<td>Activity 3: Fraction Bingo</td>
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<td>A9.1</td>
<td>May Calendar Markers</td>
<td>1.OA.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.</td>
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<tr>
<td></td>
<td></td>
<td>1.OA.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10; Use strategies to solve addition &amp; subtraction facts to 20.</td>
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<tr>
<td></td>
<td></td>
<td>1.OA.7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.</td>
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<td>1.OA.8. Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers.</td>
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### SET A10 NUMBER & OPERATIONS: NUMBERS TO 100 WITH PENGUINS

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<td>Introduction</td>
<td>1.OA.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.</td>
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<td>A10.4</td>
<td>Unit 4 Planner</td>
<td>1.OA.3. Apply properties of operations as strategies to add and subtract.</td>
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<td>A10.11</td>
<td>Penguin Pictures Blacklines</td>
<td>1.OA.5. Relate counting to addition and subtraction.</td>
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<td>A10.15</td>
<td>Work Places Planner Blackline</td>
<td>1.OA.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10; Use strategies to solve addition &amp; subtraction facts to 20.</td>
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<td>A10.16</td>
<td>Journey to Antarctica $200 Challenge Blackline</td>
<td>1.OA.8. Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers.</td>
</tr>
<tr>
<td>A10.19</td>
<td>Activity 1: Number Line Race Game</td>
<td>1.NBT.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.NBT.2. Understand that the two digits of a two-digit number represent amounts of tens and ones.</td>
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<td></td>
<td>1.NBT.3a. Compare two two-digit numbers based on meanings of the tens and ones digits.</td>
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<tr>
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<td></td>
<td>1.NBT.4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.</td>
</tr>
<tr>
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<td>1.MD.1. Order three objects by length; compare the lengths of two objects indirectly by using a third object.</td>
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<td>1.MD.2b. understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.</td>
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<td></td>
<td>1.MD.4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.</td>
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### SET A11 NUMBER & OPERATIONS: MULTI-DIGIT ADDITION & SUBTRACTION ON THE FARM

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<td>A11.1</td>
<td>Introduction</td>
<td>1.OA.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.</td>
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<td>A11.3</td>
<td>Unit 6 Planner</td>
<td>1.OA.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20.</td>
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<tr>
<td>A11.6</td>
<td>Advance Preparation Planning Guide</td>
<td>1.OA.3 Apply properties of operations as strategies to add and subtract.</td>
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<td>A11.10</td>
<td>2-D Fence Sections</td>
<td>1.OA.5 Relate counting to addition and subtraction.</td>
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<tr>
<td>A11.11</td>
<td>Goats–Sheep Hundreds Grid Comparison Worksheet</td>
<td>1.NBT.1 Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.</td>
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<tr>
<td>A11.12</td>
<td>Pigs–Cows Hundreds Grid Comparison Worksheet</td>
<td>1.NBT.2 Understand that the two digits of a two-digit number represent amounts of tens and ones.</td>
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<td>A11.13</td>
<td>Farm Bucks $1</td>
<td>1.NBT.3a Compare two two-digit numbers based on meanings of the tens and ones digits.</td>
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<tr>
<td>A11.15</td>
<td>Farm Bucks $5</td>
<td>1.NBT.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and the relationship between addition and subtraction. Understand that at times it is necessary to compose a ten.</td>
</tr>
<tr>
<td>A11.17</td>
<td>Farm Bucks $10</td>
<td>1.NBT.5 Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.</td>
</tr>
<tr>
<td>A11.18</td>
<td></td>
<td>1.MD.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.</td>
</tr>
<tr>
<td>A11.19</td>
<td></td>
<td>1.G.1 Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size), build and draw shapes to possess defining attributes.</td>
</tr>
<tr>
<td>A11.20</td>
<td></td>
<td>1.G.2 Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.</td>
</tr>
<tr>
<td>A11.21</td>
<td></td>
<td>1.G.3 Partition circles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares.</td>
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### SET B1 NUMBER & OPERATIONS: PROPERTIES & RELATIONSHIPS

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<td>B1.1</td>
<td>Activity 1: Introducing Double Flap Cards</td>
<td>1.OA.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.</td>
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<td>B1.9</td>
<td>Activity 2: Double Flap Picture Cards</td>
<td>1.OA.3 Apply properties of operations as strategies to add and subtract.</td>
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<tr>
<td>B1.17</td>
<td>Activity 3: Double Flap Number Cards</td>
<td>1.OA.4 Understand subtraction as an unknown-addend problem.</td>
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<tr>
<td>B1.25</td>
<td>Independent Worksheet 1: Double Dot Cards for 11</td>
<td>1.OA.6 Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies to solve addition &amp; subtraction facts to 20.</td>
</tr>
<tr>
<td>B1.27</td>
<td>Independent Worksheet 2: Double Dot Cards to 12</td>
<td>1.OA.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.</td>
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<tr>
<td>B1.29</td>
<td>Independent Worksheet 3: True or False?</td>
<td>1.OA.8 Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers.</td>
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<td>SET C3 GEOMETRY: 2-D SHAPES AROUND US CALENDAR PATTERN</td>
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| SET C4 GEOMETRY: SYMMETRY CALENDAR PATTERN |
|---|---|---|
| Page | Name | Common Core State Standards |
| C4.1 | December Calendar Markers | 1.G 1a. Distinguish between defining attributes versus non-defining attributes of shapes. 1.G 1. Distinguish between defining attributes versus non-defining attributes of shapes; build and draw shapes to possess defining attributes. 1.G 2. Compose two-dimensional shapes or three-dimensional shapes to create a composite shape, and compose new shapes from the composite shape. 1.G 3. Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares. |

| SET C5 GEOMETRY: 3-D SHAPES AROUND US CALENDAR PATTERN |
|---|---|---|
| Page | Name | Common Core State Standards |
| C5.1 | January Calendar Markers | 1.G 1a. Distinguish between defining attributes versus non-defining attributes of shapes. |

| SET C6 GEOMETRY: ATTRIBUTES OF 2-D SHAPES CALENDAR PATTERN |
|---|---|---|
| Page | Name | Common Core State Standards |
| C6.1 | February Calendar Markers | 1.G 1. Distinguish between defining attributes versus non-defining attributes of shapes; build and draw shapes to possess defining attributes. |

| SET C7 GEOMETRY: DESCRIBING 3-D SHAPES CALENDAR PATTERN |
|---|---|---|
| Page | Name | Common Core State Standards |

| SET C8 GEOMETRY: CONGRUENT SHAPES CALENDAR PATTERN |
|---|---|---|
| Page | Name | Common Core State Standards |
| C8.1 | April Calendar Markers | 1.G 1. Distinguish between defining attributes versus non-defining attributes of shapes; build and draw shapes to possess defining attributes. |

| SET D1 MEASUREMENT: LENGTH IN NON-STANDARD UNITS |
|---|---|---|
| Page | Name | Common Core State Standards |
| D1.1 | Activity 1: Longer, Shorter, or the Same? | 1.MD 1b. compare the lengths of two objects indirectly by using a third object. |
| D1.3 | Activity 2: How Long is the Teacher’s Belt? |  |
| D1.5 | Activity 3: Compare, Spin & Win |  |
| D1.9 | Activity 4: The Measuring Stick |  |
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### SET D2 MEASUREMENT: LENGTH IN NON-STANDARD UNITS

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<td>D2.1</td>
<td>Activity 1: Measuring Length with Popsicle Sticks</td>
<td>1.MD 2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.</td>
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<tr>
<td>D2.5</td>
<td>Activity 2: Measuring Length with Unifix Cubes</td>
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<td>D2.11</td>
<td>Activity 3: How Long is the Jump Rope?</td>
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<td>Activity 1: The Alarm Clock</td>
<td>1.MD 3. Tell and write time in hours and half-hours using analog and digital clocks.</td>
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<td>D7.3</td>
<td>Activity 2: Analog &amp; Digital Clocks: A Match Game</td>
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<td>D7.9</td>
<td>Activity 3: Danny's School Day</td>
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<td>Activity 1: Which Book Shall We Read Tomorrow?</td>
<td>1.MD 4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another</td>
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<td>E1.3</td>
<td>Activity 2: What's Your Favorite Vegetable?</td>
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# Activities & Recommended Timings

(Listed in Recommended Teaching Order)

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<td>Set A1 Number &amp; Operations: Numbers to 120</td>
<td>Activity 1: The Classroom Number Line</td>
<td>During Number Corner starting on the first day of school in addition to or in place of the Days in School Chart routine.</td>
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<tr>
<td>A1.3</td>
<td>Set A1 Number &amp; Operations: Numbers to 120</td>
<td>Activity 2: Guess My Number</td>
<td>Any time of year; repeat frequently.</td>
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## November Number Corner

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<td>Set C3 Geometry: 2-D Shapes Around Us Calendar Pattern</td>
<td>November Calendar Markers</td>
<td>Replaces student-made calendar markers during November Number Corner</td>
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## Replace Selected Sessions in Bridges, Unit 2

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<tr>
<td>A3.1</td>
<td>Set A3 Number &amp; Operations: Addition &amp; Subtraction on the Number Line</td>
<td>Activity 1: Hopping along the Number Line</td>
<td>Replaces Unit 2, Session 6.</td>
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<tr>
<td>A3.7</td>
<td>Set A3 Number &amp; Operations: Addition &amp; Subtraction on the Number Line</td>
<td>Activity 2: The Frog Jump Game</td>
<td>Replaces Unit 2, Session 7.</td>
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<td>A3.15</td>
<td>Set A3 Number &amp; Operations: Addition &amp; Subtraction on the Number Line</td>
<td>Activity 3: Adding &amp; Subtracting on the Number Line</td>
<td>Insert after A3, Activity 2</td>
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<tr>
<td>A4.1</td>
<td>Set A4 Number &amp; Operations: Equivalent Names</td>
<td>Activity 1: Sixes &amp; Sevens, Day 1</td>
<td>Replaces Unit 2, Session 20.</td>
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<td>A4.5</td>
<td>Set A4 Number &amp; Operations: Equivalent Names</td>
<td>Activity 2: Sixes &amp; Sevens, Day 2</td>
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## December & January Number Corner

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<td>C4.1</td>
<td>Set C4 Geometry: Symmetry Calendar Pattern</td>
<td>December Calendar Markers</td>
<td>Replaces student-made calendar markers during December Number Corner</td>
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<td>C5.1</td>
<td>Set C5 Geometry: 3-D Shapes Around Us</td>
<td>January Calendar Markers</td>
<td>Replaces student-made calendar markers during January Number Corner</td>
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<td>Activity 1: Introducing Double Flap Cards</td>
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<td>B1.9</td>
<td>Set B1 Algebra: Properties &amp; Relationships</td>
<td>Activity 2: Double Flap Picture Cards</td>
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<td>B1.17</td>
<td>Set B1 Algebra: Properties &amp; Relationships</td>
<td>Activity 3: Double Flap Number Cards</td>
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<td>B1.25</td>
<td>Set B1 Algebra: Properties &amp; Relationships</td>
<td>Independent Worksheet 1: Double Dot Cards for 11</td>
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<tr>
<td>B1.27</td>
<td>Set B1 Algebra: Properties &amp; Relationships</td>
<td>Independent Worksheet 2: Double Dot Cards for 12</td>
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<tr>
<td>B1.29</td>
<td>Set B1 Algebra: Properties &amp; Relationships</td>
<td>Independent Worksheet 3: True or False?</td>
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<td>D1.1</td>
<td>Set D1 Measurement: Comparing Length</td>
<td>Activity 1: Longer, Shorter, or the Same Size?</td>
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<td>D1.3</td>
<td>Set D1 Measurement: Comparing Length</td>
<td>Activity 2: How Long is the Teacher’s Belt?</td>
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<td>Set D1 Measurement: Comparing Length</td>
<td>Activity 3: Compare, Spin &amp; Win</td>
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<td>D1.13</td>
<td>Set D1 Measurement: Comparing Length</td>
<td>Activity 5: The Packing Box</td>
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<td>D2.1</td>
<td>Set D2 Measurement: Length in Non-Standard Units</td>
<td>Activity 1: Measuring Length with Popsicle Sticks</td>
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<td>D2.5</td>
<td>Set D2 Measurement: Length in Non-Standard Units</td>
<td>Activity 2: Measuring Length with Unifix Cubes</td>
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<td>D2.11</td>
<td>Set D2 Measurement: Length in Non-Standard Units</td>
<td>Activity 3: How Long is the Jump Rope?</td>
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### REPLACE SELECTED WORKOUTS IN FEBRUARY NUMBER CORNER

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<td>C6.1</td>
<td>Set C6 Geometry: Attributes of 2-D Shapes Calendar Pattern</td>
<td>February Calendar Markers</td>
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<td>A1.7</td>
<td>Set A1 Number &amp; Operations: Numbers to 120</td>
<td>Activity 3: Estimate and Count the Cubes</td>
<td>Replaces February Number Corner Wednesday Challenges 1–4.</td>
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### MARCH NUMBER CORNER

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<td>C7.1</td>
<td>Set C7 Geometry: Describing 3-D Shapes Calendar Pattern</td>
<td>March Calendar Markers</td>
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### REPLACE SELECTED SESSIONS IN BRIDGES, UNIT 5

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<td>A6.1</td>
<td>Set A6 Number &amp; Operations: Fractions</td>
<td>Activity 1: Sandwich Fractions</td>
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<td>A6.5</td>
<td>Set A6 Number &amp; Operations: Fractions</td>
<td>Activity 2: Paper Pizzas</td>
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<td>A6.9</td>
<td>Set A6 Number &amp; Operations: Fractions</td>
<td>Activity 3: Fraction Bingo</td>
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<td>A5.1</td>
<td>Set A5 Number &amp; Operations: Place Value</td>
<td>Activity 1: Cube Collections</td>
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<td>Set A5 Number &amp; Operations: Place Value</td>
<td>Activity 2: Buttons Boxes</td>
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<td>A5.9</td>
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<td>C8.1</td>
<td>C8 Geometry: Congruent Shapes Calendar Pattern</td>
<td>April Calendar Markers</td>
<td>Replaces student-made calendar markers during April Number Corner</td>
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<td>E1 Data Analysis: Bar Graphs</td>
<td>Activity 1: Which Book Shall We Read Tomorrow?</td>
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<td>E1.3</td>
<td>E1 Data Analysis: Bar Graphs</td>
<td>Activity 2: What’s Your Favorite Vegetable?</td>
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### REPLACE SELECTED WORKOUTS IN MAY NUMBER CORNER

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<tr>
<td>A9.1</td>
<td>A9 Number &amp; Operations: Number Puzzles Calendar Pattern</td>
<td>May Calendar Makers</td>
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<td>D7.1</td>
<td>D7 Measurement: Telling Time</td>
<td>Activity 1: The Alarm Clock</td>
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<td>D7.3</td>
<td>D7 Measurement: Telling Time</td>
<td>Activity 2: Analog &amp; Digital Clocks: A Match Game</td>
<td>Replaces May Number Corner Tuesday Challenge 2</td>
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<td>D7.9</td>
<td>D7 Measurement: Telling Time</td>
<td>Activity 3: Danny’s School Day</td>
<td>Replaces May Number Corner Tuesday Challenge 3</td>
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Unit One

Reminder  Remember to start The Classroom Number Line (Supplement Set A1, Activity 1) on the first day of school during Number Corner.
Unit Two Planner (Bridges & CCSS Grade 1 Supp. Sets A1, A3, A4 & C3)

**Reminder**  Remember to play Guess My Number (Supplement Set A1, Activity 2) several times during Number Corner this month. Also, use Set C3, which features pre-made calendar markers about 2-D shapes in place of student-made markers during Number Corner in November.

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<td>Beg of Buttons Addition, p. 140</td>
<td>Bugs in the Garden Addition, p. 145</td>
<td>Odd &amp; Even: Getting to Know the Pieces, p. 153</td>
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<td><strong>Home Connection 2</strong></td>
<td><strong>Work Places</strong></td>
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<tr>
<td>• Polydrons</td>
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<td>• Add</td>
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<td>• Bucket of Bugs</td>
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<td>• Buttons Addition</td>
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<td>• Geoboards &amp; Pictures</td>
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<td>• Bucket of Frogs</td>
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<td>Remove</td>
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<td>• Bucket of Sea Creatures/ Bucket of Buttons</td>
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<td>• Polydrons</td>
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<td>• Which Numeral...5–8?</td>
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<td>• Bucket of Bugs</td>
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**SUPPLEMENT**

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<td>Problems &amp; Investigations</td>
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<tr>
<td>Add Bugs in the House Subtraction</td>
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<td>Remove Which Numeral Will Win, 5–8?</td>
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<td>• Odd &amp; Even</td>
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<td>• Pattern Block Patterns &amp; Puzzles</td>
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### SESSION 15

**Problems & Investigations**
- Hungry Shark Subtraction, p. 208

**Work Places**
- A Day of Work Places, p. 213
- Add Hungry Shark Subtraction
- Remove Buttons Addition

**Individual Interviews**
- Addition Assessment
- Subtraction Assessment

### SESSION 16

**Work Places**
- A Day of Work Places, p. 213
- Add Hungry Shark Subtraction
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### SESSION 17

**Problems & Investigations**
- Who Has More Cents? Day 1, p. 218

**Work Places**
- Bugs in the Garden...
- Spin & Write
- Odd & Even
- Pattern Block...
- Bugs in the House...
- Hungry Shark...

### SESSION 18

**Problems & Investigations**
- Who Has More Cents? Day 2, p. 223

**Work Places**
- Add Who Has More Cents?
- Remove Bugs in the Garden Addition

### SESSION 19

**Problems & Investigations**
- Adding 10's and 1's: “Teen” Numbers, p. 227

### SUPPLEMENT

#### Supplement Set A4
**Number & Operations:** Equivalent Names
- Activity 1: Sixes & Sevens, Day 1

**Work Places**
- Add Ten & More
- Remove Spin & Write

#### Supplement Set A4
**Number & Operations:** Equivalent Names
- Activity 2: Sixes & Sevens, Day 2

**Work Places**
- Add Unifix Cube Equations (See Supplement Set A4, Activity 2.)
- Remove Odd & Even

### SESSION 23

**Problems & Investigations**
- Crab & Sea Star Picture Problems: Day 1, p. 252

**Work Places**
- Odd & Even
- Pattern Block Patterns & Puzzles
- Bugs in the House...
- Hungry Shark...
- Who Has More Cents?
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### SESSION 24

**Problems & Investigations**
- Crab & Sea Star Picture Problems: Day 2, p. 256

**Work Places**
- Individual Interviews
- Pattern Assessment

### SESSION 25

**Work Sample**
- Creating Crab & Sea Star Picture Problems, p. 259

**Work Places**
## Unit Three Planner (Bridges & CCSS Grade 1 Supp. Sets B1, C4, C5, D1 & D2)

**Reminder** Use Set C4, which features pre-made calendar markers about symmetry, in place of student-made markers during Number Corner in December, and Set C5, which features pre-made calendar markers about 3-D shapes in January.

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Unit Four

Reminder The alternate planner for Unit Four is found in the Supplement Set A10, pages A10.4–A10.6 in this document. This planner is a modification of the one found in the Grade 1 Bridges Teacher's Guide (Vol. 2, pp 409–411). The original planner required 17 full days of classroom instruction while the alternate planner in Supplement Set A10 delivers most of the same content in 30 one-hour math periods. The alternate version is cited in the CCSS Correlations found at the end of this CCSS Supplement.

Estimate and Count the Cubes (Supplement Set A1, Activity 3) is designed to be taught several times over the course of a month. This activity replaces Wednesday Challenges 1–4 in the February Number Corner. Use Set C6, which features pre-made calendar markers about the attributes of 2-D shapes, in place of student-made markers in February. In March, use Set C7, which features pre-made calendar markers about the attributes of 3-D shapes.
Unit Five Planner (Bridges & CCSS Grade 1 Supp. Sets A1, A5, A6, C8 & E1)

**Reminder** Use Activities 1 & 2 from Supplement Set E1 (Bar Graphs) and Activity 4 from Set A1 (Numbers to 120) to replace the Tuesday Challenges in April Number Corner. Also, use Set C8, which features pre-made calendar markers about congruent shapes in place of student-made markers during Number Corner in April.

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**SESSION 13**

<table>
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**SESSION 14**

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Note: Sessions 11 & 12 have been omitted to make room for supplement activities.
## Unit Five Planner (Bridges & CCSS Grade 1 Supp. Sets A1, A5, A6, C8 & E1) (cont.)

<table>
<thead>
<tr>
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<tr>
<td>Add Will It Make a Triangular Prism?</td>
<td>Add Shape Sorting &amp; Graphing</td>
<td>Pattern Block Puzzles</td>
<td>Pattern Block Find &amp; Fill</td>
<td>Pattern Block Puzzles</td>
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<tr>
<td>Remove Pattern Block Reflections</td>
<td>Remove Last Shape in Wins</td>
<td>How Many Triangles?</td>
<td>Four in a Row</td>
<td>Will It Make a Tri. Prism?</td>
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Unit Six

Reminder  The alternate planner for Unit Six is found in the Supplement Set A11, pages A11.3–A11.5 in this document. This planner is a modification of the one found in the Grade 1 Bridges Teacher’s Guide (Vol. 3, pp 747–749). The original planner required 18 full days of classroom instruction while the alternate planner in Supplement Set A11 delivers most of the same content in 30 one-hour math periods. The alternate version is cited in the CCSS Correlations found at the end of this CCSS Supplement.

Use Set A9, which features pre-made calendar markers about equations and story problems, in place of student-made markers in May. Also, activities from Supplement Set D7 (Telling Time) replace the first three Tuesday Challenges in the May Number Corner.
Grade 1 CCSS Supplement Materials List

<table>
<thead>
<tr>
<th>MANIPULATIVES</th>
<th>ITEM #</th>
<th>A1</th>
<th>A3</th>
<th>A4</th>
<th>A5</th>
<th>A6</th>
<th>A9</th>
<th>B1</th>
<th>C3–C8</th>
<th>D1</th>
<th>D2</th>
<th>D7</th>
<th>E1</th>
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<td>Standard Pocket Chart*</td>
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All manipulatives available from Math Learning Center. Those items marked with an asterisk are included in the Grade 1 Bridges Grade Level Package.

<table>
<thead>
<tr>
<th>GENERAL MATERIALS (PROVIDED BY THE TEACHER)</th>
<th>A1</th>
<th>A3</th>
<th>A4</th>
<th>A5</th>
<th>A6</th>
<th>A9</th>
<th>B1</th>
<th>C3–C8</th>
<th>D1</th>
<th>D2</th>
<th>D7</th>
<th>E1</th>
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<tbody>
<tr>
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### General Materials

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<th>B1</th>
<th>C3–C8</th>
<th>D1</th>
<th>D2</th>
<th>D7</th>
<th>E1</th>
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<td>3 small gift boxes with lids</td>
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<td>Belt that belongs to the teacher</td>
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<td>Empty copy paper box with lid</td>
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<tr>
<td>Clipboards (class set, optional)</td>
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<tr>
<td>Analog clock other than the classroom clock</td>
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<td>Opt</td>
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<tr>
<td>Key ring, a small bell, or piano</td>
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### Children's Books

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<tr>
<th>Book</th>
<th>A6</th>
<th>C1</th>
<th>C2–C8</th>
<th>D2</th>
<th>D7</th>
<th>E1</th>
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<tbody>
<tr>
<td>Eating Fractions by Bruce McMillan</td>
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<td>Cubes, Cones, Cylinders &amp; Sphere by Tana Hoban</td>
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<td>Over, Under, and Through by Tana Hoban</td>
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<td>Shapes, Shapes, Shapes by Tana Hoban</td>
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<td>The Greedy Triangle by Marilyn Burns</td>
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<td>How Big is a Foot? by Rolf Myllar</td>
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<td>How to Tell Time on Digital and Analog Clocks by Jules Older</td>
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GRADE 1 SUPPLEMENT

Set A1  Number & Operations: Numbers to 120

Includes
Activity 1: The Classroom Numberline  A1.1
Activity 2: Guess My Number  A1.3
Activity 3: Estimate & Count the Cubes  A1.7
Activity 4: Rainbow Numbers  A1.11

Skills & Concepts
★ count by ones forward and backward from 1 to at least 120, and count by 2's, 5's and 10's to at least 100
★ name the number before and after any number given verbally up to at least 120
★ read aloud numerals to at least 120
★ order objects or events using ordinal numbers
★ recognize whole-number words that correspond to numerals though twenty
★ read, compare, and order numbers to at least 120 using the words equal to, greater than, less than, greatest, and least when appropriate
★ group numbers into tens and ones in more than one way
★ use estimation to determine the approximate number of objects in a set of 20 to 100
★ identify the given information that can be used to solve a problem
★ recognize when additional information is required to solve a problem
★ answer the question asked in a problem
★ identify the answer to the question in a problem
Bridges in Mathematics Grade 1 Supplement
Set A1 Numbers & Operations: Numbers to 120

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Bridges in Mathematics is a standards-based K–5 curriculum that provides a unique blend of concept development and skills practice in the context of problem solving. It incorporates the Number Corner, a collection of daily skill-building activities for students.

The Math Learning Center is a nonprofit organization serving the education community. Our mission is to inspire and enable individuals to discover and develop their mathematical confidence and ability. We offer innovative and standards-based professional development, curriculum, materials, and resources to support learning and teaching. To find out more, visit us at www.mathlearningcenter.org.
Set A1 ★ Activity 1

The Classroom Number Line

Overview
The teacher works with input from students to record one number each school day on a sentence strip posted on the classroom wall. New sentence strips are added as needed, and the number line that results can be used for many different counting and whole number relationship activities through the year.

Skills & Concepts
★ count by ones forward and backward from 1 to at least 120, and count by twos, fives, and tens to at least 100
★ name the number before or after any number given verbally up to at least 120
★ read aloud numerals to at least 120
★ order objects or events using ordinal numbers
★ recognize whole-number words that correspond to numerals through twenty

You'll need
★ 13 or more sentence strips (see Advance Preparation)
★ a yardstick
★ dry wipe pens in black, red, and blue
★ 7 sentence strips cut into 8’ lengths (optional)

Advance Preparation You’ll need at least 13 sentence strips for this activity; 18 or 19 if you want to continue the line through the entire school year. Write a 0 at the far left side of one of the strips, but leave the rest of the strip unmarked. Laminate all the strips so you can reuse them in future years. Post just the first strip before school starts. Place it near your Number Corner display board where all the students can see it easily.

Instructions for The Classroom Number Line
1. On the first day of school, call children’s attention to the laminated paper strip you’ve posted. Explain that this is a number line, and you’ll be writing a number on it for each school day that passes. Read the numeral 0 with the class, and let students know that you wrote this number on the line yesterday, before school even started. Ask them to verbalize the fact that this is the first day of school, and then use a black wide-tipped dry-wipe pen to record the numeral 1 on the line. Gauge the amount of space you leave between the 0 and the 1 knowing that you’ll only be writing the numerals up through 9 before you switch to another strip.

2. The following day during Number Corner, ask students to verbalize the fact that this is the second day of school, and record the numeral 2 on the line. Continue each day in this fashion through the ninth day of school. Then attach a second strip to the first, and add a new number to the strip each day until you’ve reached the 19th. Attach a third strip for the numerals 20–29, a fourth for the numerals 30–39, and so on. You may want to record the first number on each new strip in red instead of black to highlight the fact that it’s a counting-by-ten number.
Activity 1 The Classroom Number Line (cont.)

Starting on about the tenth day of school, you can use the line for a variety of counting exercises and activities, including the ones listed below:

- Point to each numeral as students read and count forward with you. When you get to the last recorded numeral, ask students to verbalize the ordinal numbers for the current day and the next (i.e., today is the tenth day of school; tomorrow will be the eleventh day of school). Then ask a few volunteers to tell the class something they know about the number you’ll be writing on the line the following day. Their descriptions might pertain to the name, the appearance, or the composition of the numeral. For example, one student might say that you're going to write the number 11 because 11 is next after 10. Another might say that you're going to write a 1 and then another 1. A third might say that 11 is 10 plus 1 more.

- Starting with the last recorded numeral, point to each one as students count backward with you to 0.

- Have students practice counting by 2's, 5's, or 10's on the number line. Point to the numbers, or underline them in red or blue, as the students count along with you.

- Have students take turns pointing on the line to specific numerals you name, or to the numbers that come before or after specific numerals you name.

Extension

- Starting on the first day of school, work with input from the class to write the numeral and the word that corresponds to that numeral on an 8" sentence strip. Continue through the twentieth day of school. Have students read the words frequently and practice writing the numeral names up through ten periodically.

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Set A1 ★ Activity 2

Guess My Number

Overview
Students ask questions to identify a secret number the teacher has hidden in his or her pocket.

Skills & Concepts
★ name the number before or after any number given verbally up to at least 120
★ read, compare, and order numbers to at least 120 using the words equal to, greater than, less than, greatest, and least when appropriate.
★ identify the given information that can be used to solve a problem
★ recognize when additional information is required to solve a problem
★ answer the question asked in a problem
★ identify the answer to the question in a problem

You’ll need
★ class number line from Set A1 Activity 1
★ chart paper or whiteboard space
★ markers

Instructions for Guess My Number

1. Once you’ve recorded numerals up through 50 or 60 on the class number line, you can use it to play Guess My Number, a quick problem solving activity that offers students many opportunities to read and compare numbers. Before class, record on a small slip of paper one of the numerals currently on the line. Place the slip of paper in your pocket.

2. During Number Corner, tell students you’re thinking of one of the numbers on the line, and invite them to ask questions about it until they have enough information to identify the number with confidence. Record the information they collect on the whiteboard or a piece of chart paper using a t-chart similar to the one shown on the next page.

   Teacher  This morning before school, I copied one of the numbers from our number line onto a piece of paper and put it in my pocket. Who’d like to ask a question to try to find out what my secret number is?

   Sara  Is it 23?

   Teacher  No, my number is greater than 23.

   Joji  I bet it’s 50 because 50’s the last number up there!

   Teacher  Nope, it’s less than 50.
Activity 2  Guess My Number (cont.)

Natalie  Is it 40?

Teacher  No, it’s greater than 40.

David  Then it must be 41!

Teacher  It’s greater than 41, but less than 50.

Jena  It’s 45, right?

3. Help students evaluate their progress toward identifying the secret number by reviewing the chart with them every few questions.

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Teacher  Could my number be 45? Let’s see if 45 matches all the clues you’ve gathered so far. Is 45 greater than 23?

Students  Yes!

Teacher  Is 45 greater than 40 and 41?

James  Yes, because 41, 42, 43, 44, 45.

Teacher  Is 45 less than 50?

Ashley  It comes before 50 on the line.

30 31 32 33 34 35 36 37 38 39 40 41 42 44 45 46 47 48 49 50 51

Teacher  So it could be 45, but are there any other numbers it could be?

Students  It might be 42.

Or maybe it’s 12, I think it’s 12.

No, it can’t be 12. Twelve is a really little number! It has to be more than 40!

4. When one of the students identifies the number correctly, don’t pull the slip of paper out of your pocket right away. Instead, review the clues on the chart one more time with students to confirm that the number they’ve identified matches all of them. After they’ve confirmed that it does, show them the slip of paper and play the game again. Once students have played the game a few times, occasionally choose volunteers to select the secret number.
**Activity 2**  Guess My Number (cont.)

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*Rosa*  I think your number is 44. It has to be that.

*Teacher*  Let's compare 44 to the clues on our chart. Is 44 greater than 23, 40, 41, or 43?

*Students*  It's more than 43.
It comes right after 43, like 43, 44.

*Teacher*  Is it less than 50 and also less than 45?

*Students*  Yes!

*Teacher*  Are there any more numbers between 43 and 45 here on our line?

*Rosa*  No! That's why I said it has to be 44!
Set A1 ★ Activity 3

Estimate & Count the Cubes

Overview
The teacher shows students a bag of Unifix cubes and asks the children to estimate how many cubes are in the bag. Next, he or she records students’ estimates and plays a quick guessing game with the numbers recorded. Then the class counts the cubes by 1's to determine the total. Finally, the cubes are regrouped in various ways and the total compared each time.

Skills & Concepts
★ name the number before or after any number given verbally up to at least 120
★ compare, and order numbers to at least 120 using the words equal to, greater than, less than, greatest, and least when appropriate
★ group numbers into tens and ones in more than one way
★ use estimation to determine the approximate number of objects in a set of 20 to 100
★ recognize when additional information is required to solve a problem
★ answer the question asked in a problem
★ identify the answer to the question in a problem

Instructions for Estimate & Count the Cubes
1. Gather students to your discussion circle and show them the bag of Unifix cubes you’ve prepared. Ask them to estimate how many cubes are in the bag. Record their estimates on a piece of chart paper or on the whiteboard. Encourage as many students as possible to volunteer estimates, and ask them to explain their thinking as they do so. If two or more students volunteer the same estimate, underline that number on the chart.

   Students
   I think it's 100 because it looks like a lot in there.
   I think 60. It doesn't look like so big as 100 to me.
   Two hundred 'cause it's a real lot.
   I think 25 because it just looks that way.
   Thirty-nine because it's a good number for those cubes.

You’ll need
★ a quart-sized re-sealable plastic bag
★ Unifix cubes (see Advance Preparation)
★ chart paper or whiteboard and markers
★ a 3" × 5" index card

Advance Preparation
Combine 10 green, 10 yellow, 10 blue, and 6 red Unifix cubes to make a total of 36. Place these in the re-sealable bag and close the top.
2. Before you pour the cubes out of the bag and count them with the class, play a quick game by describing some of the numbers on the chart and asking students to identify them based on your clues. Circle each number as students identify it.

   **Teacher**  Let's play a game with the numbers on this chart before we count the cubes. I'm thinking of the number that comes right after 74. Raise your hand if you know which one it is. (The teacher waits for a moment until most hands are up and then invites all the students to respond at the same time.)

   **Students**  It's 75!
   Yep, 75, because it goes 74, 75 when you count.

   **Teacher**  Okay, now I'm looking right at the number that comes before 51. Whisper the number you think it is to your neighbor. (The teacher waits for a moment and then invites the class to respond.)

   **Students**  52! I said it's 52!
   No, it's 50!
   Yes, 50 because Teacher said before 51, and it goes 50, 51.

   There are many different riddles you can pose, depending on the strengths and needs of your students. Here are a few other examples:
   - I'm thinking of the number on the chart that's one more than 38.
   - I'm thinking of the number on the chart that's one less than 16.
   - I'm thinking of the number on the chart that's 20 + 6.
   - I'm thinking of the number on the chart that's 50 + 50.
   - I'm thinking of the number that's greater than 24 but less than 26.

3. After you've circled 8–10 of the numbers on the chart, pour the cubes out of the bag and spread them out a little. Invite students to adjust their estimates. Does anyone want to change his or her estimate now that it's a little easier to see the cubes? If so, add the new estimates to your chart.

4. Count the cubes one by one as the students count with you. Stop after you've counted out about half the cubes and invite students to revise their estimates now that they have more information. Do they see any numbers that could be crossed off the chart?
Students  I don’t think it’s going to be 100. We’re only up to 18, and there aren’t very many cubes left. I guessed 100, and I still think it’s going to be that many. I think 200 is too much, though. We could get rid of that number off the chart. We went past 13 already, and 15. We don’t need those numbers any more.

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<thead>
<tr>
<th>How many cubes do you think are in the bag?</th>
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5. Allow a little time for discussion and debate, and then count the rest of the cubes with the class. Record the total on a 3" × 5" index card. Set the card beside the cubes and ask students to identify the estimate on the chart that comes closest to that number.

6. Next, have a couple of volunteers help you sort the cubes by color. Then snap the green cubes, the blue cubes, and the yellow cubes into their own trains of 10, counting with the students as you go to establish that there are 10 in each train, and 6 red cubes which you’ll leave as single 1’s. How many cubes in all? Are there still 36 in the collection? Ask students to talk with their neighbors about this, and then invite a few to share their thinking with the class.

Students  It says 36 on the card, so it must be.
It doesn’t change anything if you put the cubes together.
But it might. Maybe there aren’t as many because some of them are squished together.
Well, 10 and 10 is 20, and then keep counting. Maybe it’s 36.
There are 6 red ones, and I think the others are 30. I think it’s still 36.

7. Count the cubes by 10’s and 1’s with the class to confirm that there are still 36 in all. Next break one of the trains of 10 apart. What is the total now? Help students re-count the cubes by 10’s and 1’s.
Teacher and Students 10, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36.

Students Yep, it’s still 36!
I think it doesn’t matter if you put them together or take them apart.
If one rolls away, then it won’t be 36 any more.

8. If time allows and student interest holds, repeat Step 7 with the second, and even the third train of Unifix cubes so children have the opportunity to see 36 as 3 tens and 6 ones, 2 tens and 16 ones, 1 ten and 26 ones, and 36 ones.

Extension
Repeat this activity several times in place of Thursday Challenges in the November and December Number Corner, using the following collections of cubes:

- 10 red, 10 blue, 10 green, 10 yellow, and 5 brown (45 in all)
- 10 brown, 10 black, 10 white, 10 red, 10 yellow, and 7 green (57 in all)
- 10 blue, 10 burgundy, 10 yellow, 10 white, 10 orange, 10 green, and 1 white (61 in all)

Each time you repeat the activity, have children examine and discuss several different configurations of 10’s and 1’s for the number. For instance, show 45 as 4 tens and 5 ones; 3 tens and 15 ones; and 2 tens and 25 ones so students begin to understand that numbers can be grouped into tens and ones in more than one way. In each case, have them count to confirm that the total never changes, no matter how the number is grouped.
Set A1 ★ Activity 4

Rainbow Numbers

Overview
Students use a numbers grid to find and name numbers that come before and after numbers named by the teacher. The first time they do this activity, the grid is filled in for them. The next few times, they fill in missing numbers on the grid.

Skills & Concepts
- count by ones forward and backward from 1 to 120
- count by twos, fives, and tens to 100
- read and write numbers to 120
- name the number before or after any number given verbally up to at least 120

You’ll need
- 1–120 Number Grid (page A1.13, class set on copy paper and 1 copy on a transparency)
- Missing Numbers Grids 1, 2, and 3 (pages A1.14–A1.16, class set of each sheet)
- a ¾” plastic game marker
- overhead pens in black, red, and blue
- crayons

Instructions for Rainbow Numbers
1. Give each student a copy of the 1–120 Number Grid and place a copy on display at the overhead. Ask students what they notice about the grid, and give them a minute to pair-share observations. Then invite several volunteers to share their observations with the group.

2. Explain that, in a few minutes, you’re going to have them color in some numbers on their grid, but first you’re going to do a little counting on the grid together. Ask the children to point to the 10’s on their grid and count them with you, starting at 10 and going all the way up to 120. Then count by 2’s from 2 to 100, pointing to the numbers on your grid as students do so on theirs.

3. Next, as students get out their crayons, place a colored game marker on top of the numeral 57 on your grid. Ask students to name the number you’ve covered. Then have them find the number that comes before 57 on their own grid and share their answer with the person sitting next to them. When they’ve confirmed with one another that the answer is 56, ask them to color the box with 56 in it red.

4. Repeat Step 3 five more times, selecting a different number to cover with your game marker each time. Alternate between asking students to find the number that comes before the one you’ve covered, and the one that comes after the one you’ve covered. Have them color each of the numbers they identify with a different color until they’ve used all the colors of the rainbow—red, orange, yellow, green, blue, and purple.

5. Send the sheet home with students, along with a note to families to help children practice counting by ones forward and backward from 1 to 120, by 2’s, 5’s, and 10’s. Children can also find and color in numbers that come before and after others named by their family members.
6. The following week, give each student a copy of the first Missing Numbers Grid. Ask children to work together to fill in the missing numbers. You might place your filled grid on display at the overhead for their reference, or challenge them to use their counting skills to fill in the empty boxes on the grid. When most children have finished filling in the numbers, conduct counting exercises similar to the ones you did the first week with the class and send the sheet home, accompanied by a note to families, for extra practice.

7. Use the other two Missing Numbers Grids for similar activities in the weeks that follow. Each grid has a few more numbers missing and will offer just a bit more challenge.
## 1–120 Number Grid

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Bridges in Mathematics Grade 1 Supplement • A1.13
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Set A3  Number & Operations: Addition & Subtraction on the Number Line

Includes
Activity 1: Hopping Along the Number Line  A3.1
Activity 2: The Frog Jump Game    A3.7
Activity 3: Adding & Subtracting on the Number Line  A3.15

Skills & Concepts
★ represent addition and subtraction using movement on the number line
★ connect physical and pictorial representations to addition and subtraction equations
★ demonstrate the inverse relationship between addition and subtraction by undoing an addition problem with subtraction and vice versa
★ solve and create word problems that match addition or subtraction equations
★ use the equal sign and the word equals to indicate that two expressions are equivalent
**Bridges in Mathematics Grade 1 Supplement**  
**Set A3** Numbers & Operations: Addition & Subtraction on the Number Line

The Math Learning Center, PO Box 12929, Salem, Oregon 97309. Tel. 1 800 575–8130.  
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*Bridges in Mathematics* is a standards-based K–5 curriculum that provides a unique blend of concept development and skills practice in the context of problem solving. It incorporates the Number Corner, a collection of daily skill-building activities for students.

The Math Learning Center is a nonprofit organization serving the education community. Our mission is to inspire and enable individuals to discover and develop their mathematical confidence and ability. We offer innovative and standards-based professional development, curriculum, materials, and resources to support learning and teaching. To find out more, visit us at www.mathlearningcenter.org.
Set A3 ★ Activity 1

Hopping Along the Number Line

Overview
This simple activity introduces the idea of moving up and down a number line to represent and solve addition and subtraction problems.

Skills & Concepts
★ represent addition and subtraction using movement on the number line
★ connect physical and pictorial representations to addition and subtraction equations
★ demonstrate the inverse relationship between addition and subtraction by undoing an addition problem with subtraction and vice versa
★ solve and create word problems that match addition or subtraction equations

You’ll need
★ Number Lines Sheet (page A3.5, run a class set, plus a demonstration copy)
★ a 6" x 36" piece of white or light blue butcher paper (see Advance Preparation)
★ a plastic frog from the frog bucket or a slightly larger stuffed toy frog if you have one
★ chart paper or whiteboard and markers
★ a pencil and a hard writing surface for each student

Advance Preparation Use a wide-tipped permanent black marker to draw a 33" line across the length of butcher paper. Leave a 1½" margin at each end, and draw an arrow at either end of the line. Make 11 small tic-marks spaced 3" apart all the way down the line, starting and ending 1½" from the arrow tips. Number the marks from 0 to 10. Laminate the strip if you want to save it for use in future years. Post a copy of the Number Lines Sheet on an easel or on the whiteboard right next to your discussion circle.

Instructions for Hopping Along the Number Line
1. Gather students to your discussion circle. Lay the number line you’ve prepared in the middle of the circle, positioned in such a way that you can reach it easily from the edge where you’re sitting. As students watch, set your frog on the 0. Explain that this little frog lives at the edge of a long stream and likes to hop from one number to another.

2. Explain that the frog travels one space on each hop. Then take a minute to establish with the class how many hops it takes the frog to get from 0 to several of the numbers on the line. Start by asking students how many hops it would take the frog to get from the 0 to the 3. Some children may say the answer is four, believing that the frog must hop once on the 0, and then three more times to get to the 3. Demonstrate, as students count with you, that it only takes the frog three hops to get to the 3, five hops to get to the 5, eight hops to get to the 8, and so on.
3. Tell the addition and subtraction problems below (or similar problems), as you work with input from the class to act them out by moving the frog on the line. After telling each story, record a matching number sentence on the whiteboard or your chart paper. Then ask a student helper to repeat your original actions with the frog on the line a second time to illustrate the operation.

**Teacher** One day, Little Frog was sitting on the number 0 enjoying the morning sun. Suddenly, she saw a tasty bug fly past. She decided to try to catch it. She made 4 hops. (Where is she now? That’s right, she’s on the 4.) Then she made 2 more hops. (Where did she land? Right, she’s on the 6 now.)

I’m going write numbers on the whiteboard to tell this story. Little frog made 4 hops, and then 2 more, so I’m going to write 4 + 2. Let’s put the frog back on the 0 where she started. Who would like to move the frog on the line as we tell the story with numbers? Alex?

How many hops did Little Frog make first?

**Students** Four! She jumped to the 4.

**Teacher** Then how many more did she make, and where did she land?

**Students** She did 2 more. She got all the way to the 6.

Did she get the bug?

**Teacher** Little Frog helps us see that 4 + 2 is 6, but she didn’t get the bug. The bug flew right back over her head! Little Frog turned around and took 2 hops back the other way. Where do you think she’s going to land?

**Students** On the 2!

No, on the 4 because she’s only going 2 hops back.

Can I try?
4. Repeat Step 3 with the following pairs of problems, or problems similar to them. Move the frog back to the 0 each time you tell and act out a new pair of problems.

- **Problem 1**  Little Frog was sitting on the 0. She heard her friends playing up the stream, so she decided to join them. First she made 3 hops. Then she made 2 more. Where did she land? \(3 + 2 = 5\)
- She was sitting on the 5 when she saw her little brother pop up behind her. She made 2 hops back the other way to get him. Where did she land? \(5 - 2 = 3\)

- **Problem 2**  Little Frog was sunning herself on the 0. She decided to look for some bugs. First she made 4 hops, but she didn’t see any bugs. Then she made 3 more hops. Where did she land? \(4 + 3 = 7\) Do you think she found any bugs there?
- While she was sitting on the 7, she heard her mother call her to come home. She took 7 hops back the other way. Where did she land? \(7 - 7 = 0\)

5. Draw students’ attention to the Number Lines Sheet you’ve posted. As they watch, write the expression 3 + 1 in the first box. Ask one of your students to tell a story to match this number sentence and act it out on the line with the frog.

Marco  Little Frog did 3 hops. Then she did 1 more because she was looking for bugs. One, two, three, then 1 more hop. Now she’s on the 4.

Show students how to record the frog’s action on the first number line, and then work with their input to write the answer to the problem.

6. Give students each a copy of the Number Lines Sheet, a pencil, and a hard writing surface. Have them write the expression 3 + 1 in Box A, and then ask a volunteer to tell and act out a different story to match the expression. Have students mark the number line to show the frog’s action, and then record the answer.
7. Repeat Steps 5 and 6 three more times, using the expressions $4 - 1$, $5 + 3$, and $8 - 3$. Each time, write the expression on your sheet as students copy it. Ask a volunteer to tell and act out a story to match, using the frog and the large number line. Record the action and the solution on your sheet as students do the same on theirs.
Number Lines Sheet

a

b

Run a class set.
Set A3 ★ Activity 2

The Frog Jump Game

Overview
This activity makes use of a simple game to reinforce the idea that the number line can be used to model and solve addition and subtraction problems. The teacher plays the game several times with the whole class, and then makes it available to pairs of students to use during Work Places.

Skills & Concepts
- represent addition and subtraction using movement on the number line
- connect physical and pictorial representations to addition and subtraction equations
- solve and create word problems that match addition or subtraction equations
- use the equal sign and the word equals to indicate that two expressions are equivalent

You’ll need
- Frog Jump Game cards (pages A3.10–A3.12, see Advance Preparation)
- 6" × 36" number line from Set A3, Activity 1
- 2 plastic frogs, 1 green and 1 blue
- jar of popsicle sticks with students’ names on them
- chart paper or whiteboard and markers
- Frog Jump Game Number Lines (page A3.13, optional, run as needed)
- individual chalkboard/chalk or whiteboard/pen and eraser for each student (optional)

Advance Preparation
Run 1 copy of each of the blacklines on cardstock, and cut the cards apart.

Instructions for The Frog Jump Game
1. Gather students to your discussion circle. Set the number line in the middle of the circle, positioned in such a way that you can reach it easily from the edge where you're sitting. As students watch, set both frogs on the 0. Explain that you're going to play a frog jumping game with them today.

2. Show children the deck of cards you’ve prepared. As they watch, mix the cards thoroughly and place them in a stack face down. Explain that you're going to take the first turn so they see how to play the game. Draw the card from the top of the pile. Show it to the class and read it with them. Tell a story to match the equation as you move your frog along the line to get the answer.

   Teacher  Here's the card I got. Let's read it together.

   Students  Five and two.
   You got 5 plus 2. I think that's 7!

   Teacher  Let me think of a good story to go with this addition expression. Okay, my little frog went out to find some bugs to eat. First she took 5 hops to the fifth rock. She didn't find any bugs there, so she took 2 more hops. Where did she land?
3. Choose a stick from your helper jar and have that student draw the next card from the pile for the class. Ask him or her to show the card to the other children and then tell a story to match while moving the class's frog along the line to get the answer. Encourage other students to help if necessary.

   **Eloise**  I got 2 + 2 + 2. Our frog went 2 hops to get some bugs. No bugs. She went 2 more hops. Then she went 2 more and she got some bugs!

4. Work with the class to determine which answer is greater, and give both cards to that team. In the example above, you would get both cards because 7 is greater than 6. If the two teams draw combinations with the same answer, each team gets to keep its own card.

5. Continue taking turns back and forth with the class until all the cards are used up. Count the cards at the end of the game. The team with more cards wins.

**Extensions**
- Play The Frog Jump Game again several times with your class as you have time in the coming weeks. This game helps students practice basic facts, while giving them opportunities to model the operations on a number line and practice telling stories to match addition and subtraction expressions.
- If both teams draw a card that results in the same answer, explain to the children that there are many different names for the same number. Record the two expressions at the whiteboard or on a piece of chart paper, and take the opportunity to explain that the equals sign means “the same as”. For instance, 9 – 1 is the same as 5 + 3 because the answer to both is 8.
**Activity 2 The Frog Jump Game (cont.)**

- Give students each chalk or a pen, and an individual chalkboard or whiteboard. Have them record some or all of the addition and subtraction equations as you play the game with them.
- Leave the cards, the large number line, and the frogs out so pairs of students can play the game during Work Places. (If the game becomes quite popular for a while, make additional sets of the cards, and run cardstock copies of page A3.13, Frog Jump Game Number Line, so 3 or more pairs of students can play during Work Places.)
### Frog Jump Game cards page 1 of 3

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Frog Jump Game card

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**Set A3 ★ Activity 3**

**Activity**

**Adding & Subtracting on the Number Line**

**Overview**

Students use the number line to practice adding and subtracting by counting on and counting backwards. This activity provides opportunities for students to experience and start to understand the relationship between addition and subtraction.

**Skills & Concepts**

- **represent addition and subtraction using movement on the number line**
- **connect physical and pictorial representations to addition and subtraction equations**
- **demonstrate the inverse relationship between addition and subtraction by undoing an addition problem with subtraction and vice versa**

**You’ll need**

- Two Number Lines (page A3.18, run 1 copy on a transparency)
- Adding & Subtracting on the Number Line (page A3.19, class set, run double-sided)
- overhead pen
- spray bottle and paper towels
- piece of paper to mask parts of the overhead
- Practice on the Line, Addition (page A3.20, optional, run as needed)
- Practice on the Line, Subtraction (page A3.21, optional, run as needed)

**Instructions for Adding & Subtracting on the Number Line**

1. Place Two Number Lines on display at the overhead. Write the expression 4 + 3 below the first line. Read it with students. Ask them to think about the answer and discuss it with the person sitting next to them. Then have several volunteers share their solutions and explain their thinking.

   **Students** It’s 7. I put up 4 on this hand and 3 on the other, and counted them up. I got 7.
   It’s 7 because I went 4, then 5, 6, 7.
   I know it’s 7 because 3 and 3 is 6, and then 1 more is 7.

2. Use the first number line at the overhead to model a one-by-one counting strategy for finding the sum. Then model a counting-on strategy on the second line by jumping to the 4 and then making 3 more hops. Discuss both strategies with the students. Do both methods work? Which one is faster? Why?
Activity 3 Adding & Subtracting on the Number Line (cont.)

Students You have to take more hops on the first one.
Yeah, you go hop, hop, hop, and keep hopping to every number.
On that other one, you take one big long hop, and then 3 little ones.
They both get to the 7.

Teacher How do you know which number to jump to if you use the long hop strategy like we did on the second line?

Students Just jump to the number it says.
It says 4 for the first number, so just jump all the way to the 4, and then keep going how many it says.
Go 4, and then hop, hop, hop.
It’s 4, then 5, 6, 7, just like I said.

3. Erase the single hops on the first line, and replace them with the long hop and two shorter hops. Then record 7 – 3 below the second number line. Read it with your students. Ask them to think about the answer and discuss it with the person sitting next to them. Then have several volunteers share their solutions and explain their thinking.

Students I think it’s 5 because you go 3 hops back: 7, 6, then 5.
I think 4 because you go backwards 3 times, 6, 5, 4.
It’s 4 because if hop back 3 times, you land on the 4.

4. Work with student input to model and solve 7 – 3 on the second number line. Reinforce the fact that each hop, including the first, needs to travel. You don’t hop up and down on the same number, so it’s 6, 5, 4 rather than 7, 6, 5 as you count backwards to solve the problem.

5. Have helpers distribute a copy of Adding and Subtracting on the Number Line to each student as you erase your overhead. Explain that they’re going to practice doing some addition and subtraction on the number line with you now. Chances are, most students will agree that the counting on, or “long-hop” method is quicker and easier, so that’s what you’ll use for addition, and you’ll count backwards on the
Activity 3 Adding & Subtracting on the Number Line (cont.)

line for subtraction. Model and solve the following pairs of addition and subtraction combinations at the overhead as students work with you on their own record sheets.

\[
\begin{align*}
3 + 2 \text{ and } 5 - 2 \\
5 + 2 \text{ and } 7 - 2 \\
4 + 4 \text{ and } 8 - 4 \\
5 + 4 \text{ and } 9 - 4
\end{align*}
\]

By the third or fourth pair, you might have volunteers come to the overhead to lead the class in solving the problems. As you work, continue to discuss the counting on and counting backwards strategies with students, as well as the relationship between addition and subtraction. Although your first graders may not completely understand the inverse nature of the two operations, some may be able to explain that subtraction “undoes” addition.

Extensions
- Repeat this activity at another time with 4 more pairs of addition and subtraction combinations.
- Assign the practice sheets on pages A3.20 and A3.21 to some or all of your students.
Two Number Lines

0 1 2 3 4 5 6 7 8 9 10

0 1 2 3 4 5 6 7 8 9 10
Adding & Subtracting on the Number Line

© The Math Learning Center
Practice on the Line, Addition

1 Solve each problem. Show your work on the number lines.

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2 Write an equation to match each number line.

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3 Add.

\[
\begin{array}{cccccccc}
2 & + 2 & 4 & + 2 & 5 & + 5 & 3 & + 3 & 6 & + 3 & 7 & + 3 & 9 & + 0 \\
\end{array}
\]
Practice on the Line, Subtraction

1 Solve each problem. Show your work on the number lines.

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<td><strong>a</strong></td>
<td>7 - 3 = _______</td>
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<td><strong>b</strong></td>
<td>9 - 5 = _______</td>
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<tr>
<td><strong>c</strong></td>
<td>6 - 4 = _______</td>
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<td></td>
<td></td>
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<td><strong>d</strong></td>
<td>8 - 3 = _______</td>
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2 Write an equation to match each number line.

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</tbody>
</table>

3 Subtract.

\[
\begin{array}{cccccccc}
6 & 4 & 5 & 3 & 7 & 8 & 2 \\
-2 & -1 & -3 & -2 & -5 & -4 & -2 \\
\end{array}
\]
GRADE 1 SUPPLEMENT

Set A4  Number & Operations: Equivalent Names

Includes
Activity 1: Sixes & Sevens, Day 1  A4.1
Activity 2: Sixes & Sevens, Day 2  A4.5

Skills & Concepts
★ fluently compose and decompose numbers to at least 10
★ connect physical and pictorial representations to addition and subtraction equations
★ use the equal sign and the word equals to indicate that two expressions are equivalent
★ add three or more one-digit numbers using the commutative and associative properties of addition
Bridges in Mathematics Grade 1 Supplement
Set A4  Numbers & Operations: Equivalent Names

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Bridges in Mathematics is a standards-based K–5 curriculum that provides a unique blend of concept development and skills practice in the context of problem solving. It incorporates the Number Corner, a collection of daily skill-building activities for students.

The Math Learning Center is a nonprofit organization serving the education community. Our mission is to inspire and enable individuals to discover and develop their mathematical confidence and ability. We offer innovative and standards-based professional development, curriculum, materials, and resources to support learning and teaching. To find out more, visit us at www.mathlearningcenter.org.
Set A4 ★ Activity 1

Sixes & Sevens, Day 1

Overview
Each student builds a train of 5 or 6 Unifix cubes in 2 or 3 different colors, and writes an addition expression to match. The class examines the trains and expressions to find equivalent equations.

Skills & Concepts
★ fluently compose and decompose numbers to at least 10
★ connect physical and pictorial representations to addition and subtraction equations
★ use the equal sign and the word equals to indicate that two expressions are equivalent
★ add three or more one-digit numbers using the commutative and associative properties of addition

You’ll need
★ Numerals & Symbols cards (page A4.4, see Advance Preparation)
★ Unifix cubes (see Advance Preparation)
★ 3\" × 5\" index cards, class set plus a few extra
★ pocket chart
★ Work Places currently in use

Advance Preparation Run 4 copies of the Numerals & Symbols cards on cardstock and cut the cards apart. Have students help you set up a container of cubes for each table or group of 4 students. Each container should have about 100 Unifix cubes in 4–5 different colors.

Instructions for Sixes & Sevens, Day 1
1. Gather students to your discussion circle. Explain that they are going to use Unifix cubes today to learn more about adding numbers. Tell them that, in a minute, each of them is going to make a train of 6 or 7 Unifix cubes using 2 or 3 different colors. Demonstrate by making a train of 4 red and 2 red cubes. Note with students that the colors are grouped—all the reds are together and all the yellows are together.

2. Next, make a train of 7 cubes using 3 different colors, but don’t tell students what your total is beforehand. When you’re finished, give them a moment to examine your train carefully and share with the person next to them what they believe the total is. Then ask several volunteers to share their answer and their reasoning with the class.

Students I think it’s 7 because I counted them when Mr. S. was putting them together. It’s 7 because 2 white and 2 brown makes 4. There’s 3 in the middle, so that’s 5, 6, 7. Two and 3 is 5, and then 2 more at the end makes 7.

3. Send students back to their tables. Assign the students seated at half the tables to each make a train of 6 cubes. Have the students at the rest of the tables each make a train of 7 cubes. Encourage them to
make their trains different than yours and different from anyone sitting near them. Remind them that they can only use 2 or 3 colors, and ask them to keep the colors grouped together. That is, if they use 3 browns and 3 yellows, put all the browns together and all the yellows together.

4. As students finish, have them return to the discussion circle with their trains. Call them a few at a time to set their trains in the middle of the circle. Have them group the trains of six in one area, and the trains of seven in another.

5. Give students a minute or two to pair-share their observations, and then invite a few of them to share their ideas with the class. What do they notice about the trains?

   Students They’re all 6 over here, and 7 over there.
   They’re all the same long in each pile, but they’re different colors.
   Mine’s on top. It’s 4 greens and 2 blues, see?
   Mine is the one in the middle of the 7’s. It has 4 greens and 3 blues.

6. Choose 5 trains from each set and put the rest aside for now. (Explain that you’ll come back to them tomorrow.) Then work with input from the class to write a matching expression on an index card for the each of the 10 trains you selected.
7. Choose one of the trains from the collection. Set it on the chalk ledge or on a small table next to your pocket chart. Use the matching expression card, along with the other cards you prepared for this activity to create an equation in the pocket chart. Start with the total, however. Ask students to read the equation with you. Invite their comments and observations. Some may feel that you've inserted the cards backwards, and that the equation should end with the total, rather than starting with it. Explain that the equals sign means “the same as”, and read the sentence that way with the class (i.e., \(7 \text{ is the same as } 3 + 4\)).

\[
\begin{array}{c}
7 \\
= \\
\hline
3 + 4
\end{array}
\]

8. Repeat Step 7 several times, but change the order in which you arrange the cards, starting with the total sometimes and the expression others. Read each new equation with the class. Continue to use the phrase “is the same as” in place of equals.

9. Next, choose two of the 6 trains or two of the 7 trains. Set them on the chalk ledge or table, and solicit students' agreement that they both have the same number of cubes. Then use your cards to create an equation that matches the trains. Read the equation with your students and ask volunteers to explain it to the class.

\[
\begin{array}{c}
5 + 1 \\
= \\
\hline
3 + 3
\end{array}
\]

**Teacher**  Is this true? Is \(5 + 1\) really the same as \(3 + 3\)? Talk with the person next to you for a moment, and then let’s have some volunteers share their thinking with the class.

**Students**  They’re both 6, so they’re kind of the same.
The numbers look different, but both trains have 6 in them.
Five and 1 is 6, right? Then 3 and 3 is 6. So they’re the same.
I don't get it!

10. Repeat Step 9 until you’ve used all the trains and matching expression cards. Tell students you’ll return to the activity the following day, and send them out to do Work Places.

**Note**  Return the cubes from the 10 trains you used today to your tub of cubes. Save the other trains for use in the next activity.
Set A4 ★ Activity 2

Sixes & Sevens, Day 2

Overview
Students continue to explore equations during this activity, and a new Work Place is introduced.

Skills & Concepts
★ fluently compose and decompose numbers to at least 10
★ connect physical and pictorial representations to addition and subtraction equations
★ use the equal sign and the word equals to indicate that two expressions are equivalent
★ add three or more one-digit numbers using the commutative and associative properties of addition

You’ll need
★ 3” × 5” index cards (see Advance Preparation)
★ Unifix Cube Equations, 5’s, 6’s, 7’s, 8’s, 9’s, and 10’s (pages A4.9–A4.20, see Advance Preparation)
★ resealable bag of crayons in colors to match the Unifix cubes (see Advance Preparation)
★ Unifix cube trains from Set A4, Activity 1
★ Numerals & Symbols cards from Set A4, Activity 1
★ pocket chart
★ individual chalkboards/whiteboards, chalk/pens, and erasers for each student
★ Work Places currently in use

Advance Preparation Write an expression on an index card to match each of the Unifix cube trains you saved from the previous activity. Also, run 10–15 copies of each pair of Unifix Cube Equations worksheets. Place these in pocket folders. Put the pocket folders, along with several hundred loose Unifix cubes, and the bag of crayons into a tub to create a new Work Place. (This new Work Place can be used in place of Work Place 2J, 50 or Bust!)

Instructions for Sixes & Sevens, Day 2
1. Gather students to your discussion circle. Set the rest of the Unifix trains from the previous activity in the center of the circle, 6’s in one area and 7’s in another. Hold up one by one the expression cards you’ve prepared. Read each card with the students, and have a volunteer lay it beside the matching train on the rug.
2. When all the trains have been labeled, have a student or two help you gather up all the cards. (Leave the trains where they are in the middle of the circle.) As the cards are being gathered, ask helpers to hand out individual chalkboards, chalk, and erasers to everyone sitting in the circle.

3. Mix the expression cards thoroughly, and place them in a stack face-down on a small table near your pocket chart. Use your Numerals & Symbols cards to place a 7 and an equals sign in the pocket chart. Ask a student to come up and draw an expression from the top of the stack and place it to the right of the equals sign in the pocket chart.

4. Read the resulting equation with your students, using the term “is the same as” for the equals sign. Is it true? If so, ask students to write a “T” on their chalkboards. If it’s not true, ask students to write an “F” for false on their chalkboards. Have them hold up their boards when they’re finished, and then ask two or three students to explain their answers.

5. Ask one of the students to find the train that matches the expression just posted, and hold it up or set it near the pocket chart so children can use it to confirm their responses. Then ask the students to erase their boards. Place an equals sign and a 6 in the next row on the pocket chart. Ask a volunteer to draw another expression card from the top of the stack and place it in the pocket chart to the left of the equals sign. Read the resulting equation with your class and have students write a “T” or an “F” on their chalkboards. Ask them to pair-share their answers, and then invite two or three of them to explain their thinking to the class. Again, have a student find the matching train and hold it up or set it near the pocket chart so children can confirm their responses.

6. Repeat Step 5 several times. Use both 6’s and 7’s cards, and switch the positions they occupy in the equation, sometimes to the right of the equals sign, and sometimes to the left.

7. When you’re down to the last 6 cards, have helpers draw two cards from the stack and place them in the pocket chart on either side of the equals sign. Ask different helpers to find the matching trains and
Activity 2  Sixes & Sevens, Day 2 (cont.)

set them near the pocket chart. Have students examine the equation and write a “T” or an “F” on their boards to indicate whether they think it’s true or false. Then call on volunteers to explain their reasoning.

8. When all the expression cards have been used, ask students to work together to correct the false equations by switching some of the cards or using some of your extra 6’s and 7’s cards.

Teacher  Do we have to fix all of these equations to make them true?

Students  No! Just the wrong ones!
Can I put a 6 card in for that one on the top? Then it would be right.

Teacher  Sure! Are there any others that need to be fixed?

Students  Yeah! 3 + 1 + 2 is 6 not 7!
Can I fix it?
Six is not the same as 5 + 2.
Put in a 7 card for that one!
9. Introduce the new Unifix Cube Equations Work Place (see Advance Preparation note). Show students copies of the worksheets, and model the activities as needed. Demonstrate that they’ll need to choose a sheet and build 4 trains to match the number they selected. Remind them to use only 2 or 3 colors, with like colors grouped to make each train. Then they’ll need to color in the trains on the sheet to match, write an equation for each, and complete the problem at the bottom of the sheet. After that, they’ll turn the sheet over, and complete the problems on the back with the help of the number line. Note with them that there are worksheets for all the numbers, 5–10, so they can choose their own challenge level.

10. If time allows, send students out to do Work Places.

Note: When you do Friday’s Figuring in the Number Corner over the coming months, take the opportunity to reinforce the idea that equals means “the same as”. You can do this by placing the day’s date at the beginning of some of the equations you record on the charts, rather than always at the end. If you also read the equals sign as “equals” sometimes, and “is the same as” sometimes, students will make a strong connection between the two by the end of the year.
Unifix Cube Equations, 5’s page 1 of 2

1. Color in the unifix cubes and write an equation to match each train.

   a
   
   ____________________________  = 5
   
   b
   
   5 = __________________________
   
   c
   
   ____________________________  = 5
   
   d
   
   5 =__________________________

2. Circle T or F.

   a  1 + 4 = 5  T or F
   b  5 = 1 + 2 + 2  T or F
   c  5 = 2 + 2  T or F
   d  2 + 3 = 5  T or F

(continued on back)
Unifix Cube Equations, 5’s page 2 of 2

3 Add

2  5  3  4  0  1  
+ 3 + 0 + 1 + 0 + 3 + 2

2  3  3  1  2  2  
+ 2 + 0 + 2 + 1 + 2 + 1

2 + 3 = ________  2 + 2 = ________  3 + 1 + 1 = ________

4 Subtract

4  5  4  5  3  5  
– 2 – 0 – 4 – 1 – 3 – 5

5  3  5  4  5  3  
– 2 – 0 – 4 – 1 – 3 – 2

5 – 3 = ________  4 – 1 = ________  5 – 4 = ________

Can I help you?
Unifix Cube Equations, 6’s page 1 of 2

1 Color in the unifix cubes and write an equation to match each train.

a

\[ \square \square \square = 6 \]

b

\[ 6 = \square \square \square \square \square \]

c

\[ \square \square \square \square \square \square = 6 \]

d

\[ 6 = \square \square \square \square \square \square \]

2 Circle T or F.

a \( 1 + 4 = 6 \) T or F

c \( 6 = 3 + 3 \) T or F

b \( 6 = 2 + 2 + 3 \) T or F

d \( 4 + 2 = 6 \) T or F

(continued on back)
Unifix Cube Equations, 6’s page 2 of 2

3 Add

\[
\begin{array}{cccccc}
3 & 0 & 3 & 4 & 0 & 2 \\
+3 & +6 & +1 & +0 & +5 & +3 \\
\hline
6 & 6 & 4 & 4 & 5 & 5 \\
\end{array}
\]

\[
\begin{array}{cccccc}
3 & 2 & 4 & 4 & 2 & 5 \\
+2 & +4 & +2 & +1 & +2 & +1 \\
\hline
5 & 6 & 6 & 5 & 7 & 7 \\
\end{array}
\]

\[
3 + 3 = \boxed{6} \quad 2 + 1 + 2 = \boxed{5} \quad 0 + 6 = \boxed{6}
\]

4 Subtract

\[
\begin{array}{cccccc}
5 & 6 & 5 & 6 & 5 & 6 \\
-2 & -0 & -4 & -1 & -3 & -5 \\
\hline
3 & 6 & 1 & 5 & 2 & 1 \\
\end{array}
\]

\[
\begin{array}{cccccc}
6 & 4 & 6 & 4 & 6 & 6 \\
-2 & -2 & -4 & -3 & -3 & -6 \\
\hline
4 & 2 & 2 & 1 & 3 & 0 \\
\end{array}
\]

\[
6 - 3 = \boxed{3} \quad 5 - 2 = \boxed{3} \quad 4 - 3 = \boxed{1}
\]

Can I help you?
Unifix Cube Equations, 7’s page 1 of 2

1 Color in the unifix cubes and write an equation to match each train.

a

__________________________ = 7

b

7 = __________________________

c

__________________________ = 7

d

7 =__________________________

2 Circle T or F.

a $3 + 4 = 7$   T or F

b $7 = 2 + 3 + 1$   T or F

c $7 = 3 + 4$   T or F

d $7 + 0 = 7$   T or F

(continued on back)
Unifix Cube Equations, 7’s page 2 of 2

3 Add

\[
\begin{array}{cccccc}
3 & 3 & 2 & 4 & 7 & 2 \\
+ 4 & + 3 & + 5 & + 2 & + 0 & + 3 \\
\end{array}
\]

\[
\begin{array}{cccccc}
2 & 4 & 4 & 6 & 6 & 5 \\
+ 2 & + 3 & + 1 & + 1 & + 0 & + 2 \\
\end{array}
\]

3 + 4 = \underline{\phantom{00000}} \quad 2 + 2 + 2 = \underline{\phantom{00000}} \quad 5 + 2 = \underline{\phantom{00000}}

4 Subtract

\[
\begin{array}{cccccc}
7 & 7 & 6 & 7 & 6 & 7 \\
- 7 & - 0 & - 4 & - 1 & - 3 & - 5 \\
\end{array}
\]

\[
\begin{array}{cccccc}
7 & 5 & 7 & 5 & 7 & 7 \\
- 2 & - 2 & - 4 & - 3 & - 3 & - 6 \\
\end{array}
\]

7 - 2 = \underline{\phantom{00000}} \quad 6 - 4 = \underline{\phantom{00000}} \quad 7 - 4 = \underline{\phantom{00000}}

Can I help you?
Unifix Cube Equations, 8’s page 1 of 2

1. Color in the unifix cubes and write an equation to match each train.

   a  
   
   ____________________________ = 8

   b  
   
   8 = __________________________

   c  
   
   ____________________________ = 8

   d  
   
   8 =__________________________

2. Circle T or F.

   a  5 + 1 = 8    T or F
   b  8 = 2 + 3 + 1    T or F
   c  8 = 4 + 4    T or F
   d  3 + 5 = 8    T or F

(continued on back)
Unifix Cube Equations, 8’s page 2 of 2

3 Add

\[
\begin{array}{cccccc}
4 & 4 & 3 & 1 & 8 & 3 \\
+ 4 & + 3 & + 5 & + 2 & + 0 & + 3 \\
\hline
\end{array}
\]

\[
\begin{array}{cccccc}
3 & 5 & 7 & 6 & 2 & 2 \\
+ 2 & + 3 & + 1 & + 2 & + 5 & + 6 \\
\hline
\end{array}
\]

4 + 3 = _______ 5 + 3 = _______ 4 + 2 + 2 = _______

4 Subtract

\[
\begin{array}{cccccc}
7 & 8 & 8 & 8 & 7 & 8 \\
- 5 & - 0 & - 4 & - 1 & - 3 & - 5 \\
\hline
\end{array}
\]

\[
\begin{array}{cccccc}
8 & 7 & 8 & 8 & 8 & 8 \\
- 2 & - 2 & - 8 & - 7 & - 3 & - 6 \\
\hline
\end{array}
\]

8 – 5 = _______ 7 – 5 = _______ 8 – 4 = _______

Can I help you?
Unifix Cube Equations, 9's page 1 of 2

1 Color in the unifix cubes and write an equation to match each train.

a

__________________________ = 9

b

9 = __________________________

c

__________________________ = 9

d

9 =__________________________

2 Circle T or F.

a  5 + 4 = 9    T  or  F

b  9 = 3 + 3 + 3    T   or   F

c  9 = 3 + 6    T  or  F

b  9 = 3 + 3 + 3    T   or   F

d  2 + 7 = 9    T  or  F

(continued on back)
3 Add

5  4  3  2  9  4
+ 4 + 4 + 6 + 2 + 0 + 3
____ ____ ____ ____ ____ ____

7  5  8  6  4  2
+ 2 + 2 + 1 + 2 + 5 + 6
____ ____ ____ ____ ____ ____

4 + 3 = _______  5 + 2 + 2 = _______  6 + 2 = _______

4 Subtract

8  9  8  9  7  9
− 5 − 0 − 4 − 1 − 3 − 5
____ ____ ____ ____ ____ ____

9  7  9  9  9  8
− 2 − 2 − 8 − 9 − 3 − 6
____ ____ ____ ____ ____ ____

9 − 4 = _______  9 − 6 = _______  9 − 7 = _______

Can I help you?
Unifix Cube Equations, 10’s page 1 of 2

1 Color in the unifix cubes and write an equation to match each train.

a

__________________________ = 10

b

10 = __________________________

c

__________________________ = 10

d

10 = __________________________

2 Circle T or F.

a 3 + 5 = 10    T or F

b 10 = 2 + 4 + 4    T or F

c 10 = 5 + 5    T or F

d 3 + 6 = 10    T or F

(continued on back)
Unifix Cube Equations, 10’s page 2 of 2

3 Add

\[
\begin{array}{cccccc}
5 & 4 & 3 & 2 & 10 & 5 \\
+ 5 & + 5 & + 7 & + 3 & + 0 & + 3 \\
\hline
\end{array}
\]

\[
\begin{array}{cccccc}
8 & 5 & 9 & 6 & 4 & 1 \\
+ 2 & + 2 & + 1 & + 3 & + 6 & + 6 \\
\hline
\end{array}
\]

\[
3 + 4 + 2 = \underline{\phantom{000}} \quad 2 + 8 = \underline{\phantom{000}} \quad 2 + 3 + 5 = \underline{\phantom{000}} 
\]

4 Subtract

\[
\begin{array}{cccccc}
9 & 10 & 8 & 10 & 9 & 10 \\
- 5 & - 0 & - 4 & - 1 & - 3 & - 5 \\
\hline
\end{array}
\]

\[
\begin{array}{cccccc}
10 & 7 & 10 & 10 & 10 & 10 \\
- 2 & - 3 & - 8 & - 7 & - 3 & - 10 \\
\hline
\end{array}
\]

\[
10 - 4 = \underline{\phantom{000}} \quad 10 - 6 = \underline{\phantom{000}} \quad 10 - 9 = \underline{\phantom{000}} 
\]

Can I help you?
GRADE 1 SUPPLEMENT

Set A5  Number & Operations: Place Value

Includes
Activity 1: Cube Collections  A5.1
Activity 2: Button Boxes        A5.5
Activity 3: Put Them in Order  A5.9

Skills & Concepts
★ compare and order whole numbers to 100
★ count and group objects in tens and ones
★ identify the number of tens and ones in whole numbers between 10 and 100
★ estimate and measure using non-standard units
Set A5 ★ Activity 1

Cube Collections

Overview
Students work together to count the number of cubes in 3 different collections, organizing each collection into 10’s and 1's to make the job easier. Then they order the 3 collections from least to most. When this is finished, each student does a similar task with pictures of Unifix cubes organized into groups of 10’s and 1's.

Skills & Concepts
★ compare and order whole numbers to 100
★ count and group objects in tens and ones
★ identify the number of tens and ones in whole numbers between 10 and 100

You’ll need
★ Cube Collections (page A5.4, class set plus a few extra)
★ Unifix cubes (see Advance Preparation)
★ 3 gallon-size resealable bags (see Advance Preparation)
★ three 3” x 5” index cards
★ 4” x 9” strips of construction paper, 2 per student plus a few extra
★ pencils
★ scissors
★ glue sticks

Advance Preparation
Fill each bag with more than 50 but fewer than 99 cubes in one color. Make the quantities relatively close, so it’s not obvious which bag has the most and which has the least. For example, you might put 64 red cubes in one bag, 71 blue cubes in the second, and 56 green cubes the third bag. Seal the top of each bag.

Instructions for Cube Collections
1. Gather children to your discussion circle. Show them the 3 bags of Unifix cubes and ask which they think has the fewest in it, and which the most. Have them pair-share their ideas and then invite volunteers to share their thinking with the class. Encourage them to explain their reasoning as they share.

   Michelle   I think the bag with the red cubes has the most because it looks the biggest.

   Eduardo   I think the bag with blue cubes has the most. It looks like a little more than the reds.

   Samantha  Probably the red cubes have the most because I like red best.

2. Suggest counting the cubes in each bag to find out for sure. Discuss the best way to do this, and solicit agreement from the group that organizing each bagful into 10's and 1's would be easier than trying to count the cubes one-by-one.

3. Dump the contents of each bag out in the middle of the discussion circle. Be sure to keep the 3 piles well apart. Assign 2–3 students to each pile to start snapping cubes together in trains of 10. After they’ve had a minute to work, ask them to take their places in the circle again and assign 2–3 more students to work on each pile. Repeat this, giving as many students as possible a chance to help until the job is finished.
4. Count each of the collections by 10’s and 1’s with the students and work with their input to record the number on an index card. Then arrange the 3 collections in order from least to most, again working with input from students. Encourage them to share their reasoning as you work together. How do they know that one quantity is more than another?

Adrien  I know that 71 is most because it has the most of those big stacks.

K’Sondra If you count like 1, 2, 3, 4, and keep going, you get to 56 first, and then 64, and then 71. 71 is the most and 56 is the smallest.

5. Now show students a copy of the Cube Collections sheet and 2 strips of 4” × 9” construction paper.

Explain that they’ll each get their own materials in a minute. When they do, they’ll need to count how many cubes there are in each collection and label each with the correct number. Next, they’ll need to cut the 6 collections apart and choose 3 of them at random. Then they’ll need to arrange the 3 collections in order from least to most on one of the strips of construction paper. Last, they’ll need to do the same thing with the other 3 collections. Ask them to get you or a friend to check their work before they glue the collections down on the paper. There are lots of different arrangements, depending on which 3 cards they choose first.
6. Model as much of the activity as needed, working with input from the class. When most students understand what to do, send them back to their tables to get out their pencils, scissors, and glue sticks while you hand out copies of the worksheet and construction paper strips. Circulate as they work, providing assistance where needed. Some students will count the cubes in each collection one by one no matter what, but you can support children in counting by 10's and 1's as you move from table to table.

Extensions
- Some of your students might want to tape the 2 construction paper strips together and sequence all 6 collections from least to most.
- As students finish, have them meet in pairs to share their work with each other.
Cube Collections

Label each collection of cubes to show how many there are. Then cut the collections apart on the dotted lines.
Set A5 ★ Activity 2

**Button Boxes**

**Overview**
Students work together to count the number of buttons in 3 different collections, organizing each collection into 10’s and 1’s to make the job easier. Then they order the 3 collections from least to most. When this is finished, each student does a similar task with pictures of buttons organized into groups of 10’s and 1’s.

**Skills & Concepts**
- compare and order whole numbers to 100
- count and group objects in tens and ones
- identify the number of tens and ones in whole numbers between 10 and 100

**You’ll need**
- Button Boxes (page A5.8, class set plus a few extra)
- 3 small boxes with lids (see Advance Preparation)
- buttons (see Advance Preparation)
- portion cups
- 3 pieces of 12” × 18” construction paper, each in a different color
- three 3” × 5” index cards
- 4” × 18” strips of construction paper, 1 per student plus a few extra
- pencils
- scissors
- glue sticks

**Advance Preparation**
Place anywhere between 40 and 99 buttons in each of the 3 boxes. (If you can find small attractive boxes with lids, students may find the activity more intriguing.) Make the quantities relatively close, so it’s not obvious which box has the most and which has the least.

**Instructions for Button Boxes**

1. Gather children to your discussion circle. Tell them you’ve made 3 collections of buttons to share today. Show them the 3 boxes of buttons (with the lids off) and ask which they think has the fewest buttons in it, and which the most. Have them pair-share their ideas and then invite volunteers to share their thinking with the class.

2. Suggest counting the buttons in each box to find out for sure, and solicit agreement from the class that this will be easier if you organize the buttons into 10’s and 1’s instead of trying to count them one by one. Show the students your portion cups and explain that these are each designed to hold exactly
10 buttons. Demonstrate by counting 10 of the buttons from one of the boxes into a cup, and then dump them back into the box.

3. Place 3 sheets of construction paper, each a different color, in the middle of the discussion circle. Place one of the button boxes on each sheet along with a small stack of portion cups. Ask 2–3 students to work on each sheet, organizing the buttons into cups of 10. After they've had a minute to work, ask them to take their places in the circle again and assign 2–3 more students to work on each sheet. Repeat this, giving as many students as possible a chance to help until the job is finished. Give children more portion cups if necessary, but remind them that they have to put exactly 10 in each cup. If they have fewer than 10 buttons left at the end, they should lay them on the sheet beside the cups.

4. Count each of the collections by 10's and 1's with the students and work with their input to record the number on an index card. Then arrange the 3 collections in order from least to most, again working with input from students. Encourage them to share their reasoning as you work together. How do they know that one quantity is more than another?

**Hector**  The one with 92 is the most because 92 is the biggest number.

**Ashley**  92 is the most because there are 9 cups of buttons on that one. On 48, there are only 4 cups of buttons.

5. Now show students a copy of the Button Boxes sheet and 1 strip of 4" × 18" construction paper.
Activity 2 Button Boxes (cont.)

Explain that they’ll each get their own materials in a minute. When they do, they’ll need to count how many buttons there are in each box and label each with the correct number. Next, they’ll need to cut the 6 collections apart and arrange them in order from least to most on their strip of construction paper. Have them get you or a friend to check their work before they glue the collections down on the paper.

6. Model as much of the activity as necessary. When most students understand what to do, send them back to their tables to get out their pencils, scissors, and glue sticks while you hand out copies of the worksheet and construction paper strips. Circulate as they work, providing assistance where needed. Some students will count the buttons in each box one by one no matter what, but you can support children in counting by 10’s and 1’s as you move from table to table.

**Note** It may be more appropriate for some of your students to sequence 3 of the boxes at a time instead of all 6. Have these students cut their construction paper strip in half, choose 3 boxes at random to arrange in sequence on the first half, and repeat with the other 3 boxes on the second half.
Button Boxes

Label each box of buttons to show how many there are. Then cut the boxes apart.
Set A5 ★ Activity 3

Put Them in Order

Overview
Which is the longest—the back of your chair, a classroom table, or the width of the calendar pocket chart? Students make predictions and measure each object with Unifix cubes. Then they count the cubes by 10's and 1's to find the answer, and record the results. This activity can be used as a Work Place after you’ve introduced it to the whole class.

Skills & Concepts
★ compare and order whole numbers to 100
★ count and group objects in tens and ones
★ identify the number of tens and ones in whole numbers between 10 and 100
★ estimate and measure using non-standard units

Recommended Timing
Anytime after Set A5 Activity 1

You’ll need
★ Measuring Record Sheet (page A5.12, class set plus a few extra)
★ Blank Measuring Record Sheet (page A5.13, optional, run as needed)
★ Unifix cubes (see Advance Preparation)
★ three 3” × 5” index cards
★ pencils
★ crayons

Advance Preparation
Have students help you make 30 stacks of 10 Unifix cubes, each in a single color, before you conduct this activity. Place 10 stacks in each of three plastic tubs or baskets.

Instructions for Put Them in Order
1. Gather children to your discussion circle. Ask them which they think is longest—the back of your chair, the length of one of the tables (show them which one), or the distance across the bottom of the calendar pocket chart? Which of these three is shortest? Have them pair-share their ideas and then ask volunteers to share their thinking with the class.

Maria  I think the table is longest because it looks longer than those other two things.

Jamal  I think maybe the calendar and Teacher’s chair are about the same.

Esteban  I think Teacher’s chair is the shortest. I can see it really good from here.

2. Suggest measuring each object with Unifix cubes to find out for sure, and show students the stacks of Unifix cubes you’ve prepared. Select 6 helpers at random (we like to draw from a box that contains everyone’s name so they all feel like they have an equal chance). Divide your helpers into pairs. Give each pair a tub or basket of stacked cubes and send them out to measure one of the 3 objects by creating a train of cubes as long as the object.
Activity 3  Put Them in Order (cont.)

3. As they're working, create a label for each object on an index card. Ask the students in the circle to help you spell the needed words. As each pair finishes, ask them to bring their measuring train back to the discussion circle. (It's fine if they break it into sections to carry it back to the circle.) When they arrive, have them reconstruct their train in the middle of the circle and label it with the correct index card.

4. Ask all the students to pair-share comments and observations.

   **Students** Yes! I knew the table was going to be the longest one.
   The chair is pretty short.
   The calendar is longer than the chair—it has more cubes.

Count the number of cubes in each train by 10's and 1's, and then by 1's to confirm the total for students who are still learning to trust place value counting. Finally, break each of the trains into stacks of 10's and 1's and recount them one more time before you label each card with the total.

5. Now show students a copy of the Measuring Record Sheet. Demonstrate how to color in the cubes to show how long the chair turned out to be.
**Activity 3  Put Them in Order (cont.)**

Explain that in a minute, they'll each complete their own copy of the sheet so they can show and tell their family all about the measuring experiment you did in class today. Be sure they understand that they need to write the 3 lengths in order at the bottom of the sheet, starting with the shortest. When students understand what to do, send them back to their tables to get out their crayons and pencils as you pass out the sheets.

**Extension**

- Make 2–3 copies of the Blank Measuring Record Sheet and fill each in with 3 different items around the classroom. Depending on the needs of your students, you may want to choose items that are shorter or longer than the ones the class measured today. Run multiple copies of each sheet and place in a tub, along with a few crayons and the stacks of Unifix cubes for students to use during Work Places.
# Measuring Record Sheet

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Write the lengths in order:

- Shortest
- Longest
Blank Measuring Record Sheet

1

2

3

4 Write the lengths in order.

Shortest

Longest
GRADE 1 SUPPLEMENT

Set A6  Number & Operations: Fractions

Includes
Activity 1: Sandwich Fractions  A6.1
Activity 2: Paper Pizzas  A6.5
Activity 3: Fraction Bingo  A6.9

Skills & Concepts
★ understand and represent commonly used fractions, such as \( \frac{1}{4}, \frac{1}{3}, \) and \( \frac{1}{2} \)
Bridges in Mathematics Grade 1 Supplement
Set A6  Numbers & Operations: Fractions

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of concept development and skills practice in the context of problem solving. It incorpo-
rates the Number Corner, a collection of daily skill-building activities for students.

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confidence and ability. We offer innovative and standards-based professional development,
curriculum, materials, and resources to support learning and teaching. To find out more,
visit us at www.mathlearningcenter.org.
Set A6 ★ Activity 1

Sandwich Fractions

Overview
Students fold paper squares to explore halves and fourths.

Skills & Concepts
★ understand and represent commonly used fractions, such as \( \frac{1}{4}, \frac{1}{3}, \text{ and } \frac{1}{2} \)

You’ll need
★ three 4” squares of white copy paper for each student plus extras
★ pastel-colored copy paper, 1 piece for each student
★ scissors
★ glue sticks
★ Eating Fractions by Bruce McMillan (optional)

Instructions for Sandwich Fractions
1. Gather students to your discussion circle. Tell the story below.

_Last Saturday, Kendra’s mom had to go to the store. She said to Kendra, “I’ll be back in about an hour. Your big sister’s upstairs doing her homework, so you’ll have to make your own lunch today. You know where to find everything you’ll need in the kitchen, right?”_

“Right!” said Kendra. As soon as her mom left, Kendra thought, “Hmmm. I think I’ll make a peanut butter and jelly sandwich. I just love peanut butter and jelly!” She got the bread out of the cupboard and took 2 pieces out of the bag. She spread peanut butter on one and grape jelly on the other. Then she put them together and set her sandwich on a plate. She looked at it and said, “Mom always cuts my sandwiches in half. I’m going to do the same thing!”

_She cleaned off the knife and cut her sandwich very carefully. Here’s how it looked when she was done._

2. On your whiteboard, draw a picture similar to the one shown above. Have students pair-share some of the things they notice. Then ask:

_Did Kendra cut her sandwich in half? How do you know?_

Children’s explanations will vary, and may include comments like, “When you cut something in half, it has to be fair,” “Both pieces have to be just the same size,” “If she shared that with her sister, one of them would only get the small part,” and “One of those is smaller than the other.”
Activity 1  Sandwich Fractions (cont.)

3. Hold up one of the paper squares you've prepared for the lesson and ask the children to tell you how to cut it in half. Follow students’ suggestions to cut the paper in half. (Use additional squares to demonstrate if they have more than one solution.) Children may suggest that you fold the paper in half before you cut. Some may advise you to fold up and down or sideways, while others may suggest that you fold it along the diagonal before you cut. As you work, pose the following questions:

- What can we do to make sure both halves are the same size?
- Why do they have to be the same size? Why can't one be bigger than the other?
- What shape are the halves if I cut the paper sideways? (rectangles)
- What shape are the halves if I fold and cut the paper on the diagonal? (triangles)

4. Then give students each a paper square and ask them to fold it in half, either sideways or on the diagonal. Write 1⁄2 on the board. Read it with the class and explain that this is what people write to describe each of the pieces they get when they divide one object (like a piece of paper or a sandwich) into 2 equal parts. Each piece is 1 out of 2 equal parts.

5. Ask them to set their paper square in front of them and continue with the story.

After awhile, Kendra’s big sister came downstairs to make herself a sandwich. By then, Kendra was finished with her lunch, but she was still in the kitchen. As she watched, Tiffany made a grilled cheese sandwich and cut it into 4 equal pieces. “I always cut my sandwiches in fourths,” she said to Kendra. Kendra thought to herself, “That looks really good. Maybe I’ll try that next time, but I still like peanut butter and jelly better.”

6. Write 1⁄4 on the board. Read it with the class and explain that this is what people write to describe each of the pieces they get when they divide one object into 4 equal parts. Each piece is 1 out of 4 equal parts. Then ask students to fold their second paper square into fourths. After they've had a minute to experiment, ask several volunteers to share their work with the class.

**Rosendo**  First I folded my paper in half, like the first time. Then I opened it and folded it in half the other way.

**Michelle**  My mom always cuts my sandwiches in triangles. I folded my paper my paper in half like this, and then I folded it again. Here’s how it looked when I opened it.

**DJ**  I folded mine 2 times. It came out different than the others.

7. Give students a third paper square and ask them to fold it in fourths again. If they struggled the first time, they may have gotten a new idea by watching their classmates. If they were successful the first time, ask them to try one of the other methods that may have been shared. Encourage them to help one another as they work.

8. Now ask students to take their folded squares back to their tables. Have them recycle one of the squares they folded in fourths so they just have 2 squares in front of them, one folded in half and the other in fourths. Ask them to cut the first square along the fold line and label each of the two parts with
Activity 1  Sandwich Fractions (cont.)

the fraction \( \frac{1}{2} \). Then have them glue the two parts to a piece of colored copy paper. Take the opportunity to reinforce the idea that two halves make a whole. Repeat with the paper squares they have folded into fourths.

Extension

• Either before or after this activity, read and discuss *Eating Fractions* by Bruce McMillan. Here are two other fraction books your first graders might also enjoy:
  °  *Apple Fractions* by Jerry Pallotta and Rob Bolster
  °  *Give Me Half!* by Stuart J. Murphy
Set A6 ★ Activity 2

Paper Pizzas

Overview
Students explore what happens when 2, 3, and 4 children share 1 pizza, as well as what happens when 4 and 8 children share 2 pizzas. After working to solve these problems as a group, students work in pairs to share 3 pizzas between them.

Skills & Concepts
★ understand and represent commonly used fractions, such as $\frac{1}{4}$, $\frac{1}{3}$, and $\frac{1}{2}$

Recommended Timing
Anytime after Set A6 Activity 1

You’ll need
★ 5”-diameter paper circles (page A6.8, 3 circles for each pair of students and 7 circles for the class, see Advance Preparation)
★ tape
★ markers
★ scissors

Advance Preparation If you wish you can run a copy of page A6.8 to use as a template for cutting these circles. You can also cut 7 larger circles for the whole-group portion of this activity. If you think you may want to do the extension activity pages with some or all of your students, you’ll need 2 more circles for every 3 students.

Instructions for Paper Pizzas
1. Gather students to your discussion circle, and talk to them briefly about pizza. Do they ever have pizza for dinner? What are some of their favorite pizza toppings?

2. Explain that today, they’re going to be sharing some paper pizzas. Call 2 volunteers to come stand by you where everyone in the circle can see them. Hold up a single paper circle “pizza.” Ask the class how these 2 children could best share 1 pizza, and how much each child would get. Have students whisper ideas to their neighbors, and then call on volunteers to share their thinking with the class.

3. Follow students’ suggestions for dividing the pizza fairly. After you do, ask 2 or 3 volunteers to explain how they know that each piece is half. If it doesn’t come from the class, suggest placing one piece on top of the other to make sure they’re both exactly the same size.

4. Record the problem on the board, quickly taping up the pieces you cut and labeling them with fractions.
5. Repeat steps 2–4 with 3 children and then with 4 children. Ask students to predict how much pizza the children will get each time. Record the results on the board as you go. Explain that the fractions $\frac{1}{2}$, $\frac{1}{3}$, and $\frac{1}{4}$ are used to show what happens when you divide 1 into 2, 3, and then 4 equal parts. $\frac{1}{2}$ means 1 divided into 2 equal parts. $\frac{1}{3}$ means 1 divided into 3 equal parts. $\frac{1}{4}$ means 1 divided into 4 equal parts.

6. Ask students to reflect on the results so far. What do they notice? What happens to the size of the piece each child gets as you add more children to the group? What would happen to the size of each piece if you divided 1 pizza among 8 or even 12 children? Why?

7. Now call 4 volunteers up to stand by you. Hold up 2 “pizzas.” Ask the class how these 4 children could best share the 2 pizzas and how much each child would get. Have students whisper ideas to their neighbors, and then call on volunteers to share their thinking with the class. Record the results on the board and discuss them with the class. Then work with students to find out what happens when 8 children share 2 pizzas.

8. Partner the children and explain that you’re going to give each pair 3 paper pizzas to share. Ask them to return to their tables and get out their scissors so they’re ready to work, and then distribute the pizzas. Give students time to solve the problem in any way they can as you circulate to observe and converse with them. Some pairs may take 1 pizza each and cut the third one in half, while others may cut all 3 pizzas in half and share the halves equally. Some may even cut their 3 pizzas into tiny pieces (which aren’t necessarily equal) and then share them out using the 1-for-you, 1-for-me method. Invite pairs to share and compare their results as they’re working.
9. After a reasonable amount of time, ask volunteers to share their solutions and strategies with the class. Understanding levels will vary from one student to the next, but all will have had some more exposure to concepts about one-half during the lesson.

Extension

• You may want to have a few students tackle the much more challenging problem of figuring out how to share 2 pizzas among 3 children.
Circle Pattern

Set A6 Number & Operations: Fractions Blackline  Run 1 copy to use as a template for cutting circles.
Set A6 ★ Activity 3

Fraction Bingo

Overview
Students help the teacher prepare a set of Fraction Bingo calling cards. Then the class divides into 2 teams and plays Fraction Bingo.

Skills & Concepts
★ understand and represent commonly used fractions, such as ¼, ⅓, and ½

Recommended Timing
Anytime after Set A6 Activity 2

You’ll need
★ Fraction Bingo Cards (pages A6.15–A6.18, 1 copy, see Advance Preparation)
★ Fraction Bingo Boards 1 and 2 (pages A6.13 and A6.14, half-class set of each, see Advance Preparation)
★ markers in black and red (if you decide to laminate the Bingo Cards, use overhead or dry-wipe markers)
★ red crayons, class set
★ pencils

Advance Preparation
Run 1 copy of each sheet of Fraction Bingo Cards on cardstock and laminate. Then cut the 16 cards apart. (If your time or materials are limited, run 1 copy of each sheet on white copy paper, cut the cards apart, and don’t laminate them.) Run a half-class set of Board 1 on white copy paper and a half-class set of Board 2 on light-colored copy paper.

Note
You may want to break this activity out over several short periods. For instance, you might have the class help you label half of the cards one day, the other half the following day, and play the game the third day.

Instructions for Fraction Bingo
1. Gather students to your discussion circle. Explain that the class is going to play a game of Bingo, but you need their help to prepare the calling cards first. Show them one of the calling cards that has a fraction written on it already. Read the fraction with the class and work with their input to color in that part of the shape.

Teacher
Boys and girls, we’re going to play a game of Bingo. I’m going to need your help to get the Bingo Cards ready, though. Here’s the first one. What can you tell me about it?
Students  It's a square.  
It's like a sandwich cut in half.

Students  That number says one two.  
It means one-half.

Teacher  The fraction one-half tells us how much of the square to color in. Who can come up and show me how to color in half of this square? K’Sondra?

K’Sondra  It’s already cut in half. Just color this part here.

Teacher  Okay. I’m going to color the part K’Sondra showed with a red marker so it’s really easy to see.

2. Continue in this fashion with the other cards in the set. Students may be more engaged if you invite them to help you color some of the cards. The class will notice that the shapes on some of the cards have already been shaded in. On these, you need to solicit students’ help to write the matching fraction.

Teacher  Here’s a different kind of card. Have a look and tell me what you notice about this one.
Activity 3  Fraction Bingo (cont.)

**Students**  It's a rectangle cut in 3 parts.  
Two of them are colored in already.  
There's no number on that one.

**Teacher**  We're going to write the fraction on this one. This rectangle is divided into 3 equal parts.  
Does anyone remember the name of the fraction that tells about one of the parts?

**Esteban**  It's one-third. A third is like three.

**Teacher**  That's right. And how many of the thirds have been shaded in?

**Bianca**  2 of them.

**Teacher**  So I'm going to write 2 above the line to show that 2 of the 3 parts are shaded in, and 3 below the line to show that there are 3 parts in all. This fraction says two-thirds.

---

There are 4 cards that present fractions as parts of a set instead of parts of a whole. Help students use what they already know about fractions to label these cards.

**Teacher**  Here's a card with two marbles in a loop. It says \(1/2\). What is half of 2?

---

**Hector**  It's 1, so color in one marble.

**Maria**  If you shared the marbles in half, you'd get 1 and your brother would get 1.

3. After all 16 cards have been prepared, show students the 2 different Bingo Boards. Explain that you're going to mix up the calling cards and place them face-down in a stack. Then you'll take one card at a
time from the top of the stack and hold it up for everyone to see. Their job will be to find the box on their Bingo Board that matches the card and either color in or write the fraction, just like you’ve done on the card.

4. Send students back to their tables. Divide the class in half and ask each student to get out a pencil and red crayon. Give Bingo Board 1 to the half the children and Bingo Board 2 to the other half. Ask students to write their name on their board. Chances are, most students have played Bingo before. If not, remind them that the first team to mark 4 boxes in a row side-ways, up and down, or diagonally wins. They’ll mark some of the boxes by coloring in the fraction and some by writing the fraction to match the parts that have been shaded in.

5. Hold up the Bingo Cards one by one. Each time, have students locate the matching box on their board. If there’s a fraction under the shape or set of marbles, they need to color in part of the shape or set to match the fraction. If part of the shape or set has been shaded already, they need to write a fraction to match. Play until one team gets 4 in a row.

**Extensions**

- Play a blackout version of the game in which you continue to draw cards until both teams have filled their boards entirely.
- Collect the boards at the end of the game. Play the game a second and possibly even a third time, giving the students Unifix cubes to use as game markers.
- You might have students fill in their boards while you fill in the Bingo Cards instead of waiting until after the cards have been prepared. If you decide to do this, give each child Unifix cubes to use as game markers.
Fraction Bingo Board 1

1/2

2/4

1/3

1/4

1/2

2/3

1/4

3/4
## Fraction Bingo Board 2

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="https://via.placeholder.com/150" alt="Fraction" /></td>
<td><img src="https://via.placeholder.com/150" alt="Fraction" /></td>
<td><img src="https://via.placeholder.com/150" alt="Fraction" /></td>
<td><img src="https://via.placeholder.com/150" alt="Fraction" /></td>
</tr>
<tr>
<td>$\frac{1}{3}$</td>
<td>$\frac{2}{4}$</td>
<td>$\frac{2}{3}$</td>
<td>$\frac{1}{2}$</td>
</tr>
<tr>
<td><img src="https://via.placeholder.com/150" alt="Fraction" /></td>
<td><img src="https://via.placeholder.com/150" alt="Fraction" /></td>
<td><img src="https://via.placeholder.com/150" alt="Fraction" /></td>
<td><img src="https://via.placeholder.com/150" alt="Fraction" /></td>
</tr>
<tr>
<td>$\frac{1}{4}$</td>
<td>$\frac{3}{4}$</td>
<td>$\frac{1}{4}$</td>
<td>$\frac{3}{4}$</td>
</tr>
</tbody>
</table>
Fraction Bingo Cards  page 1 of 4

1/2

1/4

2/4

3/4
Fraction Bingo Cards  page 2 of 4

- 

\[
\frac{1}{3}
\]

\[
\frac{2}{3}
\]

-
Fraction Bingo Cards  page 3 of 4
Fraction Bingo Cards  page 4 of 4
GRADE 1 SUPPLEMENT

Set A9  Number & Operations: Number Puzzles Calendar Pattern

Includes
May Calendar Pattern

Skills & Concepts
★ write and solve number sentences from problem situations involving addition and subtraction, using symbolic notation for the missing value (e.g., □ + 4 = 7)
★ recognize that unknowns in an addition or subtraction equation represent a missing value that will make the statement true
★ recognize that “=” indicates that the two sides of an equation are expressions of the same number
★ use the commutative and identity properties of addition and the mathematical relationship between addition and subtraction to solve problems
★ solve and create word problems that match addition or subtraction equations
★ apply and explain strategies to compute addition facts and related subtraction facts for sums to 18
Set A9 ★ May & June Calendar Pattern

Number Puzzles

Overview
This set of Calendar Grid markers replaces the student-made markers in the month of May. Each marker in the sequence features a single equation or story problem. Each day, students are challenged to solve the problem by finding the missing addend, minuend, or subtrahend. Strategies for solving these problems may include dramatization, modeling with cubes or drawings, and using a number line. In addition to using a variety of strategies to solve the daily problems, students will also discover patterns in the sequence of markers as the month unfolds.

Skills & Concepts
- write and solve number sentences from problem situations involving addition and subtraction, using symbolic notation for the missing value (e.g., □ + 4 = 7)
- recognize that unknowns in an addition or subtraction equation represent a missing value that will make the statement true
- recognize that “=” indicates that the two sides of an equation are expressions of the same number
- use the identity property and the mathematical relationship between addition and subtraction to solve problems
- solve and create word problems that match addition or subtraction equations
- apply and explain strategies to compute addition facts and related subtraction facts for sums to 18

You’ll need
- Calendar Grid pocket chart
- Day, Month, and Year Calendar Grid cards
- May & June Number Puzzles Calendar Markers (available at http://gotomlc.org/calmarkers) Print 1 copy of the calendar marker sheets in black and white, single-sided, on white cardstock. Cut the calendar markers apart and laminate if desired.
- Calendar Grid Observations sheet from Set C2 (see Advance Preparation)
- number line(s)
- Unifix cubes or other counters
- helper jar containing a popsicle stick for each child with his/her name on it

Advance Preparation
Erase the Calendar Grid Observations sheet from Set C2. Redraw the lines to create 4 columns. Label the columns at the top of the first sheet as shown below for use with this month’s markers.

<table>
<thead>
<tr>
<th>Date</th>
<th>Equation</th>
<th>Story Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Introducing the Number Puzzles Calendar Grid Pattern: Day 1
Open your first Number Corner lesson in May by directing students’ attention to the calendar grid. Place the first marker in the correct pocket, and ask children to pair-share observations. What do they notice about this marker? After a few moments, pull popsicle sticks from your helper jar to call on children to share their observations with the class.
Students  It’s a take away problem!
It’s a kind with one of those boxes.
I know the answer!

Write the equation on the whiteboard or a piece of chart paper. Ask children what number you could put in the box to make the equation true. Give them a few moments to pair-share ideas, and then call on volunteers.

Students  It’s 7 because 6 and 1 is 7. You have to add the numbers to get the answer!
But it says 6 minus something is 1. I don’t think you add.
It has to be 5. 6 take away 1 is 5.
6 take away 5 is 1, so I think it’s 5.

Chances are, students will have several different responses. Rather than confirming any of them immediately, work with a volunteer to enact the equation, using anything close at hand (books, markers, linking cubes) to do so.

Teacher  It sounds like people have different ideas about what number we should put in the box. Sometimes acting a problem out helps solve it. Let’s try that right now. Jorge, you’re class helper today. Will you help act out this problem?

Jorge  Okay.

Teacher  Let’s tell a story about the equation. Hmmm … one day it was so rainy the kids had to stay indoors for recess. Jorge decided to read, so he got some books from the shelf. How many? Yep, that’s right—6. Jorge, will you please get 6 books and bring them to the circle? What happened next?

Students  It’s take away, so maybe the teacher told him to put some back.
He has to put 1 back because it says take away 1.
Maybe other kids kept asking him if they could look at his books, and then he only had 1 left!

Teacher  Jorge sat down with his stack of books and started to read. Some of the other kids wanted to look at his books so he started to share with them. Pretty soon, he only had 1 book left. How many of the books did he give to the other kids? Talk with the person next to you for a moment, and then hold up your fingers to show the number of books you think Jorge gave to the other kids.
Teacher  I see some people holding up 1 finger, lots of people holding up 5 fingers, and a few holding up 2 or 3. Let’s try it out. Jorge, would you give some of your books to the kids sitting near you? Let’s see how many Jorge has to give away to end up with just 1 for himself. He’s giving away—help me count—1, 2, 3, 4, 5 of the books. Does he only have 1 left now? How many did he give away?

Students  5—he gave 5 away!
I knew it!

When there is general agreement, read the equation with the class, and then fill in the missing number. Ask the children to read it together. Is it true? Is there any other number besides 5 that can be placed in the box to make a true equation?

\[ 6 - \square = 1 \]

Continuing through May with the Calendar Grid
Repeat the process described above on the 2nd and 3rd of the month. On the 3rd, introduce the calendar grid observation sheet after you have posted and solved the day’s equation. Work with input from the class to fill in the information for that marker. Have the class help you fill in the information for the first two markers over the next day or two as time allows.

<table>
<thead>
<tr>
<th>Date</th>
<th>Equation</th>
<th>Story Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/1</td>
<td>6 - \square = 1</td>
<td>J got 6 books. He shared some. He has 1 left. How many did he share?</td>
<td>6 - 5 = 1</td>
</tr>
<tr>
<td>5/2</td>
<td>0 + \square = 2</td>
<td>S. had 0 cats. She got some. Now she has 2. How many did she get?</td>
<td>0 + 2 = 2</td>
</tr>
<tr>
<td>5/3</td>
<td>3 - 2 = \square</td>
<td>K wants $3 for a toy. She has $2. How many more $ does K need?</td>
<td>3 - 2 = 1</td>
</tr>
</tbody>
</table>

Each day thereafter, ask children to make predictions about the new marker before you post it. Once it is posted, work with the class to read and discuss the new equation, solve it, and enter the information on the observation sheet. The fourth marker in the sequence, and every fourth marker after that (Markers 8, 12, 16, and so on), features a story problem instead of an equation. On these days, you will need to read the problem with the students and work with their input to generate a matching equation.

The kids had 7 balls. They lost some. Now they only have 4 balls. How many balls did they lose?

4
Teacher  Let's write an equation to match this story before we solve it. What happened first? Right, the kids had 7 balls, so let's write a 7 to show that. What happened next? Yep, they lost some, but we don't know how many yet. How can we show that?

Students  We could make a box, like when you don't know what the number is. It's 3! I know it's 3, because 4 and 3 make 7.

Teacher  It could be 3, but do we know for sure? Not yet, so let's use a box. What happened next? You're right. They only had 4 balls left, so let's record that and read our equation together.

\[ 7 - \square = 4 \]

Students  7 take away something is 4. If you take away 3, you can get 4. I think 3 goes in the box. I think it's 11 because 7 + 4 is 11. But they didn't get more balls. They lost some!

Once the equation has been recorded, have children solve it by modeling the story, either with manipulatives or by acting it out. Finally, work with the class to enter the information on the observation chart.

<table>
<thead>
<tr>
<th>Date</th>
<th>Equation</th>
<th>Story Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/1</td>
<td>6 − \square = 1</td>
<td>J got 6 books. He shared some. He has 1 left. How many did he share?</td>
<td>6 − 5 = 1</td>
</tr>
<tr>
<td>5/2</td>
<td>0 + \square = 2</td>
<td>S. had _ cats. She got some. Now she has 2. How many did she get?</td>
<td>0 + 2 = 2</td>
</tr>
<tr>
<td>5/3</td>
<td>3 + 2 + \square</td>
<td>K wants $3 for a toy. She has $2. How many more $ does K need?</td>
<td>3 + 2 + \square</td>
</tr>
<tr>
<td>5/4</td>
<td>7 − \square = 4</td>
<td>Kids had 4 balls. Lost some. Only 4 left. How many did they lose?</td>
<td>7 − 4 = 4</td>
</tr>
</tbody>
</table>

Here are some questions and prompts to use throughout the month:
- What predictions can you make about the marker for today?
- What do you notice about the marker, now that we have it posted?
- Let’s read the equation (or the story problem) on today’s marker together.
- Vary the ways in which you ask children to solve the equation or problem each day. Some days, you might have volunteers dramatize the situation. Other days, you might ask all the children in the class to model and solve the problem with Unifix cubes. You might also have children sketch the situation and record the equation on an individual chalkboard or whiteboard.
- Encourage children to use a number line to help solve some of the problems. This might be a number line you have posted in the room, number lines on students’ desks, or a number line drawn on the board.
May & June Calendar Pattern (cont.)

- After the first week or two, encourage students to search for patterns in the sequence of markers with questions such as, “Will today's marker have an addition or a subtraction sign? How do you know?” or, “Will we see an equation or a story problem on today's marker? How do you know?”

Note: There are a number of different patterns in this month's sequence. For instance, there are always 3 equations and then a story problem. The first of the three equations is always subtraction, while the two that follow involve addition. The story problems alternate back and forth between subtraction and addition through the month. Starting with Marker 3, every fourth marker (7, 11, 15, and so on) begins with the total or the difference (e.g., \(3 = 2 + \square\)). See Grade 1 Supplement Set A4, Equivalent Names, for tips about how to help children understand and work with equations in this form. If you have taught Set A4 earlier in the year, these markers will provide a good opportunity to revisit the idea that equals means “the same as.”

Extensions
- Toward the end of the month, assign children to each write a story problem to match the equation on the day's marker.
- It won't be long before students realize that the total or difference on each marker matches the date. Starting mid-month, challenge interested students to write an equation for the next day. For instance, if the date the following day will be the 18th, invite students to write an equation in which 18 is the total on a slip of paper or a notecard. Have them post their equations near the calendar grid. Take time the next day to compare any equations that have been submitted to the equation on the marker.
NOTE Below is a representation of the May calendar grid. The full-size calendar markers are available at http://gotomlc.org/calmarkers.

<table>
<thead>
<tr>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

6 – □ = 1

0 + □ = 2

3 = 2 + □

□ – 2 = 5

□ + 3 = 6

7 = □ + 2

14 – □ = 9

0 + □ = 10

11 = 5 + □

□ + 7 = 14

15 = □ + 5

Jon has some toy cars. Pablo has 9 toy cars. In all, they have 16 toy cars. How many does Jon have?

17 – □ = 17

9 + □ = 18

19 = 9 + □

□ – 4 = 13

13

14

15

16

17

18

19

There were 30 birds in the tree. Some flew away. Now there are only 20. How many birds flew away?

□ – 8 = 21

21

□ + 10 = 22

22

23 = □ + 3

Abby wants to buy her mom a present for $24. How many more dollars does she need?

25 – □ = 25

19 + □ = 26

27 = 7 + □

27

□ – 4 = 29

□ + 15 = 30

□ = □ + 20

31 = □ + 20

The pet store had 35 fish. They sold some. How many fish did they sell?

28

29

30

31
GRADE 1 SUPPLEMENT

Set A10 Numbers to 100 with Penguins (Alternate Unit 4 Plan)

Includes
- Introduction A10.1
- Unit 4 Planner A10.4
- Advance Preparation Planning Guide A10.7
- Penguin Pictures Blacklines A10.11
- Work Places Planner Blackline A10.15
- Journey To Antarctica $200 Challenge Blacklines A10.16
- Activity 1: Number Line Race Game A10.19

Skills & Concepts
- use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions
- apply properties of operations as strategies to add and subtract
- understand subtraction as an unknown-addend problem
- relate counting to addition and subtraction (e.g., by counting on 2 to add 2)
- add and subtract within 20, demonstrating fluency for addition and subtraction within 10
- use strategies such as counting on; making ten; decomposing a number leading to a ten; using the relationship between addition and subtraction; and creating equivalent but easier or known sums
- count, read, and write to 100, starting at any number less than 100
- understand that the two digits of a two-digit number represent amounts of tens and ones
- compare two two-digit numbers based on meanings of the tens and ones digits
- add and subtract 2-digit numbers
- understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps
- organize, represent, and interpret data with up to three categories
- ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another

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Bridges in Mathematics Grade 1 Supplement
Set A10  Numbers to 100 with Penguins

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Bridges in Mathematics is a standards-based K–5 curriculum that provides a unique blend of concept development and skills practice in the context of problem solving. It incorporates the Number Corner, a collection of daily skill-building activities for students.

The Math Learning Center is a nonprofit organization serving the education community. Our mission is to inspire and enable individuals to discover and develop their mathematical confidence and ability. We offer innovative and standards-based professional development, curriculum, materials, and resources to support learning and teaching. To find out more, visit us at www.mathlearningcenter.org.
Set A10 ★ Introduction

Grade 1 Bridges in Mathematics, Unit 4 (Penguins) Planning Guide Revision

The National Council of Teachers of Mathematics [NCTM] Standards emphasize the importance of problem solving in real-world contexts to make mathematics education meaningful and relevant for children (2000). The Bridges in Mathematics program does this in many ways, and two exemplary examples are offered in the first grade curriculum in the integrated units, Penguins (Unit 4), and My Little Farm (Unit 6).

The first of these units, Penguins, is an integrated, thematic unit designed to take the better part of 17 instructional days. Unfortunately, many teachers have scheduling conflicts and other curriculum requirements that make it difficult to devote the necessary time to implement the unit as written. For these reasons, an alternative six-week schedule that keeps the integrity of this real-world unit, but fits into a 60–90 minute time frame, has been developed.

Bridges Unit 4, Penguins, and its imaginary trip to Antarctica, is an engaging learning experience designed to integrate the content areas of mathematics, science, social studies, reading, and writing. This scenario allows the students to play a role in a real-world challenge that combines a number of math standards and other complimentary standards (Reeves, 2003).

During this unit, the children are invited to take an imaginary trip to the Antarctic, complete with passports, travel games, a packing list, and a letter home. The enduring knowledge provided in this unit helps students to understand how mathematical skills and concepts are connected to the real world.

The mathematical targets addressed in this unit include measurement, sorting, and graphing. The students use themselves as comparison points to understand the height and weight of penguins. While students will be measuring height in inches throughout the unit, the measuring strips they use are intentionally marked in tens, rather than groups of 12. For this reason, these measuring strips may be regarded as a number lines rather than instruments for measuring length in standard units per se, and will provide valuable experiences with reading and comparing 2-digit numbers, and working with tens and ones. The measuring strips also support children in developing a sense of numbers as intervals as well as the names of discreet quantities, making it easier for them to jump forward or backward to the next number. Addition and Subtraction facts and strategies are reinforced in the Travel Games.

References
Notable Unit Planner Changes

Travel Games
The collection of five Travel Games and the inclusion of Number Line Race as the sixth Work Place, provide continuing practice in computation and place value. These six games become the Work Places for Unit 4 rather than take-home activities, allowing this established classroom routine to continue. As students finish in each session, they may go to Work Places as time permits. A new Work Place planner has been provided on page A10.15.

Weight Activity Revision
In sessions 6, 12, 15, and 18, the weight part of Measuring Height & Weight found on p. 450, 484, 500 is replaced with a whole class activity. Paper bags are filled with items such as flour, rice, or beans to total the weight of the penguin. The bags are labeled with the pictures provided on pages A10.11–A10.14 in this Supplement Set. Students may pick up the bag to get a feel for the weight of each of the penguins. Comparisons are made after more than one bag is introduced.

Home Connections
Several Practice Book pages are identified in the 6-week planner for use as Home Connections. The Travel Games could also be copied and sent home if desired.

Student Measuring Strips
Most of session 3 involves the students making the measuring strips they will use throughout the unit. It is helpful to have the students put their initials on the back of each section to minimize confusion as the measuring strips are assembled and later should the measuring strips come apart. As students finish their measuring strips have them practice measuring things around the room. For example, have the students fold a sheet of paper in thirds and label the sections longer, shorter, and the same. Students can measure items in the room and compare them to the length of their measuring strip and record the items on this sheet of paper.

Help! A Skua! and Old Orca Card Games
In sessions 11 and 17, card games are introduced. If students have limited experiences with playing card games, the teacher may want to have the class play in small groups of 3–4 students before adding the game to Work Places (8 sets of cards are suggested for this purpose). Additionally, the students can be shown how these same cards can be used to play a memory or matching game. This alternative allows the students to either play by themselves or with a partner. Be sure to put at least 6 sets out for Work Places.
Overview of the 6 Work Place Games

While measurement, sorting, and graphing are the focus of many of the unit sessions, the games in this unit provide practice using the addition, subtraction, and place-value skills taught so far this year. It is important that students have time to work at Work Places as often as possible.

Journey to Antarctica, see p. 433  (Make 3 game boards.)
In this game students move around a game board spending money on items to prepare for their trip to Antarctica. Each person has $100. They color the amount of the item on a 100's grid. The person with the most money “left over” wins the game.

Note: A challenge version uses $200 and money amounts that are not landmark numbers. See Blacklines on p. A10.16–A10.18 in this Supplement Set.

Penguins on Board Addition, see p. 454  (Make 3 game sets.)
This game provides practice with adding doubles and neighbors facts. Using coordinate cards, students select a door to open and answer a math fact. Students get the amount of money on the door. At the end of the game, students count their money.

Help! A Skua! see p. 472  (Make 8 sets.)
In this game the students read and match 2-digit numbers to their 10's and 1's pictorial equivalent, as done in previous Number Corner sessions. The game is played like Old Maid where the person without the Skua card at the end of the game is the winner. The Skua is a penguin predator.

Spin to Win Bingo, see p. 481  (Make 3 game boards and 3 sets of cards.)
This partner game provides practice with +9 and +10 facts. The cards are not actually part of the game, but can be used by the students for review or laid out to provide a visual model for solving the problem. Students spin the attached spinners to generate an equation and place a marker on their board's answer. The first person with 4 in a row (horizontally, vertically, or diagonally) wins.

Old Orca Subtraction, see p. 499  (Make 8 sets.)
This game is played like Help! A Skua! The students match subtraction facts with their differences. The card to avoid is the orca whale, another penguin predator.

Number Line Race, see p. A10.19  (Make 3 game boards.)
This game has been added to the unit to provide a total of six Work Places. This game provides additional practice using a number line for addition and subtraction. Students start with their markers in the middle of the number line. They take turns spinning the spinner and moving their markers. The first person to land on the last number on the line, wins. Students may choose between a 0–10 and a 0–20 number line.

Complete directions and instructions for making the first five games are found in the Bridges Teacher’s Manual. Number Line Race Directions are included in this Supplement Set. See p. A10.9 of this supplement for additional information on how to prepare the Work Place baskets.
Unit Four Planner (Replaces Bridges, Grade 1, Vol. 2, pp. 409–411)

The activities originally designed to take 17 full days of classroom instruction have been resequenced, and in some cases, modified or eliminated so that the unit can be taught over the course of 30 math sessions instead. The Blacklines you’ll need for the activities in each session below have been included on this planner for your convenience.

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<th>SESSION 1</th>
<th>SESSION 2</th>
<th>SESSION 3</th>
<th>SESSION 4</th>
<th>SESSION 5</th>
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<td><strong>Problems &amp; Investigations</strong></td>
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<tr>
<td>• Introducing Antarctica, pp. 423–425 (See Advance Preparation Guide on p. A10.7 of this Supplement Set for a suggested Penguin video.)</td>
<td>• Preparing Unit Folders, pp. 425–426</td>
<td>• Reading Ten Little Penguins, pp. 444</td>
<td>• A Travel Game: Journey to Antarctica, pp. 433–434 (Use OH 4.1 or one of the gameboards you’ve prepared to teach this game to the class. Ignore the instructions to have children make their own copies of the game and prepare Travel Game envelopes.)</td>
<td>• Where Are the Polar Seas? p. 440</td>
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<td><strong>Work Places</strong></td>
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<td><strong>Work Places</strong></td>
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<td>• Count &amp; Compare Coins</td>
<td>• BL 4.2–4.3, 1 copy each on cardstock</td>
<td>• BL 4.2–4.3, class set</td>
<td>• BL 4.11–4.13, 1 copy each on cardstock</td>
<td>• BL 4.45 &amp; 4.46, class set</td>
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<tr>
<td>• Add &amp; Compare</td>
<td>• BL 4.4, class set</td>
<td>• BL 4.15–4.25, 1 copy each</td>
<td>• BL 4.34–4.35, 3 copies each</td>
<td>• BL 4.39–4.44, optional, 1 copy each label graphic organizer</td>
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<tr>
<td>• 20¢ or Bust</td>
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<tr>
<td>• An Hour or Bust</td>
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<td>• BL 4.38, class set</td>
<td>• BL 4.39–4.44, class set</td>
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<tr>
<td>• Polydrons—Box or House?</td>
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<td>• BL 4.32, 3 copies each</td>
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**Blacklines**

- Song & Poetry Portfolio, pp 4.1–4.3, 1 copy each
- BL 4.1, class set
- BL 4.2–4.3, 1 copy each
- BL 4.4, class set
- BL 4.45 & 4.46, 1 copy each
- BL 4.27, class set

**SESSION 6**

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<tr>
<td>• Telling the Story: The Antarctic Cold &amp; the Rockhoppers, pp. 447–448</td>
<td>• A Travel Game: Penguins on Board Addition, p. 455 (Use one of the cardstock gameboards and sets of cards you have prepared to introduce this game. Ignore the instructions to have children make their own copies.)</td>
<td>• Telling the Story: Beautiful King Penguins, pp. 459–460</td>
<td>• The Graphic Organizer: Gathering Information, p. 470</td>
<td>• A Day of Work Places:</td>
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<tr>
<td>• The Rockhopper Penguin Poem, pp. 449–450</td>
<td>• The King Penguin Poem, pp. 460–461</td>
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<td>• Rockhopper Penguins &amp; King Penguins: A Sorting Worksheet, p. 471</td>
<td>• Sea Creature...</td>
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<tr>
<td>• Measuring Height &amp; Weight: Rockhopper Penguins, pp. 450–452 (See revised weight activity on p. A10.2 in this Supplement Set; ignore instructions to have students fill in Penguin Weights sheet and make the travel game.)</td>
<td>• The King Penguin Data Sheet, pp. 461–462</td>
<td></td>
<td>• Complete the How Tall Is Each Penguin? sheet for Rockhoppers &amp; Kings, p. 452</td>
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<td><strong>Work Places</strong></td>
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<td>• Add Penguins on Board Addition</td>
<td>• Remove Add &amp; Compare</td>
<td>• Song &amp; Poetry Portfolio, pp 4.6–4.7, 1 copy each</td>
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<td>• A Travel Game: Penguins on Board Addition, p. 455</td>
<td>• The Rockhopper Penguins &amp; King Penguins: A Sorting Worksheet, p. 471</td>
<td>• Complete the How Tall Is Each Penguin? sheet for Rockhoppers &amp; Kings, p. 452</td>
<td>• A Day of Work Places:</td>
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<td>• The Graphic Organizer: Gathering Information, p. 470</td>
<td>• A Day of Work Places:</td>
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<td>• The Rockhopper Penguins &amp; King Penguins: A Sorting Worksheet, p. 471</td>
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**SESSION 9**

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**SESSION 10**

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<td>• Telling the Story: Penguin Predators, p. 469</td>
<td>• Telling the Story: The Littlest Penguins, pp. 477–478</td>
<td>• A Travel Game: Spin to Win Bingo, pp. 481–484 (After you’ve prepared the materials for this Work Place, use one set of the cards at the pocket chart, and one of the game boards at the document camera to introduce the game to the class. Ignore the instructions to have students make their own copies of the game.)</td>
</tr>
<tr>
<td>• A Travel Game: Help, a Skua, pp. 472–473 (Use one set of the cards you have prepared to model the game. See further suggestions for introducing the game on p. A10.2 in this Supplement Set. Ignore the instructions to have students make their own copies of the game)</td>
<td>• The Little Blue Penguin Poem &amp; the Graphic Organizer, pp. 479–480</td>
<td>• The Height and Weight of Little Blue Penguins, pp. 484–486 (Just the Little Blue Data Sheet, not the height comparison or weight sheets)</td>
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<tr>
<td>• Add Help! A Skua!</td>
<td>• Song &amp; Poetry Portfolio, pp 4.10–4.11, 1 copy each</td>
<td>• 4.52–4.54, 3 sets on cardstock</td>
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<td>• Remove Sea Creatures Sorting &amp; Graphing</td>
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<tr>
<td>• Little Blues &amp; Gentoo Penguins: A Sorting Worksheet, p. 494</td>
<td>• A Travel Game: Old Orca Subtraction, pp. 499–500 (Use one set of the cards you have prepared to model the game. See further suggestions for introducing the game on p. A10.2 in this Supplement Set. Ignore the instructions to have students make their own copies of the game)</td>
<td>• Telling the Story: The Chinstrap Penguins, p. 497</td>
<td>• Number Line Race, pp. A10.19–A10.21 in this Supplement Set (Follow the instructions on these pages to teach the game to your students.)</td>
<td>• Telling the Story: The Emperor Penguins, p. 505–506</td>
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<tr>
<td>• Complete How Tall is Each Penguin? for Little Blue and Gentoo Penguins, p. 485 (Students will need their How Tall is Each Penguin Sheets from Session 9. These sheets should be in their Penguin folders.)</td>
<td>• Add Old Orca Subtraction (Place at least 6 decks of cards in the Work Place tub.)</td>
<td>• The Chinstrap Penguin &amp; the Graphic Organizer, p. 498</td>
<td>• The Emperor Penguin Poem &amp; the Graphic Organizer, pp. 506–507</td>
<td>• The Emperor Penguins, pp. 505–506</td>
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<td>Work Places</td>
<td>• Remove An Hour or Bust</td>
<td>• The Height and Weight of the Chinstrap Penguin, pp. 500–501 (Just the Chinstrap Penguin Data Sheet, not the Weight or the How Tall is Each Penguin Sheets.)</td>
<td>• Student Weights &amp; Emperor Weights, a Class Graph, pp. 508–510</td>
<td>• Student Weights &amp; Emperor Weights, a Class Graph, pp. 508–510</td>
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<td>Measuring the Height of the Emperor Penguins, pp. 510–511 (Data Sheet only.)</td>
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<td>• Song &amp; Poetry Portfolio, pp 4.12–4.13, 1 copy each</td>
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<td>• A Growing Pattern of</td>
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<td>pp. 519–520</td>
<td>(Have children each make a</td>
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Set A10 ★ Advance Preparation Planning Guide

Miscellaneous Information:

- Online resource for penguin information and pictures <http://www.seaworld.org>
- How to pronounce Skua (skīa) howjsay.com (a talking dictionary)
- The video on day 1, Behind the News: Antarctica is from Discovery Education. If you don't have a subscription to Discovery Streaming, consider substituting an alternate video that sets the stage for journeying to Antarctica.

Penguin Folders  See p. 425

During Session 2 of Penguins, students will make penguin folders similar to the one shown on page 425 to keep their work in through the unit. You'll want to have paper cut to the following sizes for these folders. The quantities listed below are enough for one student to make a folder, so just multiply every – thing by the number of children in your class plus a few extra.

- 12" × 18" piece of blue construction paper folded in half for a folder cover
- 3" × 9" piece of white construction paper (snow)
- 4" × 6" piece of black construction paper (penguin body)
- 3" × 3" piece of white construction paper (penguin tummy)
- 3" × 3" piece of orange and/or yellow construction paper (penguin beak and feet)
- 2 plastic wobble eyes (optional)

Teaching Charts & Other Demonstration Materials

Revised Weight Activity
This replaces the weight part of “Measuring Height & Weight” found on pp. 450, 484, and 500.

Penguin Weights
- A10.11–A10.14 Run one copy each. Cut on solid line and attach to paper bag.

Make this activity a bit easier unless you have an assistant or good parent volunteers. As you study each of the lighter weight penguins, glue a picture of each one on a grocery bag filled with food cans or other items to match the weight of each. Ideally, you'll have several bags available after studying 3 or 4 penguins so kids can compare weights by lifting. Share this task and the bags with team members and it won't feel so hard. Don't be surprised if many of your children mix up the idea of weight and height.

This activity was modified by Donna Burk, Bridges in Mathematics author, and is used with permission.
**Advance Preparation Planning Guide (cont.)**

Measuring Height Activity Materials Preparation
See page 450 in the teacher's guide. You will need to wrap a half class set of popsicle sticks or tongue depressors with 8 yards of string each.

**Thermometers and Ocean Temperature Cards** (Needed for Session 5)
- Blackline 4.9, Teacher Thermometer (optional)
- Blackline 4.10, Student Thermometers (optional)
- Blacklines 4.11–4.13, Ocean Temperatures Cards

If you've been doing the temperature lessons from Number Corner this year, you won't need to make a large teaching thermometer and small cardstock student thermometers. If you haven't, you might want to use Blacklines 4.9–4.10 to make these in order to familiarize your students with reading thermometers. In either case, you'll need to run single copies of the Ocean Temperature Cards on cardstock, cut them apart, and laminate them for the water temperature experiments on Session 5.

**Graphic Organizer Chart** (Needed for Session 6 and Beyond) See page 413 for visual.
- Blacklines 4.39–4.44, Graphic Organizer Labels 1–6

Pull a large piece of butcher paper and create columns and rows as shown on page 413, either by folding the paper or using a yardstick and marking pen. Use the labels provided in the blacklines to create the headings on the chart or print them in yourself.

**A Graph** See page p. 519
- Which Life-size Penguin Will You Make?
Pull a large piece of butcher paper and create columns and rows as shown on page 520, either by folding the paper or using a yardstick and marking pen. Use file cards or cut construction paper for graph markers.

**Penguin Pairs: A Growing Pattern** See p. 522
- 4½" × 6" pieces of black construction paper (2 for each child)
- 3" × 4½" pieces of gray construction paper (for little blue penguins)
- 3" × 4½" pieces of white construction paper (2 for each child)
- 3" × 3" squares of yellow, orange, pink, and black (for beaks, feet, rockhopper feathers)

**A Growing Pattern of Penguin Pairs** See p. 525
- 3" × 9" white construction paper (1 per child & a few extras)
- two 36" × 60" pieces of blue butcher paper glued together to hold the finished Penguin Pair arrangement (See p. 528.)
- Counting by 2's sheets, Blacklines 4.74–4.75 (1 copy of each, see p. 528.)

**Measuring & Drawing the Life-Size Penguins** See p. 529
- a piece of butcher paper for each child, cut to approximate length of the penguin he/she wants to make.
- a piece of butcher paper about 39" long for your demonstration
Making the Penguin Problem Backgrounds  See p. 568

- one 9" × 12" piece of dark blue or aqua construction paper (per student)
- one 4½" × 12" piece of white construction paper
- one 4½" × 12" piece of light blue construction paper

Books & Wall Charts

The Penguin Poems  (Large teacher versions needed throughout the first twenty sessions.)
Create a collection of wall charts or big books for this unit.

- Poems & Songs Portfolio, pages 4.1–4.3, Going to Antarctica (Session 1)
- Poems & Songs Portfolio, pages 4.4–4.5, Rockhopper Penguins (Session 6)
- Poems & Songs Portfolio, pages 4.6–4.7, King Penguins (Session 8)
- Poems & Songs Portfolio, pages 4.10–4.11, Little Blue Penguin (Session 12)
- Poems & Songs Portfolio, pages 4.8–4.9, Gentoo Penguin (Session 15)
- Poems & Songs Portfolio, pages 4.12–4.13, Chinstrap Penguin (Session 18)
- Poems & Songs Portfolio, pages 4.14–4.15, Emperor Penguin (Session 20)

Ten Little Penguins: A Subtraction Book  (needed for Session 3)
Run copy of each blackline, collate in order, from 10 little penguins to 1 little penguin, and bind to make a subtraction book children will be able to read for themselves.

- Blacklines 4.15–4.25, Ten Little Penguins Book, pages 1–11

Work Places

Work Place Planner
- A10.15 Work Place Planner for Unit 4, Run a class set

Gameboards
Run 3 sets of each of the following games on cardstock to allow for 6 students per Work Place. See the page listings for directions for making the games.

- Journey to Antarctica, p. 433 also see p. A10.16–A10.18 for challenge version of this game
- Penguins on Board Addition, p. 454
- Spin to Win Bingo, p. 481
- Number Line Race Game, p. A10.22 and A10.23 in this Supplement

Card Games
Run 8 sets of the following card games on colored cardstock. Ideally, each set should be a different color to keep the sets separate. If this is not possible, use different colors of permanent marker or small stickers to label each set.

- Old Orca Subtraction p. 499
- Help, A Skua! p. 472
Blacklines Needed by Students

Run class set plus a few extra on copy paper unless otherwise indicated

**Poems**
- 4.1, Going to Antarctica
- 4.26, Rockhoppers
- 4.37, King Penguins
- 4.51, Little Blue Penguin
- 4.57, Gentoo Penguin
- 4.61, Chinstrap Penguin
- 4.66, Emperor Penguin

**Math Worksheets**
- 4.2 and 4.3, How Tall Are You? Measuring strips sheets 1 and 2
- 4.4, Penguin Passport
- 4.14, Exploring Average Winter Ocean Temperatures
- 4.27, How Tall Is Each Penguin?
- 4.28, Rockhopper Data Sheet
- 4.38, King Penguin Data Sheet
- 4.56, Little Blue Penguin Data Sheet
- 4.58, Gentoo Data Sheet
- 4.65, Chinstrap Penguin Data Sheet
- 4.69, Emperor Penguin Data Sheet
- 4.73, Range 100 Worksheet
- 4.76, Penguin Pairs: Counting by 2's
- 4.78 and 4.79, Measuring Up Worksheets

**Penguin Sorting Worksheets**
- 4.45–4.46, Rockhopper & King Penguins
- 4.59–4.60, Little Blue & Gentoo Penguins
- 4.70–4.71, Chinstrap & Emperor Penguins

**Optional Practice Worksheets**
May be used for homework. These come from the Practice Book blacklines. See the Unit 4 Planner in this Supplement Set for suggestions on when to send these home.
- 37, Doubles & Neighbors
- 38, More Doubles & Neighbors Addition
- 39, Bath Water & January Ocean Water Temperatures
- 40, Penguin Subtraction
- 41, Fast Nines & Fast Tens Addition
- 42, Comparing Penguin Heights
- 44, A Penguin Problem
- 45, More Penguin Problems
- 46, Skip Counting by 2's

**Optional Writing Worksheets:**
- 4.36, A Journey to Antarctica
- 4.72, A Trip to Antarctica Stationary
- 4.77, Guess Who? (A penguin riddle)
Chinstrap Penguin

A Chinstrap Penguin weighs about 9 pounds.
Rockhopper Penguin

A Rockhopper Penguin weighs about 5–6 pounds.
Gentoo Penguin

A Gentoo Penguin weighs between 12 and 13 pounds.
A Little Blue Penguin weighs about 2 pounds.
Work Places Planner for Unit 4
Addition, Subtraction & Place Value

4A Journey to Antarctica

4B Penguins on Board Addition

4C Help, a Skua!

4D Spin to Win Bingo

4E Old Orca Subtraction

4F Number Line Race
A Journey to Antarctica $200 Challenge

Game Rules
1. Each player must start at the first square and record the required air fare on his or her record sheet.
2. Spin the spinner to move around the board. You must spend the indicated amount of money each time you land in a box. Be sure to record each “purchase” on your record sheet.
3. You can’t fly home until you land in the final box. You may need to spin more than once to reach that box.
4. The player with more money left at the end of the journey wins the game.

Items:
- Your flight $39
- Your flight home $39
- You buy postcards $8
- Boat to Antarctica $25
- You ride a raft for penguin watching $21
- Port Fee $7
- You buy a compass $12
- You send a fax $3

Note: Run on cardstock. Cut on the dotted line and glue on Blackline A10.17.
You buy a sweater $15
You send a fax $5
You buy a coat $29
You buy binoculars $15
You buy a hat $12
You buy postcards $3
You buy boots $35
You buy a gift $8
Journey to Antarctica $200 to Spend worksheet

Who will get home?
Who will have more money left?
Set A10 ★ Activity 1

**Number Line Race Game**

**Overview**
Number Line Race to 10 is a simple game that serves to introduce the idea that numbers can be represented as points on a line. This activity provides students with opportunities to locate and name points on the line, and also reinforces their understandings of addition and subtraction.

**Skills & Concepts**
- add and subtract whole numbers on a number line

**You'll need**
- Number Line Race to 10 Gameboard (page A10.22, see Advance Preparation)
- a red and a blue game marker
- black overhead pen

**Advance Preparation** Use page A10.22 to make an overhead transparency of the gameboard. Use ½" sections of drinking straw, regular paperclips, and brass fasteners as shown below to create an arrow for each spinner on the gameboard. Poke a small hole through the center of each spinner. Keeping the straw and the paperclip on the brass fastener, insert it into the hole. Once it has been pushed through to the back, bend each side of the fastener flat against the underside of the transparency.

**Instructions for Number Line Race to 10**
1. Ask children to sit where they can see the screen and show them the Number Line Race to 10 gameboard at the overhead. Give them a moment to pair-share what they notice about the display. Then invite a few volunteers to share their observations with the class.

   **Students** There's a spinner with pluses and minuses on it, and another with numbers. The numbers only go 1, 2, 3. There's a line at the bottom with a bunch of marks on it. The first mark says 0 and the last one says 10. There aren't any other numbers on that line.

2. Explain that you'll be using the spinners to play a game with them in a minute. The line they see at the bottom of the gameboard is called a number line. Call their attention to the heavy mark in the middle of the line, and ask them to pair-share ideas about the number they think you should use to label that mark. Then invite a few of them to share their ideas with the class.
Activity 1 Number Line Race Game (cont.)

_Students_ It should be a 5 because 5 is right in the middle of 0 and 10. That mark is halfway, and if you cut 10 in half, it’s 5. If you count the marks before that one, they go 1, 2, 3, 4, and that one is 5.

3. When there’s general agreement, label the middle mark with the number 5, and then work with student input to label the other 8 marks along the line.

4. Place a blue game marker in the rectangle above the 5 and a red one below the 5. Explain that you’re going to take turns with the class spinning the 2 spinners and moving your marker along the line. The first team—you or the class—that lands on 10 wins the game.

5. Spin both spinners and move your marker accordingly.

_Teacher_ Oh no, I got minus 3! That means I have to hop back 3 numbers on the line. Where will I land?

_Students_ You’ll land on 2! Now we’re closer to 10 than you are! I hope we get plus 3 on our turn!

6. Take turns back and forth until either you or the students have landed on 10. Invite a different volunteer to take each of the students’ turns. Ask students to predict where the marker will land after each spin and press them to explain their answers. If their marker is on 7, for instance, and they spin minus 3, where will the marker land? Why?

_Students_ It’ll land on 4 because we have to take 3 hops back. 7 – 3 is 4, so we’ll land on 4.
Activity 1  Number Line Race Game (cont.)

Throughout the game, ask students to report how far from 10 they are.

Students  We’re on 4 now. We have to get 6 hops up to get to 10.
        4 + 10 is 6, so we have to go 6.
        I hope we spin plus 3 and then plus 3 again!

7. When one team has landed on 10, place both markers back in their starting position, above and below the 5, and play again.

Note  If one team or the other makes a spin that will take them off the line (e.g., their marker is on 9 and they spin plus 3), there are several different ways to handle it. Choose the one you think best suits the needs and strengths of your class.

• That team spins again (and again if necessary) until they make a spin that won't take them off the line.
• That team loses their turn, and has to wait until they make a spin that won't take them off the line.
• Explain that a number line extends infinitely far in both directions, and add numbers to both ends of the line as needed. This may involve the use of negative numbers, which fascinate many primary students. The one thing you don't want to do is tell the students that there are no numbers less than 0, because that's not true.

Extensions

• Play the game more than once with your class. This is a great “sponge activity.”
• Use pages A10.22 and A10.23 in this Supplement Set to make a Work Place version of the Number Line Race Game for use during Unit 4. Run 3 copies of the Number Line Race to 10 Gameboard on cardstock, laminate if possible, and attach spinners as described on page A10.13 in the Advance Preparation Notes. Place these, along with 6 game markers in a Work Place tub. Depending on the needs of your class, you might want to prepare 1 or more of the Number Line Race to 20 Gameboards to place in the Work Place tub as well.
• Have students make their own versions of the game to play at school and/or take home to share with their families. Some students may enjoy making number lines that go considerably higher than 10, and spinners that go from 1–6, or even 1–8.
GRADE 1 SUPPLEMENT

Set A11 Multi-Digit Addition & Subtraction on the Farm
(Alternate Unit 6 Plan)

Includes
Introduction A11.1
Unit 6 Planner A11.3
Advance Preparation Planning Guide A11.6
2-D Fence Sections Blackline A11.10
Goats–Sheep Hundreds Grid Comparison Worksheet A11.11
Pigs–Cows Hundreds Grid Comparison Worksheet A11.12
Farm Bucks $1 A11.13
Farm Bucks $5 A11.15
Farm Bucks $10 A11.17

Skills & Concepts
★ use addition and subtraction within 20 to solve word problems involving situations of
  adding to, taking from, putting together, taking apart, and comparing, with unknowns in all
  positions
★ count, read, and write to 100, starting at any number less than 100
★ represent a number of objects with a written numeral
★ add and subtract 2-digit numbers
★ identify, name, describe, and compare 2-D shapes, including squares and rectangles
★ create a 2-D shape with specific defining attributes
★ create a composite shape by composing 2-D shapes
★ compose a new shape using composite 2-D shapes
★ organize, represent, and interpret data with up to three categories
★ ask and answer questions about the total number of data points, how many in each cat-
  egory, and how many more or less are in one category than in another

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P0511

The Math Learning Center grants permission to classroom teachers to reproduce blackline masters in appropriate quantities for their classroom use.

Thanks to Shelly Scheafer, Tena Paulson, and Vicky Hanna of Bend, Oregon, along with contributions by Bridges author Donna Burk for the development of this supplement.

Bridges in Mathematics is a standards-based K–5 curriculum that provides a unique blend of concept development and skills practice in the context of problem solving. It incorporates the Number Corner, a collection of daily skill-building activities for students.

The Math Learning Center is a nonprofit organization serving the education community. Our mission is to inspire and enable individuals to discover and develop their mathematical confidence and ability. We offer innovative and standards-based professional development, curriculum, materials, and resources to support learning and teaching. To find out more, visit us at www.mathlearningcenter.org.
Introduction

Unit 6 (My Little Farm) Planning Guide Revision

The National Council of Teachers of Mathematics [NCTM] Standards emphasize the importance of problem solving in real-world contexts to make mathematics education meaningful and relevant for children (2000). Bridges in Mathematics does this in many ways, and two examples are offered in the first grade curriculum in the integrated units, Penguins (Unit 4), and My Little Farm (Unit 6).

The second of these units, My Little Farm, is an integrated, thematic unit designed to take the better part of 18 instructional days. Unfortunately, many teachers have scheduling conflicts and other curriculum requirements that make it difficult to devote the necessary time to implement the unit as written. For these reasons, an alternative six-week schedule that keeps the integrity of this real-world unit, but fits into a 60-minute time frame, has been developed.

In Unit 6, students use “farm bucks” to purchase land and animals, follow Land Use Planning Codes, and make decisions to create a model farm. Money, place-value, adding and subtracting 2-digit numbers, and mapping are the major skills addressed in this unit. Students also work with area and perimeter, bar graphs, problem solving, shapes, fractions, symmetry and several complimentary standards from other curricular areas. My Little Farm serves as a compilation of many math skills learned during the first grade year and provides students a meaningful, engaging context in which to apply these skills.

Notable Unit Planner Changes

1. During session 2, students make their farm folders and receive the “farm bucks.” Using the dollar amounts on the Model Farm Land-Use Planning Codes and the 2nd set of pictures from session 1 (Blacklines 6.1 and 6.2), students practice using the money to show amounts for “mock” purchases. For example, if the teacher put the goat cut out in the pocket chart or under the document camera, students would count out $8 dollars in farm bucks, the cost of the goat. If the teacher displayed a cow ($10) and a sheep ($7), students would count out $17 in farm bucks (10+7=17).

2. Sessions 8 and 13 each include a new place value and cost comparison sheet. This activity provides a mathematical comparison after the sorting worksheet in these sessions. It uses the familiar double hundreds chart used in other grade 1 activities to compare the cost of two total purchases and is similar to the Hens and Horse hundreds grid activities in sessions 17 and 19.

3. The animal fences are separate purchase sessions (9 and 14) with an optional 2-dimensional fence blackline provided on page A11.9 in this Supplement Set. We felt additional focus on the concepts of area and perimeter is beneficial for first grade students since these concepts are often confused.

4. Two additional bar graphs, taken from Bridges 1st grade Supplement Set E1 (available on the MLC website), compliment the bar graph already presented in this unit. These are found in sessions 1, 21, and 25.

5. Students write and illustrate their own farm story problems at the end of Unit 6.

6. Bridges Grade 1 practice book pages are used to enhance lessons and to provide Home Connection activities for weeks when a Home Connection is not available.
Optional Revisions

1. Consider using a central print shop, if available, to cut the “Farm Bucks” eliminating the need for students to cut the money. The revised “Farm Bucks” masters are realigned for this purpose. (The teacher or parent helper could also cut these for the students). The cut out “Farm Bucks” are needed starting in Session 2.

2. An optional 2-dimensional fence blackline on page A11.10 in this Supplement Set may be used instead of Blackline 6.24. This fence works similarly to the tile and linear pieces used in other grades, but loses the 3-D effect. It is straight cuts on a paper cutter and students simply glue the fence strips flat around their land squares.

Farm Model Choices

The directions given in the Bridge’s teacher manual are for each child to make his or her own 24” × 24” inch model farm. If this seems like a big undertaking due to space, material preparation, or management, one of the following options may work better for you.

Half-Scale Model Farms

The student farm models may be scaled to 12”×12” inch mats. Inexpensive, 12”×12” cardstock used for scrapbooks or classroom construction paper could be used. (You will need to draw the lines for the land squares if you use cardstock). The land squares would be cut to 1½”×1½”. The farm cutouts could be reduced 50% on a copy machine. The tabs should be made slightly larger to make is easier for small hands to glue the tabs onto the mats. The half-scale model is easier to store and reduces the amount of paper used in the total project.

Small Group Model Farms

In this option, the 24”×24” farm model is made by a small group of 2–4 students. Each child completes his or her own purchasing sheets and map, but the land choices and buying decisions are made by the group and carried out on the group farm model. A photo of the students with their group model could be added to each child’s farm folder, beside his or her map. Depending on the number of groups, the amount of cardstock and preparation work involved is proportionately reduced. Management of the project may be easier since the teacher is helping small groups rather than individual students.

Storing the Farm Mats During the Farm Unit

The 24”×24” inch mats can easily be hung from a chart rack or ceiling hooks if the butcher paper is doubled to 24”×48”, folded in half, and a metal hanger is placed between the folds. Open the paper up flat, on the fold line, and measure in 10 inches from each edge. Make a 4-inch slit in the center of the paper. Slip a metal coat hanger through the slit and secure with packaging tape (See Figure 1). Fold the paper again and the hook part of the hanger will stick out making the mat easy to hang when not in use (See Figure 2). If you would prefer not to double the paper, a hanger may be taped on the back of the mat. Mats may also be stacked, if you don’t mind the farm cutouts being flattened.
Unit 6 Planner (Replaces Bridges, Grade 1, Vol. 3, pp. 747–749)

The activities originally designed to take 18 full days of classroom instruction have been resequenced, and in some cases, modified or eliminated so that the unit can be taught over the course of 30 math sessions instead. The Blacklines you'll need for the activities in each session have been included on the planner for your convenience. (The specified quantities of Blacklines that involve cardstock cut-outs for the farms assume that each student will be making his or her own; change these if this is not the case. Also, these plans assume that you are going to give students pre-cut Farm Bucks (pages A11.13, A11.15, and A11.17) that you've either cut on the paper cutter, or had cut at your Central Print Shop.)

<table>
<thead>
<tr>
<th>SESSION 1</th>
<th>SESSION 2</th>
<th>SESSION 3</th>
<th>SESSION 4</th>
<th>SESSION 5</th>
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<td><strong>Problems &amp; Investigations</strong></td>
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<td>• Bar Graph: Which Farm Story Should We Read? (See Supplement Set E1, Activity 1)</td>
<td>• Preparing Farm Folders, p. 771</td>
<td>• Laying out the Road and the Land for the House, pp. 776–779</td>
<td>• Barn, Silo, &amp; Tractor, p. 787</td>
<td>• Mapping the Farm, pp. 799–803</td>
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<tr>
<td>• What do we know? pp. 764–765</td>
<td>• Give each student a sack of pre-cut farm Bucks. Have students practice laying out money for pretend purchases (see Notable Unit Planner Changes, #1, on p. A11.1 in this Supplement Set)</td>
<td>• Buying the Land &amp; Putting Up the House, pp. 779–782</td>
<td>• Laying out the Land, Barn, &amp; Silo, p. 798–799</td>
<td>Home Connection 15 p. 783</td>
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<tr>
<td>• The Model Farm: Sharing the Project Pieces, pp. 765–768</td>
<td>Blacklines: BL 6.7, half class set cut in half plus 1 copy for demonstration purposes</td>
<td>Blacklines: BL 6.10, half-class set plus 1 extra, cut in half</td>
<td>Blacklines: BL 6.11, half class set cut in half</td>
<td>Blacklines: BL 6.21, class set plus a few extra</td>
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<td>• Song &amp; Poetry Portfolio, pp. 6.1–6.6, 1 copy</td>
<td>• BL 6.9, class set plus a few extra</td>
<td>• BL 6.12, one-sixth class set, cut apart</td>
<td>• BL 6.14–6.15, class set of each plus a few extra</td>
<td>• BL HC 15.1–15.8, class set</td>
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<td>• Learning About Goats, p. 797</td>
<td>• Learning About Sheep, p. 816</td>
<td>• Sorting Worksheet, p. 824</td>
<td>• Add fence for goats and sheep to farm (optional 2-D fence strips may be used)</td>
<td>• Mapping the Farm, pp. 799–803</td>
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<tr>
<td>• Buying Goats &amp; Land, pp. 810 &amp; 814 (skip buying fence until Session 9)</td>
<td>• Buying sheep &amp; land, pp. 821–824 (skip buying fence until Session 9)</td>
<td>• Goat/Sheep Place Value &amp; Cost Comparison Sheet (see Notable Unit Planner Changes, #2, on p. A11.1 in this Supplement Set)</td>
<td>• Update Farm Map, p. 802</td>
<td>Home Connection 16 p. 836</td>
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<td>Blacklines: BL 6.30–6.31, class set of each sheet, plus extra</td>
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<td>• BL 6.26, class set</td>
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© The Math Learning Center
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<td>• Learning About Cows, p. 829</td>
<td>• Learning About Pigs, p. 847</td>
<td>• Sorting Worksheet, p. 850</td>
<td>• Area, Perimeter, Arrays: Purchasing Fences for Cows, p. 833, and Pigs, p. 850</td>
<td>• Add fence for cows and Pigs to farm (optional 2-D fence strips may be used)</td>
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<tr>
<td>• Buying Cows &amp; Land, pp. 832–834 (skip buying the fence for now)</td>
<td>• Buying Pigs &amp; Land, pp. 848–849 (skip buying the fence for now)</td>
<td>• Cows/Pigs Place Value &amp; Cost Comparison Sheet (see Notable Unit Planner Changes, #2, on p. A11.1 in this Supplement Set)</td>
<td>• If time permits, begin adding fences to farm.</td>
<td>• Update Farm Map, p. 867</td>
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<td>• Song &amp; Poetry Portfolio, pp. 6.19–6.23, 1 copy</td>
<td>• BL 6.39–6.40, class set plus a few extra</td>
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<td>• BL 6.36, class set</td>
<td>• BL A11.12, class set</td>
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<td>• BL 6.33, class set (ignore fence part for now, p. 832)</td>
<td>• BL 6.37, class set (ignore fence part for now, p. 848)</td>
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<td>• Practice Book, pp. 63, 69 &amp; 70, class set of each</td>
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<td>• Learning About Chickens, p. 855</td>
<td>• Add chicken purchases to farm, p. 856</td>
<td>• Learning About Horses, p. 875</td>
<td>• Add horse purchases to farm, p. 876</td>
<td>• Sorting Worksheet, p. 886</td>
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<td>• Buying Chickens, Hen House, Land, &amp; Fence, pp. 856–859</td>
<td>• Hens Hundreds Grid, pp. 868–871</td>
<td>• Buying Horses, Land &amp; Fence, pp. 876 &amp; 878</td>
<td>• Horses Hundreds Grid, p. 878</td>
<td>• Update Farm Map</td>
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<td>• BL 6.50, class set</td>
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<td>• Practice Book, pp. 61 &amp; 62, class set</td>
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<td>• Bar Graph: Which vegetable do you like best? (See Supplement Set E1, Activity 2)</td>
<td>• Planting Crops &amp; Gardens on the Model Farms, p. 884</td>
<td>• Making a Farm Quilt, pp. 839–843</td>
<td>• Putting the Class Farm Quilt Together, p. 863</td>
<td>• Would you Like to be A Farmer?, p. 920–921</td>
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<td>• Learning About Plants on the Farm, p. 883</td>
<td>• Update Farm Map</td>
<td>• Catch up on any work that hasn’t been done on farms.</td>
<td>• Computation on a Number Chart, Practice Book, p. 71</td>
<td>• A Farmer’s Morning &amp; A Farmer’s Afternoon, Practice Book, pp. 61 &amp; 62</td>
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<td>• BL 6.51, 2–3 copies, cut apart</td>
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<td>• Practice Book, p. 61 &amp; 62, class set</td>
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<td>• Winter Farming &amp; Selling Your Farm Products, Practice Book, pp. 63 &amp; 70</td>
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## Unit 6 Farm Planning Guide (cont.)

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<tr>
<td>• Many Farm Animals Have 4 Legs, pp. 889–890</td>
<td>• Building 4’s with Unifix Cubes, pp. 907–912</td>
<td>• More Farm Animal Story Problems, p. 912</td>
<td>• Have students make their own Farm Story Problems for classmates to solve. (See sessions in Units 1, 2, 3, and 4 that involve student-made story problems for ideas about how to do this.)</td>
<td>• Sharing Farm Story Problems and/or Sharing the Farms, p. 925</td>
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<tr>
<td>• A Growing Pattern of Farm Animals, pp. 897–901</td>
<td>• Farm Animal Story Problems, p. 902</td>
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<td>• BL 6.56–6.61, half-class set or less of each sheet</td>
<td>• BL 6.56–6.61, half-class set or less of each sheet from Session 27</td>
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**Home Connection 18**

p. 923

**Blacklines**

• BL HC 18.1–18.2, class set
Set A11 ★ Advanced Preparation Planning Guide

Miscellaneous Information

The mathematics in this unit involves place value, money, 2-D geometry, area and perimeter, mapping, and double-digit computation. Before preparing materials for this unit you might consider the following:

• Do you want each student to make a model farm?
• Would you prefer students work in pairs or groups of 3–4 to make a model farm?
• Do you want the model farms to be made as recommended or do you want to reduce all the papers used for the model farm by 50%?

Your decision will determine the size and number of the needed materials.

Farm Folders  See p. 771

On day two of the farm unit, students will make farm folders similar to the one shown on page 771 to keep their work in throughout the unit. You'll want to have paper cut to the following sizes for these folders. The quantities listed below are enough for one student to make a folder, so just multiply everything by the number of children in your class plus a few extra.

• 12”×18” piece of blue construction paper folded in half
• 6”×6” piece of red construction paper (barn)
• 3”×9” piece of green construction paper (grass)
• 3”×3” piece of yellow construction paper (sun)
• 3”×3” piece of white construction paper (clouds)

Materials for the Model Farms

Adjust the following based on what you have decided regarding the size of your model farms and the number of students who will be making each model farm. Quantities listed below are estimates for one student making a full-sized farm model.

• one, 24”×24” white butcher paper (farm mat, see p. 752 for advice about how to cut the butcher paper to this size.)
• twelve, 3”×3” squares of black construction paper (roads)
• sixteen, 3”×3” squares of brown construction paper (barn yards, pig pens, gardens)
• thirty-five to forty, 3”×3” squares of green construction paper (yards, pastures)
• five to seven, 3”×3” squares of yellow construction paper (wheat or other grasses)

Materials for The Heart Quilt  Session 23, pp. 839–843 (Blackline 6.35)

Quantities listed below are enough for one student:

• nine, 1”×1” black construction paper squares
• eleven, 1”×1” white construction paper squares
• ten, 1”×1” blue construction paper squares
• six, 1”×1” green construction paper squares
• one, 6”×6” blue construction paper
• one, 3”×6” green construction paper
• one, 3”×6” black construction paper
• 2 or 3, white cotton balls
Advance Preparation Planning Guide (cont.)

Teaching Charts & Other Demonstration Materials

What-Do-You-Know? Recording Chart  See p. 764
• Length of white butcher
• Blacklines 6.1 and 6.2

Graphic Organizer Chart  See p. 751
• Large piece of butcher paper
• Blacklines 6.18–6.20

Model Farm Land-Use Planning Codes
• Blacklines 6.8, 6.13, 6.16, 6.17, 1 copy of each sheet
• 9”×12” construction paper for mounting blacklines

Copied Materials Needed for Model Farms

Farm Bucks  (quantities listed are for each student)
• 3 sheets of p. A11.13 ($1 bills), run on green copy paper
• 3 sheets of p. A11.15  ($5 bills), run on blue copy paper
• 6 sheets of p. A11.17  ($10 bills), run on yellow copy paper
• Run 20–30 extra copies of each sheet for class use as they run out of money.
• If the money is sent precut by your Central Printshop, each student needs (36) $1 bills, (36) $5 bills, and (72) $10 bills in an envelope or bag for Session 2 and future purchase sessions. If this seems like too much for your students at one time, start with half the amount and be prepared to have extra money available for them during the purchasing sessions.

Barn, House, Silo Cutouts  (quantities listed are for 2 farm models)
• Blackline 6.10, run on red construction paper or cardstock
• Blackline 6.11, run on red construction paper or cardstock
• Blackline 6.7, run on pastel construction paper or cardstock

Fence Sections  (quantities listed are for 1 farm model)
• (3–4 sheets of) Blackline 6.24 on white cardstock or construction paper
• OR Blackline A11.10, 2-D Fence (run on cardstock, 1–2 sheets per farm model)

Tractor, Animals & Scarecrow
The following may be run on white cardstock or you may run some of the animals on colored cardstock or construction paper. Each model farm will need 1 tractor (6 per blackline) and 1 scarecrow (12 per blackline), plus 1 hen house and 6 hens (2 per blackline).
• Blackline 6.12, Tractor Cutouts
• Blackline 6.51, Scarecrow Cutouts
• Blackline 6.45, Hen & Hen House Cutouts

Run several sheets of the following for use by your whole class.
• Blackline 6.25, Goat Cutouts
• Blackline 6.29, Sheep Cutouts
• Blackline 6.34, Cow Cutouts
• Blackline 6.38, Pig Cutouts
• Blackline 6.49, Horse Cutouts
Math Worksheets

Except where otherwise specified, run a class set plus a few extra.

Blacklines
- 6.9, House, Land & Road Payment worksheet
- 6.14, Barn Payment worksheet
- 6.15, Tractor & Silo Payment worksheet
- 6.21, My Little Farm Map
- 6.26, Goat Payment worksheet
- 6.28, Sheep Payment worksheet
- 6.33, Cow Payment worksheet
- 6.37, Pig Payment worksheet
- 6.43–6.44, Chicken Payment worksheet
- 6.46, Hens Hundreds Grid (Run a half class set.)
- 6.48, Horse Payment worksheet
- 6.50, Horses Hundreds Grid (Run a half class set.)
- 6.56–6.61, Farm Animal Story Problems 1–6 (Run a half class set of each sheet.)
- 6.62, Student Number Pattern Strips (Run enough sheets for each pair of children to have 1 strip.)
- 6.63, 4's Counting Board (Run a half class set.)
- p. A11.11, Goats–Sheep Hundreds Grid Comparison Worksheet
- p. A11.12, Cows–Pigs Hundreds Grid Comparison Worksheet

Practice Book Pages (needed for Home Connections & a few sessions)
- A Farmer’s Morning, page 61
- A Farmer’s Afternoon, page 62
- Winter Farming, page 63
- Fact Practice, page 64
- Little Inchworm’s Garden, page 67
- Selling Your Farm Products, page 70
- Computation on a Number Chart, page 71
- Daily Milk Production, page 72

Farm Animal Sorting Worksheets
- Blacklines 6.30–6.31, Goats and Sheep
- Blacklines 6.39–6.40, Cattle and Pigs
- Blacklines 6.52–6.53, Chickens and Horses

Wall Charts

The Farm Poems
Use the portfolio pages to create wall charts or big books for this unit.
- Song & Poetry Portfolio, pp. 6.1–6.6, My Little Farm
- Song & Poetry Portfolio, pp. 6.7–6.10, Goats
- Song & Poetry Portfolio, pp. 6.11–6.14, Sheep
- Song & Poetry Portfolio, pp. 6.15–6.18, Cattle
- Song & Poetry Portfolio, pp. 6.19–6.23, Pigs
Advance Preparation Planning Guide (cont.)

- Song & Poetry Portfolio, pp. 6.24–6.27, Thank You, Chickens
- Song & Poetry Portfolio, pp. 6.28–6.32, Chickens
- Song & Poetry Portfolio, pp. 6.33–6.37, Horses

You'll find small versions of each poem on the following blacklines:
- Blackline 6.3, My Little Farm
- Blackline 6.22, Goats
- Blackline 6.27, Sheep
- Blackline 6.32, Cattle
- Blackline 6.36, Pigs
- Blackline 6.41, Thank You, Chickens
- Blackline 6.42, Chickens
- Blackline 6.47, Horses
Set A11 Number & Operations: Multi-Digit Addition & Subtraction on the Farm Blackline

Run on cardstock, cut fence sections apart.

2-D Fence Sections
Goats–Sheep Hundreds Grid Comparison Worksheet

How Much Did You Spend?

1 Color a box for each dollar you spent for land. Change colors and color a box for each dollar you spent to buy goats.

What color?

Land  Goats

2 Color a box for each dollar you spent for land. Change colors and color a box for each dollar you spent to buy sheep.

What color?

Land  Sheep

3 How much did you spend for land and goats? _________________________

4 How much did you spend for land and sheep? _________________________

5 Which cost more? ________________  How much more? ________________

6 How much did you spend altogether? _________________________
Pigs–Cows Hundreds Grid Comparison Worksheet

How Much Did You Spend?

1. Color a box for each dollar you spent for land. Change colors and color a box for each dollar you spent to buy pigs.

What color?  
Land  Pigs

2. Color a box for each dollar you spent for land. Change colors and color a box for each dollar you spent to buy cows.

What color?  
Land  Cows

3. How much did you spend for land and pigs? ____________________________

4. How much did you spend for land and cows? ____________________________

5. Which cost more? ________________  How much more? ________________

6. How much did you spend altogether? ________________________________
GRADE 1 SUPPLEMENT

Set B1  Algebra: Properties & Relationships

Includes

Activity 1: Introducing Double Flap Dot Cards  B1.1
Activity 2: Double Flap Picture Cards  B1.9
Activity 3: Double Flap Number Cards  B1.17
Independent Worksheet 1: Double Dot Cards for 11  B1.25
Independent Worksheet 2: Double Dot Cards for 12  B1.27
Independent Worksheet 3: True or False?  B1.29

Skills & Concepts

★ recognize and apply the commutative and identity properties of addition
★ understand the inverse relationship between addition and subtraction
★ write and solve equations involving addition and subtraction
★ create problem situations from given equations involving addition and subtraction
★ recognize that unknowns in an addition or subtraction equation represent a missing value that will make the statement true
★ write and solve number sentences from problem situations involving addition and subtraction, using symbolic notation for the missing value
★ compose and decompose numbers to 12
★ practice addition and subtraction facts to 15
Set B1 ★ Activity 1

Introducing Double Flap Dot Cards

Overview
Children explore the relationship between addition and subtraction, as well as the commutative and identity properties of addition by examining, discussing, and finally making their own Double Flap Dot cards.

Skills & Concepts
★ write and solve equations involving addition and subtraction
★ recognize and apply the commutative and identity properties of addition
★ understand the inverse relationship between addition and subtraction
★ compose and decompose numbers to 12
★ practice addition and subtraction facts to 12

You’ll need
★ Double Flap Dot Cards (pages B1.6–B1.8, see Advance Preparation)
★ whiteboard or chart paper and marking pens near your discussion area
★ individual chalkboard/whiteboard, chalk/pencil, and eraser for each student
★ manila, drawing, or copy paper (1 sheet per student plus a few extra)
★ half sheets of copy paper (1 per student plus a few extra)
★ crayons and/or felt markers (class set)
★ scissors (class set)
★ Unifix cubes

Advance Preparation
Run 1 copy each of pages B1.6–B1.8 on cardstock. Follow the instructions at the top of the sheets to make 3 Double Flap Dot cards. Be sure to label the back of each card with the numeral 8.

Note
Consider teaching this activity over a 2-day period, steps 1–11 the first day, and steps 12–15 the second day.

Instructions for Introducing Double Flap Dot Cards
1. Ask children to join you in the discussion area, and have them sit facing you. Explain that you are going to do some counting, adding, and subtracting together. Then hold up the backside of the first Double Flap Dot Card so children can see the numeral you have written: 8. Ask children to hold up that number of fingers.

2. Next, turn the card over, but do not lift the flaps yet. Tell the students that there are some black dots under one flap, and some white dots under the other. Together the black and white dots add up to 8. Ask...
students to pair-share some ideas about the number of dots under each flap. Then invite volunteers to share with the class.

Students Maybe it’s 4 and 4.
It could be 5, and then 6, 7, 8, so that would make 3 on the other side.
Or maybe it’s 7 and 1.
Maybe all the 8 are really under one door, and nothing under the other.

3. Acknowledge children’s responses, and then lift the first flap, so they can see the dots. Ask them to show the number on their fingers, and pair-share ideas about how many dots are under the other flap.

Teacher I am going to give you a big hint by lifting the first flap. Show the number of dots you see on your fingers. Then talk with the person sitting next to you about how many dots you think are under the other flap. Remember, you will be able to see 8 dots in all when both flaps are up.

4. Invite a few volunteers to share their thinking with the group. Press them to explain their answers.

Derek I think it’s going to be 2 under there.

Teacher Why, Derek?

Derek If you go 6, then 7, 8, you can tell it will be 2.

5. Now lift the second flap so students can see both sets of dots. Work with their input to record an addition sentence that reflects the quantities on both sides of the card and the total.
Activity 1 Introducing Double Flap Dot Cards (cont.)

6. Close both flaps and show children the numeral 8 on the back of the card again. Now flip the card over so the flaps open downwards instead of upwards, and open the flap to show the 2 white dots. How many dots are there under the other flap? How do they know?

![Image of double flap dot card]

*Alana*  It has to be 6 under there!

*Teacher*  Alana says it has to be 6. Do you agree with her? Thumbs up if you do. How do you know?

*Students*  It was 6 before on that other side.
You just turned it the other way.
You can go both ways, like $6 + 2$ or $2 + 6$. They both make 8.

7. After some discussion, pull the second flap down to reveal the 6 black dots. Then work with input from the class to record another addition sentence. How is this sentence like the first one you wrote? How is it different?

![Image of double flap dot card]

6 + 2 = 8
2 + 6 = 8

8. Now rotate the card so the flaps are pointing upwards again. Ask the children how many dots there are in all (8). Then ask them how many dots they will see if you close the first flap and leave the second flap open. How do they know? After some discussion, close the first flap to hide 6 of the dots, and work with input from the class to record a subtraction sentence to match.

![Image of double flap dot card]

6 + 2 = 8
2 + 6 = 8
8 - 6 = 2
9. Open both flaps again, and have students state the total number of dots one more time. Then ask them how many dots they will see if you close the second flap and leave the first one open. How do they know? After some discussion, close the second flap to hide 2 of the dots, and work with input from the class to record a subtraction sentence to match.

\[
\begin{align*}
6 + 2 &= 8 \\
2 + 6 &= 8 \\
8 - 6 &= 2 \\
8 - 2 &= 6
\end{align*}
\]

10. Read all 4 equations with the children. Then explain that these are called a fact family. Can they explain why?

**Students** They're all about that same dot card, just mixed up. They all have 8 and 6 and 2 in them, but mixed around.

11. Give students each a whiteboard/chalkboard, pen/chalk, and an eraser. Repeat steps 1–10 with the other two dot cards, and have children record the addition and subtraction sentences along with you. When you do the third card, guide them to make observations about what happens when 0 is added to or subtracted from a number such as 8.

\[
\begin{align*}
5 + 3 &= 8 \\
3 + 5 &= 8 \\
8 - 5 &= 3 \\
8 - 3 &= 5 \\
8 + 0 &= 8 \\
0 + 8 &= 8 \\
8 - 8 &= 0 \\
8 - 0 &= 8
\end{align*}
\]

12. After you have worked through both cards, tell children they are each going to make their own Double Flap Dot card. Model the process as shown on the next page.
A. Fold a piece of paper in fourths. Open the piece of paper out flat, and cut the top half as shown below to create 2 flaps.

![Diagram of folded paper]

B. Choose a number between 7 and 12 for your total. Write it on the back of the folded card. Draw and color two sets of dots that combine to make your chosen total. Use one color for the first set and a second color for the second set. (Depending on the strengths and needs of your students, you might model how to use Unifix cubes in two different colors to plan the two sets of dots before you draw and color them.)

![Diagram of dot card]

C. Write the fact family for your Double Flap Dot card on a half sheet of paper.

![Fact family]

13. When children understand what to do, give them each a piece of paper and send them back to their tables to work on their cards. Remind them that they can use Unifix cubes to help plan how many dots they will put on each side of their card.

14. Circulate to talk with children as they are working. As they finish their dots cards, give them each a half sheet of paper to record their fact family. Ask children who finish early to trade dot cards with a partner and record a fact family for their partner’s card as well.

15. After children have completed and turned in their work, post the cards and fact family sheets grouped by totals (7’s, 8’s, 9’s, and so on) on the wall for students to read and enjoy.
Set B1 Algebra: Properties & Relationships Blackline  Run 1 copy on cardstock. Trim away the edges so you have a rectangle that measures 7½" × 9". Fold the rectangle in half at the arrowheads and cut along the dotted line to create 2 flaps that cover the dotted portions of the card. Write a large numeral 8 on the back of the dotted portion.

Double Flap Dot Cards  Sheet 1 of 3
Set B1 Algebra: Properties & Relationships Blackline

Run 1 copy on cardstock. Trim away the edges so you have a rectangle that measures 7½”×9”. Fold the rectangle in half at the arrowheads and cut along the dotted line to create 2 flaps that cover the dotted portions of the card. Write a large numeral 8 on the back of the dotted portion.

Double Flap Dot Cards  Sheet 2 of 3
Double Flap Dot Cards  Sheet 3 of 3

Set B1 Algebra: Properties & Relationships Blackline  Run 1 copy on cardstock. Trim away the edges so you have a rectangle that measures 7½" x 9".  Fold the rectangle in half at the arrowheads and cut along the dotted line to create 2 flaps that cover the dotted portions of the card.  Write a large numeral 8 on the back of the dotted portion.
Set B1 ★ Activity 2

Double Flap Picture Cards

Overview
Children continue to explore properties and relationships as they solve and write equations and stories to match Double Flap Picture cards.

Skills & Concepts
* write and solve equations involving addition and subtraction
* create problem situations from given equations involving addition and subtraction
* recognize and apply the commutative and identity properties of addition
* understand the inverse relationship between addition and subtraction
* compose and decompose numbers to 12
* practice addition and subtraction facts to 12

You’ll need
* Double Flap Picture Cards (pages B.13–B.15, see Advance Preparation)
* whiteboard or chart paper and marking pens near your discussion area
* individual chalkboard/whiteboard, chalk/pen, and eraser for each student
* manila, drawing, or copy paper (1 sheet per student plus a few extra)
* lined writing paper (1 sheet per student plus a few extra)
* crayons and/or felt markers (class set)
* scissors (class set)
* tiny stickers for student use (optional)
* Unifix cubes

Advance Preparation  Run 1 copy each of pages B1.13–B1.15 on cardstock. Follow the instructions at the top of the sheets to make 3 Double Flap Picture cards.

Note  Consider teaching this activity over a 2-day period, steps 1–7 the first day, and steps 8–13 the second day.

Instructions for Double Flap Picture Cards
1. Ask children to join you in the discussion area, and have them sit facing you. Explain that you have some new double flap cards to share with them today. Then hold up the backside of the first Double Flap Picture card so children can see the numeral you have written: 10.

2. Next, turn the card over, but do not lift the flaps yet. Tell the students there are some ladybugs under one flap, and some more ladybugs under the other, 10 in all. Ask students to pair-share some ideas about the number of bugs under each flap. Then invite volunteers to share with the class, and record their ideas at the board or on a piece of chart paper.
3. Then lift the first flap on the card, so they can see the bugs. Ask them to show the number on their fingers, and pair-share ideas about how many bugs are under the other flap.

*Teacher* I am going to give you a hint by lifting the first flap. Show the number of bugs you see on your fingers. Then talk with the person sitting next to you about how many bugs you think are under the other flap. Remember, you will be able to see 10 bugs in all when both flaps are up.

4. After some discussion, lift the second flap so students can see both sets of bugs. Work with their input to record 2 addition sentences that reflect the quantities on both sides of the card and the total. Then explain that you are going to write a story to match one of the equations. Ask students to read the words as you write them and decide which equation your story matches. Work with their input to circle the matching equation.

5. Now close one flap door at a time as you work with input from the students to write 2 subtraction equations. Have students pair-share ideas for a story that matches one of the equations, and then call on a volunteer to share his/her story with the class. Ask the others to listen carefully so they can figure out which equation their classmate has chosen.

*Teacher* Kylie, do you have a story that matches one of these subtraction sentences?

*Kylie* My brother had 10 ladybugs in a jar. 4 of them got away. How many are left?
Teacher  Boys and girls, which subtraction sentence did Kylie pick for her story?

Students  It's 10 takeaway 4 because 4 of the bugs got away.
I know the answer! It's 6!
He only had 6 bugs left because the other guys ran away.

6. Record the story problem for all to see, and ask one of the children to circle the matching equation.

7. Give students each a whiteboard/chalkboard, pen/chalk, and an eraser. Go through the steps described above with the other two picture cards, but this time, generate all 4 equations as students record them on their boards. Then have children each circle one of the 4 equations and share a story about that equation with the person sitting next to them. Choose one volunteer to share a story that matches one of the addition equations, and another to share a story that matches one of the subtraction equations. Record the stories and ask the students to help circle the matching equations.

8. After you have worked through both cards, tell children they are each going to make their own Double Flap Picture card. Model the process of folding and cutting the paper as you did during the previous activity. Choose a number between 7 and 12 for your total. Write it on the back of the folded card. Draw
and color two sets of simple pictures that combine to make your chosen total. You can use tiny stick-
ers as an alternative to drawings if you have a good number and variety to offer to your children to use
when they make their picture cards. Also, you might model how to use Unifix cubes in two different col-
ers to plan the two sets before you make your pictures on the card.

9. Work with input from the class to write the fact family for your Double Flap Picture card on a piece
of lined paper. Then write a story to match one of the equations. When you are finished, read the story
with the class, and ask children to identify the matching equation.

![Double Flap Picture Card Diagram]

10. When children understand what to do, give them each a piece of manila, drawing, or copy paper and
send them back to their tables to work on their cards. Remind them that they can use Unifix cubes to
help plan how many pictures (or stickers) they will put on each side of their card.

11. Circulate to talk with children as they are working. As they finish their picture cards, give them each
a sheet of lined paper to record their fact family along with a story that matches one of the equations.

12. When students are finished, have them share their work with at least one other person. Have them
challenge their partner to figure out which equation matches their story problem.

13. Consider posting the collection of picture cards and stories in the hall, with a sign that invites pass-
ersby to identify the equations that match the story problems on the displayed papers.
Set B1 Algebra: Properties & Relationships Blackline Run 1 copy on cardstock. Trim away the edges so you have a rectangle that measures $7\frac{1}{2}'' \times 9''$. Fold the rectangle in half at the arrowheads and cut along the dotted line to create 2 flaps that cover the pictures on the lower part of the card. Write a large numeral 10 on the back of the picture portion of the card.

Double Flap Picture Cards Sheet 1 of 3
Set B1 Algebra: Properties & Relationships Blackline Run 1 copy on cardstock. Trim away the edges so you have a rectangle that measures 7½" × 9". Fold the rectangle in half at the arrowheads and cut along the dotted line to create 2 flaps that cover the pictures on the lower part of the card. Write a large numeral 10 on the back of the picture portion of the card.

Double Flap Picture Cards  Sheet 2 of 3
Double Flap Picture Cards  Sheet 3 of 3

Run 1 copy on cardstock. Trim away the edges so you have a rectangle that measures 7½"×9". Fold the rectangle in half at the arrowheads and cut along the dotted line to create 2 flaps that cover the pictures on the lower part of the card. Write a large numeral 10 on the back of the picture portion of the card.
Set B1 ★ Activity 3

Double Flap Number Cards

Overview
Children explore properties, relationships, and missing values in equations as they solve problems using Double Flap Number Cards.

Skills & Concepts
★ write and solve equations involving addition and subtraction
★ recognize that unknowns in an addition or subtraction equation represent a missing value that will make the statement true
★ write and solve number sentences from problem situations involving addition and subtraction, using symbolic notation for the missing value
★ recognize and apply the commutative property of addition
★ understand the inverse relationship between addition and subtraction
★ work with combinations of 10

You’ll need
★ Double Flap Number Cards (page B1.21–B1.22, see Advance Preparation)
★ Equations Worksheet (page B1.23, run a class set)
★ whiteboard or chart paper and marking pens near your discussion area
★ individual chalkboard/whiteboard, chalk/pen, and eraser for each student
★ two half sheets (5 1/2” x 8 1/2”) of copy paper per student
★ scissors (class set)

Advance Preparation
Run 1 copy of page B1.21–B1.22 on cardstock. Follow the instructions at the top of the sheet to make 2 Double Flap Number cards.

Note
Consider teaching this activity over a 2-day period, steps 1–9 the first day, and steps 10–12 the second day.

Instructions for Double Flap Number Cards
1. Ask children to join you in the discussion area, and have them sit facing you. Explain that you have some new double flap cards to share with them today. Then hold up the backside of the first Double Flap Number card so children can see the numeral you have written: 10.

2. Turn the card over and lift the first flap. Tell students that there is another number under the other flap, and that if you add the two numbers, their sum will be 10. Give children a few moments to pair-share ideas about the number under the second flap. Then write $6 + \square = 10$ on the board or chart paper, and read it to the class.

$6 + \square = 10$
**Activity 3  Double Flap Number Cards (cont.)**

*Teacher*  This equation says, “6 plus what is the same as 10?” What number can we put in the box to make the equation true?

*Students*  I think it’s 4 because you can go 6, and then 7, 8, 9, 10.
It can’t be 1 because 6 + 1 is only 7.
It’s 4 because I know that 6 + 4 makes 10.
It’s 4 because 5 + 5 is 10. If you take 1 from the 5 and give it to the other 5, that’s 6, so the other number must be 4.

3. Lift the second flap so students can confirm their answers. Ask a student to write 4 in the box, and then read the equation with the class. Is it true that 6 + 4 is the same as 10?

4. Now close the first flap and write 4 + $\square$ = 10 on the board or chart paper. Read it to the class, and give students a few moments to pair-share. Then call on a few volunteers to share with the class. Press them to explain their thinking.

5. When there is general agreement that the answer is 6, lift the other flap so children can see both numbers. Ask another volunteer to write the 6 in the box, and read the equation with the class. Is it true?

*Teacher*  This equation says, “What 4 plus what is the same as 10?” What number can we put in this box to make the equation true? Please talk with the person next to you, and then I’ll call on a few people to share their thinking.

*Students*  It has to be 6 because it was 6 the first time.
But it’s mixed up. The 4 is first this time.
It has to still be 6 because 4, and then 5, 6, 7, 8, 9, 10. That’s 6 more.
It doesn’t matter if you go 6 + 4 or 4 + 6. It’s still 10.

6. Give students each a whiteboard/chalkboard, pen/chalk, and an eraser. Explain that you are going to write another equation on the board. They will read it and decide whether it is true or false. If it is true, they will write a T on their boards. If it is false, they will write an F. Then write 10 = 6 + 4 under the other two equations. Ask students to each think privately, write their answer, and hold their board up for everyone else to see.

*Teacher*  I see lots of T’s and lots of F’s as well. Lori, can you tell you why you marked an F on your board?

*Lori*  Because you can’t write the answer first. It’s wrong that way.
**Teacher**  Lori says the equation is backwards, and you can't put the 10 first. Ryan, can you tell us why you marked a T on your board?

**Ryan**  Because it says, “10 is the same as 6 + 4”, and that’s true.

**Teacher**  Is 10 really the same as 6 + 4?

**James**  Well, if you add 6 and 4, it makes 10, so it’s kind of the same.

7. Reverse the card so students can see the 10 on the back, and then turn it over with both flaps lifted so they can see the 6 and 4, as you reiterate that 10 is the same as 6 + 4. Then write 10 – 4 = □ on the board, and ask students how they could use the double flap number card to help find the answer.

**Reina**  You know 6 + 4 is 10, right? So if you cover up the 4, you can see the answer is 6.

8. Write 10 – □ = 4. Ask students to copy the equation, including the box, on their boards. Ask a volunteer to help you use the double flap card to find the answer. Then record it in the box as students do so on their boards.

**Jose**  If you put the flap down on the first side, you can still see 4. But we know it’s 6 under the flap that’s closed. If you have 10, and you take away 6, it’s 4. See, I can show on my fingers too.

**Sam**  If you know that 6 + 4 is 10, it’s easy to know that 10 – 6 is 4.

9. Now show students your other Double Flap Number card. Work with their input to solve the equations shown below. This time, have children record the equations on their boards, right along with you. In each case, ask volunteers to show how they could use the double flap card to help find the answer.

\[
\begin{align*}
7 + □ & = 10 \\
□ + 7 & = 10 \\
10 & = □ + 7 \\
10 – 7 & = □ \\
10 – □ & = 3 \\
10 – □ & = 7
\end{align*}
\]
10. As students watch, fold and cut a piece of 5 1/2" × 8 1/2" paper to make a double flap card, and then make a second card. Label the first card with 10 on the back, 8 under the first flap, and 2 under the second flap. Label the second card with 10 on the back, 9 under the first flap, and 1 under the second flap.

11. Then show students a copy of the Equations Worksheet. Explain that they are each going to make 2 double flap number cards just like yours, and use their cards to help solve the equations on the sheet. Use your first card to model the first couple of problems on the sheet. Then give students each 2 half-sheets of copy paper and send them back to their desks to make their number cards. Post your cards where they can be seen by all the students.

12. As children finish making their cards, hand out copies of the worksheet and let them go to work. Encourage them to share and compare answers as they go, and to use their cards for help. Ask students who finish early to make a third card with 11 or 12 as a total, and then write their own equations for a partner or a grown-up to solve.

See Set B1 Independent Worksheets 1–3 for more practice with all the skills addressed in Activities 1, 2, and 3.
Set B1 Algebra: Properties & Relationships Blackline Run 1 copy on cardstock. Trim away the edges so you have a rectangle that measures 7½” x 9”. Fold the rectangle in half at the arrowheads and cut along the dotted line to create 2 flaps that cover the numbers on the lower part of the card. Write a large numeral 10 on the back of the number portion of the card.

Double Flap Number Cards Sheet 1 of 2

```
6 4
```

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Double Flap Number Cards Sheet 2 of 2

Run 1 copy on cardstock. Trim away the edges so you have a rectangle that measures 7½" x 9".
Fold the rectangle in half at the arrowheads and cut along the dotted line to create 2 flaps that cover the numbers on the lower part of the card. Write a large numeral 10 on the back of the number portion of the card.
Equations Worksheet

1 Use the flap card with 8 and 2 on it to help solve these equations.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a</strong></td>
<td>8 + 2 = [ ]</td>
</tr>
<tr>
<td><strong>b</strong></td>
<td>10 - 8 = [ ]</td>
</tr>
<tr>
<td><strong>c</strong></td>
<td>8 + [ ] = 10</td>
</tr>
<tr>
<td><strong>d</strong></td>
<td>10 - 2 = [ ]</td>
</tr>
<tr>
<td><strong>e</strong></td>
<td>10 = 8 + [ ]</td>
</tr>
<tr>
<td><strong>f</strong></td>
<td>10 - [ ] = 2</td>
</tr>
</tbody>
</table>

2 Use the flap card with 9 and 1 on it to help solve these equations.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a</strong></td>
<td>9 + 1 = [ ]</td>
</tr>
<tr>
<td><strong>b</strong></td>
<td>10 - 9 = [ ]</td>
</tr>
<tr>
<td><strong>c</strong></td>
<td>1 + [ ] = 10</td>
</tr>
<tr>
<td><strong>d</strong></td>
<td>10 - 1 = [ ]</td>
</tr>
<tr>
<td><strong>e</strong></td>
<td>10 = [ ] + 1</td>
</tr>
<tr>
<td><strong>f</strong></td>
<td>[ ] - 9 = 1</td>
</tr>
</tbody>
</table>

3 Make your own flap card. Use it to write your own equations on the back of this page. Give your equations to someone else to solve.
Set B1 ★ Independent Worksheet 1

Double Dot Cards for 11

1. Draw the dots on the right-hand side of each card to make 11. Then write a fact family to match.

Example

\[
\begin{align*}
6 + 5 &= 11 \\
5 + 6 &= 11 \\
11 - 6 &= 5 \\
11 - 5 &= 6
\end{align*}
\]

a. [Diagram of dots]

b. [Diagram of dots]

c. [Diagram of dots]

d. [Diagram of dots]

2. Fill in the missing numbers.

\[
\begin{align*}
9 + \square &= 11 \\
\square + 1 &= 11 \\
5 + 6 &= \square \\
11 + \square &= 11 \\
11 - \square &= 6 \\
\square - 1 &= 10 \\
11 - 4 &= \square \\
11 - \square &= 8
\end{align*}
\]
Set B1 ★ Independent Worksheet 2

Double Dot Cards for 12

1 Draw the dots on the right-hand side of each card to make 12. Then write a fact family to match.

Example

```
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7 + 5 = 12</td>
<td></td>
</tr>
<tr>
<td>5 + 7 = 12</td>
<td></td>
</tr>
<tr>
<td>12 - 7 = 5</td>
<td></td>
</tr>
<tr>
<td>12 - 5 = 7</td>
<td></td>
</tr>
</tbody>
</table>
```

2 Fill in the missing numbers.

```
| 9 + □ = 12 | □ + 7 = 12 | 6 + 6 = □ | 12 + □ = 12 |
| 12 - □ = 0 | □ - 2 = 10 | 12 - 8 = □ | 12 - □ = 5 |
```
Set B1 ★ Independent Worksheet 3

True or False?

1 Circle T if the equation is true. Circle F if the equation is false.

Example

| 10 + 3 = 13 | T | F |
| 12 = 7 + 5 | T | F |
| 10 − 2 = 6 | T | F |
| 5 + 6 = 6 + 5 | T | F |

| a | 6 + 6 = 12 | T | F |
| b | 12 − 8 = 4 | T | F |
| c | 10 = 6 + 4 | T | F |
| d | 11 = 3 + 7 | T | F |

2 Read the story. Circle T if it is true. Circle F if it is false.

a Sara had 8 cars. She got 7 more cars for her birthday. Now she has 15 cars in all. T F

b Max made 13 cookies. The dog ate all the cookies. Max has 3 cookies left. T F

3 Read the story. Circle the matching equation.

a There were 4 bugs in the garden. 9 more bugs came. How many bugs in all?

13 − 4 = 9  
10 + 3 = 13  
4 + 4 = 8  
4 + 9 = 13

b 14 frogs were in the pond. 6 frogs hopped away. How many frogs were left?

14 + 6 = 20  
14 − 6 = 8  
14 − 4 = 10  
12 − 6 = 6

4 Write a story on the back of this page to match this equation: 16 − 16 = 0
GRADE 1 SUPPLEMENT

Set C3  Geometry: 2-D Shapes Around Us Calendar Pattern

Includes
November Calendar Pattern  C3.1

Skills & Concepts
★ identify, name, and describe 2-D geometric shapes, regardless of orientation, in everyday situations
★ identify, describe, and extend repeating patterns
★ read aloud numerals from 0 to 31
★ identify ordinal positions through the 31st
Bridges in Mathematics Grade 1 Supplement
Set C3 Geometry: 2-D Shapes Around Us Calendar Pattern

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Bridges in Mathematics is a standards-based K–5 curriculum that provides a unique blend of concept development and skills practice in the context of problem solving. It incorporates the Number Corner, a collection of daily skill-building activities for students.

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Set C3 ★ November Calendar Pattern

2-D Shapes Around Us

Overview
This set of Calendar Grid markers replaces the student-made markers in the month of November, and provides opportunities for first graders to identify, describe, and compare rectangles, circles, triangles, squares, and pentagons as they appear in familiar objects.

Skills & Concepts
- identify, name, and describe 2-D geometric shapes, regardless of orientation, in everyday situations
- identify, describe, and extend repeating patterns
- read aloud numerals from 0 to 30
- identify ordinal positions through the 30th

You'll need
- Calendar Grid pocket chart
- Month and Year Calendar Grid cards
- November 2-D Shapes Around Us Calendar Markers (available at http://gotomlc.org/calmarkers) Print 1 copy of the calendar marker sheets, preferably in color, single-sided, on white cardstock. Cut the calendar markers apart and laminate if desired.
- Calendar Grid Observations sheet from Set C2 (see Advance Preparation)
- helper jar containing a popsicle stick for each child with his/her name on it
- books about shapes to read aloud (optional, see Extensions on page C3.4)

Advance Preparation
Erase the Calendar Grid Observations sheet from Set C2. Redraw the columns to create 4 instead of 3. Label the columns at the top of the first sheet as shown below for use with this month’s markers.

<table>
<thead>
<tr>
<th>Date</th>
<th>Object</th>
<th>Shape</th>
<th>Other</th>
</tr>
</thead>
</table>

Introducing the 2-D Shapes Around Us Calendar Grid Pattern
Open your first Number Corner lesson in November by directing students’ attention to the calendar grid. Explain that you will put up a new calendar marker as each day of the month passes. Place the first marker in the correct pocket, and ask children to pair-share observations. What do they notice about this marker? After a few moments, pull popsicle sticks from your helper jar to call on children to share their observations with the class.
**November Calendar Pattern (cont.)**

**Students** It looks like a box. It's a paint set. There's a 1 on it because it's the first day of November. It also has the number 16 on it.

After they have had a chance to share some of their observations, work with input from the children to record the date, the name of the object, and its shape on the observation sheet. There is room on the chart for at least one other observation as well (e.g., where one might find the object, the material of which the object is made, the ways in which people use the object, and so on).

If the month starts on Saturday or Sunday, instead of a weekday, you may have to repeat the process described above with the second, and possibly even the third, marker to bring your calendar up to date.

<table>
<thead>
<tr>
<th>Calendar Grid Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date</strong></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

**Continuing through November with the Calendar Grid**

Each day, have a helper point to the markers that have been posted in the pocket chart as the class names each object. Have children predict what the next marker will show before you place it on the chart. Once the new marker has been posted, ask students to share their observations. Record the name and shape of the object, and one of the other observations children share.

**Teacher** Let's say the name of the object on each marker we've posted so far, and then make some predictions about what we'll see on today's marker. Brianna, will you point to the markers as we name each object?

**Students** Paint set, door, clock, quarter, team banner, die, school sign, window, five dollar bill. Maybe there will be some other kind of money today, like a dime, because we've had a quarter and then a five dollar bill. Maybe it will be something you can eat, like a cookie, or maybe a whole pizza!

**Teacher** Interesting predictions! Let's post the marker for today and share our observations. I'll record some of our ideas on the chart.
Because the sequence of shapes doesn't start to repeat until the 8th of the month, it may take children a while to identify the pattern. If your class hasn't figured it out by the beginning of the third week, guide students a bit by having them name the shape of each object as you point to the markers. Pause slightly after the 7th and the 14th markers to help children get a feel for the fact that the pattern repeats after each set of 7 shapes.

**Teacher**  Let's name the shape of each object on our grid before we make predictions about today's marker. Are you ready? I'll point.

**Students**  Rectangle, rectangle, circle, circle, triangle, square, pentagon. Rectangle, rectangle, circle, circle, triangle, square, pentagon. Rectangle…

**Sasha**  I get it! It's going to be a rectangle! The pattern is with the shapes, and it's starting over again.
November Calendar Pattern (cont.)

**Teacher**  Talk with the person sitting next to you. Do you agree with Sasha that today’s object will be something that’s shaped like a rectangle?

**Students**  Yes! It goes rectangle and then another rectangle. There’s always 2 rectangles in a row! I can see the pattern now! It goes in stripes up and down, like all rectangles in the first stripe, then all rectangles again, then I think it’s a stripe of circles and another stripe of circles.

Once students have discovered the pattern, you can challenge them to be more focused in their predictions by taking the next shape in the sequence into consideration.

**Teacher**  If you’re right, and the next marker will show something that’s shaped like a rectangle, what might that object be? Do you see anything around the room that’s rectangular?

**Students**  It might be a piece of paper, or a table. It could be a picture of a book. Books are shaped like rectangles! Or it could be a box, like a box of crayons or something.

Here is a summary of the questions and prompts mentioned so far, as well as some others you might use through the month:

- Let’s say the name of the object on each marker.
- Let’s name the shape of the object on each marker.
- How do you know that the door is shaped like a rectangle? How do you know that the school sign is a pentagon, not a triangle?
- What are some of the differences between a rectangle and a circle (a triangle and a square, a pentagon and a rectangle)?
- What shape do you think we’ll see on the next marker? Why?
- What are some objects you can see around our room or think of that are shaped like a rectangle (circle, triangle, square, pentagon)?
- What shape do you see on the 4th (9th, 13th, 21st) marker?
- What shape do you predict we’ll see on the 23rd (25th, 28th, 30th) marker? How do you know?

**Extensions**

- Reinforce and extend children's skills at identifying and describing shapes in the environment by reading related books during the month. Here are three of our favorites:
  - *Shapes, Shapes, Shapes* by Tana Hoban
  - *So Many Circles, So Many Squares* by Tana Hoban
  - *The Greedy Triangle* by Marilyn Burns
NOTE  Below is a representation of the November calendar grid. The full-size calendar markers are available at [http://gotomic.org/calmarkers](http://gotomic.org/calmarkers).

<table>
<thead>
<tr>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td>🎨</td>
<td>🕒</td>
<td>🎯</td>
<td>🏛️</td>
<td>🏊‍♂️</td>
<td>🎲</td>
<td>🏌️</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>📜</td>
<td>💰</td>
<td>📬</td>
<td>🎃</td>
<td>🍃</td>
<td>🚗</td>
<td>🏠</td>
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<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>📜</td>
<td>🕒</td>
<td>🎯</td>
<td>🎯</td>
<td>🍃</td>
<td>🚗</td>
<td>🏠</td>
</tr>
<tr>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>🎨</td>
<td>🏷️</td>
<td>🍴</td>
<td>🏳️</td>
<td>🎁</td>
<td>🎫</td>
<td>🏖️</td>
</tr>
<tr>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>🕒</td>
<td>🎯</td>
<td>🎯</td>
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<td>🎯</td>
<td>🍴</td>
<td>🎫</td>
</tr>
<tr>
<td>29</td>
<td>30</td>
<td>31</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
GRADE 1 SUPPLEMENT

Set C4  Geometry: Symmetry Calendar Pattern

Includes
December Calendar Pattern  C4.1

Skills & Concepts
★ recognize and create shapes that are congruent or have symmetry
★ identify a line of symmetry
★ compose and decompose plane figures (e.g., make two triangles from a square) and describe the part-whole relationships, the attributes of the figures, and how they are different and similar
★ identify and model one-half and one-fourth of a whole, using region/area models
★ understand that fractional parts are equal shares of a whole
★ understand that the fraction name (half, fourth) tells the number of equal parts in the whole
Set C4 ★ December Calendar Pattern

Symmetry

Overview
This set of Calendar Grid markers replaces the student-made markers in the month of December and provides opportunities for first graders to explore concepts of symmetry, congruence, and fractions.

Skills & Concepts
★ recognize and create shapes that are congruent or have symmetry
★ identify a line of symmetry
★ compose and decompose plane figures (e.g., make two triangles from a square) and describe the part-whole relationships, the attributes of the figures, and how they are different and similar
★ identify and model one-half and one-fourth of a whole, using region/area models
★ understand that fractional parts are equal shares of a whole
★ understand that the fraction name (half, fourth) tells the number of equal parts in the whole

You’ll need
★ Calendar Grid pocket chart
★ Day, Month, and Year Calendar Grid cards
★ Symmetry Calendar Markers (available at http://gotomic.org/calmarkers) Print 1 copy of the calendar marker sheets, preferably in color, single-sided, on white cardstock. Cut the calendar markers apart and laminate if desired.
★ December Calendar Grid Observations sheet from Set C2 (see Advance Preparation)
★ ruler or pointer
★ a pair of scissors
★ 1 or more small pocket mirrors (optional)
★ helper jar containing a popsicle stick for each child with his/her name on it

Advance Preparation Run 1 set of the calendar markers on paper. Then run a second set in color on cardstock. Cut the paper markers apart and keep them in reserve near your calendar grid. Cut the cardstock markers apart and laminate them. Erase the Calendar Grid Observations sheet from Set C2. Redraw the lines to create 4 columns. Label the columns at the top of the first sheet as shown below for use with this month’s markers.

<table>
<thead>
<tr>
<th>Date</th>
<th>Figure</th>
<th>When you fold it in half...</th>
<th>Symmetrical?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
</tr>
</tbody>
</table>

Calendar Grid Observations
Introducing the Symmetry Calendar Grid Pattern: Days 1 & 2

Open your first Number Corner lesson in December by directing students’ attention to the calendar grid. Place the first marker in the correct pocket, and ask children to pair-share observations. What do they notice about this marker? After a few moments, pull popsicle sticks from your helper jar to call on children to share their observations with the class.

*Student* It’s a triangle!
Are we going to do shapes again this month?
That triangle is like the ones in the pattern blocks.

After the children have had a chance to share a few observations, show them your paper copy of the first marker. As they watch, cut out the triangle. Set it on top of the triangle in the pocket chart so students can see that it’s exactly the same. Then ask students what would happen if you folded the paper triangle in half.

*Students* Can I do it? I know how to do it!
Let’s pick someone from the helper jar!

*Teacher* We’ll do that in a minute, but right now, I’d like you make some predictions. If we fold this triangle in half, how will it look? Will we get new shapes? Will they be smaller or larger than this triangle? Talk with the person next to you for a few moments, and then I’ll call on some people to share their ideas with the group.

*Students* It will get smaller if you fold it in half.
There will be a line down the middle where you fold it.
I think if you fold it and open it up, there will be 2 little triangles.
I think they’ll be skinnier, like 2 little triangles.

Choose a helper to fold the paper triangle in half. Work with him/her to make sure the edges of the paper are lined up properly. Have the helper hold up the triangle, still folded, for the group to see. Invite comments about the folded triangle, and ask students to predict what they’ll see when you unfold it. Then unfold the triangle, and solicit observations.

*Students* It makes two littler triangles.
They look like the ramp blocks from kindergarten.
They’re both the same—it’s like 2 perfect halves.
Fold and unfold the triangle as necessary until students agree that the two halves match. Then explain that if you fold a figure in half and the two halves are exactly the same size and shape, that figure is said to be symmetrical. Post the folded paper triangle somewhere near your calendar grid.

Before you conduct Number Corner the following day, post the observation sheet next to the calendar grid. Have students make predictions about the second marker. Then post it in the correct pocket and have a few students share their observations. Show the paper copy of the figure, and cut it out as students watch. What will happen if you fold it in half? What shape will each of the halves be? Will they be exactly the same size and shape?

After some discussion, choose a helper to fold the figure. Solicit children’s observations and comments. Then post the folded paper square near the calendar grid, and work with input from the class to record the results on the observation sheet. If time allows, enter information about the first marker as well. If not, work with a couple of interested students to do so at another time during the day.

<table>
<thead>
<tr>
<th>Date</th>
<th>Figure</th>
<th>When you fold it in half...</th>
<th>Symmetrical?</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/1</td>
<td>Triangle</td>
<td>It makes 2 little △s.</td>
<td>Yes</td>
</tr>
<tr>
<td>12/2</td>
<td>Square</td>
<td>You get 2 □s or 2 △s.</td>
<td></td>
</tr>
</tbody>
</table>

**Continuing through December with the Calendar Grid**

Each day, have a helper point to the markers in the pocket chart as students identify whether or not each shape posted so far is symmetrical or not. If time allows, have a second helper point to the markers as the class names the figures. Have children predict what the next marker will show before you place it in the pocket chart. Once the new marker has been posted, ask students to share their observations and predictions. Does the figure look symmetrical? Do they think it can be folded into two halves that are exactly the same size and shape? Have them find out by actually folding the paper copy of the figure, and then work with their input to fill in the observation chart.

Students will soon discover that some of the figures are symmetrical, but others are not. They will also discover that in some cases, there are two or more ways to fold a figure to create two symmetrical halves. For instance, the figure on the fourth marker—a rhombus—can be folded in 2 different ways. For this reason, it is said to have 2 lines of symmetry. Because children are actually folding the figures, the lines of symmetry are easy to see, and you can introduce the concept and the term line of symmetry on the spot.

Here is a summary of the questions and prompts mentioned so far, as well as some others you might use through the month:

- Let’s say the name of the figure on each marker.
- Let’s tell whether or not the figure on each marker is symmetrical or asymmetrical.
- What figure do you think we’ll see on today’s marker? Do you think it will be symmetrical or not? Why?
• Now that we have posted today’s marker, what observations can you make about the figure? How many sides does it have? How many corners? Do you think it’s symmetrical? Why or why not? Do you think it will have more than one line of symmetry? If so, how many? Can you use the ruler to show where you think the line(s) of symmetry will be?
• Let’s test your hypotheses by folding the paper version of the figure. Can we fold it in half? Do the two parts match exactly? What shape is each of the halves?
• Is there more than one way to fold the figure in half? How many different ways can we find? How many lines of symmetry does the figure have?
• Which markers so far show figures that are asymmetrical? When do you think we’ll see the next one? How do you know?
• Will the figure on Marker 14 (19, 21, 25) be symmetrical or asymmetrical? How do you know?
• Let’s look at the figures on Markers 2, 4, 7 and 9. How are they different? How are they alike?
• Can you find and describe any patterns in the markers this month? (AAB: Symmetrical, symmetrical, asymmetrical; AAAAB: shape, shape, shape, shape, alphabet letter; ABABC: non-quadrilateral, quadrilateral, non-quadrilateral, quadrilateral, alphabet letter.)

**Note** Every third marker in this sequence features an asymmetrical figure. Consider running extra paper copies of some of these. Even though some students may immediately detect the asymmetry on Markers 3, 6, 9, and so on, others will be eager to keep folding until they have exhausted all possibilities. The parallelogram on Marker 12 (shown below) is particularly challenging. Although it looks like it might be symmetrical because the two halves are congruent, notice that they are not mirror images of one another. This is when it will become important to establish that in order for a figure to be symmetrical, the two halves must “flop over” on top of one another exactly.

![Parallelogram](image)

**Extensions**
• Post the folded paper copy of each marker near your calendar grid through the month. Toward the end of the month, take these down and ask the class to find different ways to sort them (i.e., symmetrical, asymmetrical; quadrilateral, not quadrilateral; shapes, letters; lines of symmetry—0, 1, 2, or more; and so on).
• On the last day of school before winter break, display all of the markers in the sequence. There are 6 letters in the collection: T, W, N, E, I, and R. Pull these out of the pocket chart and challenge students to re-order the letters so they form a single word (winter).
December Calendar Pattern (cont.)

- Give each child a piece of paper to fold in half and then cut. Can they predict how the figure will look before they unfold their paper? Have them color or paint their cutouts in a symmetrical way. Display the cutouts on the classroom wall.

- Teach the students how to cut paper snowflakes.
- Encourage students to build symmetrical designs with the pattern blocks.
NOTE Below is a representation of the December calendar grid. The full-size calendar markers are available at http://gotomlc.org/calmarkers.
GRADE 1 SUPPLEMENT

Set C5  Geometry: 3-D Shapes Around Us Calendar Pattern

Includes
January Calendar Pattern  C5.1

Skills & Concepts
★ identify, name, and describe 3-D objects in everyday situations
★ identify, describe, and extend growing patterns
★ read aloud numerals from 0 to 31
★ identify ordinal positions through the 31st
Set C5 ★ January Calendar Pattern

3-D Shapes Around Us

Overview
This set of Calendar Grid markers replaces the student-made markers in the month of January, and provides opportunities for first graders to identify, describe, and compare cylinders, rectangular prisms, spheres, and cubes as they appear in the world around us.

Skills & Concepts
★ identify, name, and describe 3-D objects in everyday situations
★ identify, describe, and extend growing patterns
★ read aloud numerals from 0 to 31
★ identify ordinal positions through the 31st

You’ll need
★ Calendar Grid pocket chart
★ Month and Year Calendar Grid cards
★ January 3-D Shapes Around Us Calendar Markers (available at http://gotomic.org/calmarkers) Print 1 copy of the calendar marker sheets, preferably in color, single-sided, on white cardstock. Cut the calendar markers apart and laminate if desired.
★ 3-D Shape Labels (pages C5.6–C5.7, see Advance Preparation)
★ 4 pieces of 18" × 24" chart paper (see Advance Preparation)
★ helper jar containing a popsicle stick for each child with his/her name on it
★ Cubes, Cones, Cylinders & Spheres by Tana Hoban (optional)

Advance Preparation Run 1 copy of the shape labels. Cut them apart, and glue each one to the top of a piece of 18" × 24" chart paper. Post the 4 charts near your calendar display area.

Introducing the 3-D Shapes Around Us Calendar Grid Pattern
Open your first Number Corner lesson in January by directing students’ attention to the calendar grid. Place the first marker in the correct pocket, and ask children to pair-share observations.
What do they notice about this marker? After a few moments, pull sticks from your helper jar to call on children to share their observations with the class.

**Students**  It's round.
It looks like a jar.
It has a label around it.
It's peanut butter. There's a picture of peanuts on the front!

After the children have had a chance to share some of their observations, explain that the calendar markers this month will feature several different 3-dimensional shapes. Have students look at the shapes charts you have prepared. Read the name of each shape to the class, and ask students to identify the one that matches the shape of the object on the first marker.

**Students**  It's a cylinder! The picture on Marker 1 is a cylinder!
It's a jar of peanut butter, and it matches the cylinder shape.

Now ask students to look around the room very quietly. Can they see other examples of cylinders from where they are sitting? Ask them to raise a hand as soon as they spot something they think is a cylinder. After a few moments, pull sticks from your helper jar to choose a few children to share their ideas with the class. As you call on each student, ask him or her to walk over to the object, point to it or bring it back to the discussion area if it is small, and explain how he or she knows that the object is a cylinder.

**Students**  Here's a cup from Teacher's desk. It's round like the one in the picture.
The pencil can because it looks like the picture of a cylinder.
My water bottle, because it's straight up and down, and it has a circle on the top and bottom.
The garbage can looks like the picture on the calendar, but it's too big to bring over here.

Post the markers needed to bring your calendar up to date the first day you are back in school after winter break. Have children refer to the four charts you have posted to identify each of the shapes, but limit the search and discussion described above to the first marker. Take time to have students find examples of rectangular prisms, spheres, and cubes in the days that follow.
January Calendar Pattern (cont.)

Cylinder, rectangular prism, sphere, cube; cylinder, cylinder, rectangular prism, rectangular prism.

Teacher Talk with the person next to you about what shape we might see on the marker for Saturday. Put your thumbs up when you have an idea, and I’ll pull sticks from the jar to pick children to share with the class.

Students I think it’s going to be a box, because the ones before are shaped like boxes. I think a sphere, like maybe a soccer ball, because we had 2 cylinders and then 2 rectangle things, so maybe it’ll be 2 spheres next. I think it’ll be some kind of ball for Saturday and Sunday, and then a cube for today.

As the month progresses, work with the class to list additional examples of each shape on your charts. Summarize students' informal ideas about how to identify each shape as well.
Here is a summary of the questions and prompts mentioned so far, as well as some others you might use through the month:

- Let’s name the shape of the object on each marker.
- What shape do you think we’ll see on the next marker? Why?
- Can you find objects around the room that are cylinders (rectangular prisms, spheres, cubes)?
- How can you tell if something is a cylinder (rectangular prism, sphere, cube)?
- What is the difference between a cylinder and a sphere (a rectangular prism and a cube, a cylinder and a rectangular prism)?
- What shape do you see on the 4th (9th, 13th, 21st) marker?
- I see a marker on the calendar grid that has a picture of two things that are square on every side, as well as on the top and on the bottom. The objects on this marker are small. Each one has a different number of dots on each face. Which marker am I thinking of?
- What shape do you predict we’ll see on the 23rd (25th, 28th, 30th) marker? How do you know?
- Is there a pattern in the markers this month? If so, what is it, and how do you know it’s a pattern?

**Note:** Just as a square is a rectangle with equal side lengths, a cube is a rectangular prism with equal edge lengths.

**Extensions**

- Challenge children to build each of the shapes featured this month with polydrons, blocks, or other construction materials (e.g., legos, construx, tinkertoys, and so on). Is it possible to build a sphere or a cylinder with polydrons? Why or why not? What about a cube or a rectangular prism? What is the largest cube or rectangular prism students can build with the collection of polydrons in your classroom?
- Work with the class to create a display for each of this month’s featured shapes by gathering objects from around the classroom and bringing examples from home.
- Choose one shape each week as the focus of a school-wide shapes search. Encourage students to look for examples of the shape on the playground, the gym, the library, the cafeteria, and so on. Consider snapping photos of some of the better examples to add to your shapes charts in class.
- Share *Cubes, Cones, Cylinders, & Spheres* with your class sometime during the month. In this wordless book, photographer Tana Hoban identifies four 3-D shapes before showing each in contexts that are familiar to many children (alphabet blocks, ice cream cones) as well as contexts a child might encounter on a trip to the city, country, or even Fantasy Land (traffic cones, bales of hay, a castle).
NOTE  Below is a representation of the January calendar grid. The full-size calendar markers are available at http://gotomlc.org/calmarkers.
3-D Shape Labels page 1 of 2

cylinder

rectangular prism
3-D Shape Labels page 2 of 2

sphere  cube
GRADE 1 SUPPLEMENT

Set C6  Geometry: 2-D Shapes Attributes Calendar Pattern

Includes
February Calendar Pattern  C6.1

Skills & Concepts
★ identify, describe, compare, and draw triangles, parallelograms, rectangles, rhombuses, and squares
★ describe geometric attributes of shapes to determine how they are alike and different
★ recognize shapes when viewed from different perspectives and orientations
★ identify, describe, and extend repeating patterns
★ read aloud numerals from 0 to 31
★ identify ordinal positions through the 31st
Bridges in Mathematics Grade 1 Supplement

Set C6 Geometry: 2-D Shapes Attributes Calendar Pattern

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Set C6 Geometry: 2-D Shapes Attributes Calendar Pattern

Set C6 ★ February Calendar Pattern

2-D Shapes Attributes

Overview
This set of Calendar Grid markers replaces the student-made markers in the month of February, and provides opportunities for first graders to identify, describe, and compare the attributes of triangles and various quadrilaterals.

Skills & Concepts
★ identify, describe, compare, and draw triangles, parallelograms, rectangles, rhombuses, and squares
★ describe geometric attributes of shapes to determine how they are alike and different
★ recognize shapes when viewed from different perspectives and orientations
★ identify, describe, and extend repeating patterns
★ read aloud numerals from 0 to 31
★ identify ordinal positions through the 31st

You’ll need
★ Calendar Grid pocket chart
★ Month and Year Calendar Grid cards
★ February 2-D Shapes Attributes Calendar Markers (available at http://gotomic.org/calmarkers) Print 1 copy of the calendar marker sheets, preferably in color, single-sided, on white cardstock. Cut the calendar markers apart and laminate if desired.
★ Calendar Grid Observations sheet from Set C2 (see Advance Preparation)
★ helper jar containing a popsicle stick for each child with his/her name on it
★ individual chalkboard/whiteboard, chalk/pen, and eraser for each student (optional)
★ geoboards and rubber bands (optional)

Advance Preparation Erase the Calendar Grid Observations sheet from Set C2. Draw 5 columns. Label the columns at the top of the first sheet as shown below for use with this month’s markers.

<table>
<thead>
<tr>
<th>Calendar Grid Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
</tr>
</tbody>
</table>

Background for the Teacher This month’s pattern features triangles, rectangles, rhombuses, and squares that vary in size and orientation. The pattern also includes parallelograms, which are less familiar to most first graders than the other four shapes. Here is some information about parallelograms for your reference.

Any shape with 4 sides is called a quadrilateral. Trapezoids and parallelograms are two different types of quadrilaterals. Rectangles, rhombuses, and squares are all specialized types of parallelograms, as shown in the diagram on the next page.
Quadrilateral Family Tree

Quadrilateral: any 4-sided polygon

- Trapezoid: a quadrilateral with exactly one pair of parallel sides
- Parallelogram: a quadrilateral with two pairs of parallel sides that are the same length
- Rectangles and Squares are parallelograms with right angle corners.
- Rhombuses and Squares are parallelograms with 4 equal sides.
- A Square is a rectangle with equal side lengths and is also a rhombus with right angle corners.

All of the shapes on this month's odd-numbered calendar markers are triangles. The shapes on Markers 2, 10, 18, and 26 are parallelograms that are not rectangles, rhombuses, or squares. The shapes on Markers 4, 12, 20, and 28 are rectangles. The shapes on Markers 6, 14, 22, and 30 are rhombuses. The shapes on Markers 8, 10, and 24 are squares. The markers are sequenced in an ABAB pattern (triangle, quadrilateral; triangle, quadrilateral). They are also sequenced in a longer ABACADA pattern that repeats 4 times over the course of the month (triangle, parallelogram, triangle, rectangle, triangle, rhombus, triangle, square; triangle, parallelogram, triangle, rectangle, triangle, rhombus, triangle, square).

While many first graders will describe the shapes on the markers in terms of what they look like (i.e., I know it's a rectangle because it looks like a window; I know it's a triangle because it looks like a mountain; I know it's a parallelogram because it looks like a squished rectangle), children should be expected to identify the number of sides and the number of corners (or vertices) for each shape. They should also be encouraged to identify some of the likenesses and differences between various shapes.
Introducing the 2-D Shapes Attributes Calendar Grid Pattern
Open your first Number Corner lesson in February by directing students' attention to the calendar grid. Place the first marker in the correct pocket, and ask children to pair-share observations.

After a few moments, pull sticks from your helper jar to call on children to share their observations with the class.

Students  It looks like one of those ramp blocks in the block corner.
I think it's a triangle.
I don't think it's a triangle. It doesn't look like the green pattern block.
But some triangles are different, like they're long and skinny. They don't all have to be perfect.

It's not unusual for primary children to assert that a “real” triangle must have 3 equal sides. Guide students to understand that while all triangles have exactly 3 sides, those sides do not have to be equal in length.

Teacher  Mathematicians tell us that triangles have 3 sides. Does this shape have 3 sides?

Students  Yep!

Teacher  Are you positively sure this shape has exactly 3 sides? Brady, would you like to come up here and point to each of the sides as we count them together?

Students  One, two, three.
It has 3 sides. It must be a triangle.
But triangles have to have sides all the same.

Teacher  Let's get one of the triangles from our pattern block set. What's the difference between the triangle on today's marker and the pattern block triangle?

Students  The pattern block one is small and green. That other one is big and white.
The pattern block triangle is made out of wood. The one on the marker is just a picture.
The pattern block has all the sides the same. On the triangle up there, one side is short and the other two sides are longer.

Teacher  Good observations. The pattern block and the shape on our marker are both triangles because each of them has exactly 3 sides. The pattern block shape is called an equilateral triangle because all 3 of its sides are the same length. The shape on our marker is not an equilateral triangle, but it is still a triangle.

Once the shape has been identified as a triangle, work with input from the children to fill in the first row on the calendar observation sheet.

The second day of the month, ask students to pair-share observations about the shape on Marker 2, and then call on volunteers to share with the class.
**Students** That's a weird shape!
It looks like someone sat on a rectangle and squished it!
Yeah, it looks like a squashed box.

Explain that this shape is called a parallelogram. Write the word on the board along with a quick sketch and read it with the class several times. Next, sketch and label a rectangle on the board and ask students to describe how the parallelogram and rectangle are the same, and how they are different. Then work with students' input to fill in the second row on the calendar observation sheet.

<table>
<thead>
<tr>
<th>Parallelogram</th>
<th>Rectangle</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Students** They both have 4 sides, but the first one has diagonal lines.
The rectangle just goes up and down; that other one is slanted.
They both have 4 corners.
The parallelogram has corners that are more pointy.
It looks like of like a weird diamond.

**Calendar Grid Observations**

<table>
<thead>
<tr>
<th>Date</th>
<th>Shape Name</th>
<th>Sides</th>
<th>Corners</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Triangle</td>
<td>3</td>
<td>3</td>
<td>sides are not equal</td>
</tr>
<tr>
<td>2</td>
<td>Parallelogram</td>
<td>4</td>
<td>4</td>
<td>has diagonal lines</td>
</tr>
</tbody>
</table>

**Continuing through February with the Calendar Grid**
Each day, have a helper point to the markers that have been posted in the pocket chart as the class names each shape. Have children predict what the next marker will show before you place it on the chart. Once the new marker has been posted, ask students to share their observations.

**Teacher** Let's say the name of the shape on each marker we've posted so far, and then make some predictions about what we'll see on the marker for today. Alex, will you point to the markers as we name each shape?
**Students**  Triangle, parallelogram, triangle, rectangle, triangle, rhombus, triangle, square.

**Teacher**  Talk with the person next to you about what shape we might see on the marker for today. Put your thumbs up when you have an idea, and I'll pull sticks from the jar to pick children to share with the class.

**Students**  Triangle! It has to be a triangle. It goes triangle, other shape, triangle, other shape, like that, so today has to be a triangle. I think the one after today is going to have 4 sides. It always goes 3 sides, 4 sides, 3 sides, 4 sides. Maybe it will be a triangle today, and then a rectangle tomorrow.

Here is a summary of the questions and prompts mentioned so far, as well as some others you might use through the month:

- Let's name the shape on each marker.
- What shape do you think we'll see on the next marker? Why?
- How can you tell if something is a triangle (parallelogram, rectangle, rhombus, square)?
- How do you know that the shape on Marker 4 is not a triangle? How do you know that the shape on Marker 7 is not a rhombus?
- How are the shapes on Markers 3 and 8 (1 and 4, 2 and 7) different? How are they alike?
- What shape do you see on the 4th (9th, 13th, 21st) marker?
- I see a marker on the calendar grid with a shape that has 3 equal sides. Which marker am I thinking of? I see a marker on the calendar grid with a shape that has 4 equal sides. Which marker am I thinking of? Is there more than one correct answer?

**Extensions**

- Have children each make a prediction about the shape on the next marker by drawing it on an individual whiteboard or chalkboard. When the marker is posted, ask them to modify their drawing so it matches the actual shape.
- Encourage children to predict the shape that will appear on the marker the following day by building it on a geoboard and setting their boards near the calendar display.
The markers feature 3 different types of triangles: scalene (no sides equal), equilateral (all 3 sides equal), and isosceles (2 sides equal). Introduce the three types of triangles by name to students early in the month, and encourage them to look for examples of each type in the markers as the month progresses.

Scalene Triangle

Equilateral Triangle

Isosceles Triangle
NOTE Below is a representation of the February calendar grid. The full-size calendar markers are available at http://gotomic.org/calmarkers.
GRADE 1 SUPPLEMENT

Set C7  Geometry: Describing 3-D Shapes Calendar Pattern

Includes
March Calendar Pattern  C7.1

Skills & Concepts
★ identify, name, and describe 3-D shapes in isolation and in everyday situations
★ identify 3-D shapes based on defining attributes (such as number of faces and vertices),
rather than descriptive attributes (such as color, size, or orientation)
★ identify, describe, and extend repeating patterns
★ read aloud numerals from 0 to 31
★ identify ordinal positions through the 31st
Bridges in Mathematics Grade 1 Supplement
Set C7 Geometry: Describing 3-D Shapes Calendar Pattern

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Set C7 ★ March Calendar Pattern

Describing 3-D Shapes

Overview
This set of Calendar Grid markers replaces the student-made markers in the month of March, and provides opportunities for first graders to identify, name, and describe 3-dimensional shapes including pyramids, cylinders, cubes, cones, rectangular prisms, and spheres.

Skills & Concepts
★ identify, name, and describe 3-D shapes in isolation and in everyday situations
★ identify 3-D shapes based on defining attributes (such as number of faces and vertices), rather than descriptive attributes (such as color, size, or orientation)
★ identify, describe, and extend repeating patterns
★ read aloud numerals from 0 to 31
★ identify ordinal positions through the 31st

You’ll need
★ Calendar Grid pocket chart
★ Month and Year Calendar Grid cards
★ March Describing 3-D Shapes Calendar Markers (available at http://gotomlc.org/calmarkers) Print 1 copy of the calendar marker sheets in color, single-sided, on white cardstock. Cut the calendar markers apart and laminate if desired.
★ Shape Labels (pages C7.7–C7.9, run 1 copy on paper and cut apart)
★ Calendar Grid Observations sheet from Set C2 (see Advance Preparation)
★ one object to match each of the shapes in the set of markers (see Advance Preparation)
★ helper jar containing a popsicle stick for each child with his/her name on it

Advance Preparation
Erase the Calendar Grid Observations sheet from Set C2. Draw 5 columns. Label the columns at the top of the first sheet as shown below for use with this month’s markers. Find an object that matches each of the 6 shapes that appear on the markers (e.g., a die or number cube, a can, a ball, a paper water-cooler cone, a metronome, and a block). Plan to leave these objects on display near the calendar grid all month long.

<table>
<thead>
<tr>
<th>Calendar Grid Observations</th>
<th>Date</th>
<th>Shape Name</th>
<th>Looks Like</th>
<th>Color</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Introducing Describing 3-D Shapes Calendar Pattern

Open your first Number Corner lesson in March by explaining that this month’s calendar pattern is going to feature 3-dimensional shapes. Set out the 3-dimensional objects you have collected near the calendar display board, where students can see them clearly. Ask the children to identify each object by shape name as you set it out.

**Teacher**  We are going to learn more about 3-dimensional shapes this month during Number Corner. I’m going to set out an example of each shape we’ll see right here on the shelf next to the calendar grid. Let’s work together to name the shapes as I set them out. Here’s the first one.

![Image of a rectangular prism]

**Marco**  That’s one of the blocks from our block corner!

**Teacher**  That’s right. Does anyone remember the name of this shape?

**Eloise**  It has rectangles on it.

**Teacher**  Let’s look at each of the faces of this shape. Are they all rectangles? You’re right, they are. Do you remember the name of the 3-dimensional shape that has 6 rectangular faces?

**Max**  It’s a rectangular prism, I think.

When you have set out all 6 objects, place the first calendar marker in the correct pocket. Ask children to find the object in your collection that matches the marker.

**Students**  The shape on the first marker is the same as the music thing. It’s a pyramid.
That music thing is a metronome. My sister has one for her music lessons.
It’s like those pyramids in Egypt.
It’s really pointy on top.
It has triangles on the sides.
Once they have identified the shape on the first marker by name, work with input from the students to fill in the first row on the calendar grid observation sheet. Students may not have much to write in the Other column. As more markers are added, they may begin to make observations about the size of the shape, its orientation, and its overall appearance.

### Calendar Grid Observations

<table>
<thead>
<tr>
<th>Date</th>
<th>Shape Name</th>
<th>Looks Like</th>
<th>Color</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pyramid</td>
<td>metronome</td>
<td>Green</td>
<td></td>
</tr>
</tbody>
</table>

### Continuing through March with the Calendar Grid

Each day, have a helper point to the markers that have been posted in the pocket chart as the class names each shape. Have children predict what the next marker will show before you place it on the chart.

**Teacher** Let’s say the name of the shape on each marker we’ve posted so far, and then make some predictions about what we’ll see on the marker for today. Jared, will you point to the markers as we name each shape?

**Students** Pyramid, cylinder, cube, cone, rectangular prism, sphere; pyramid, cylinder.

**Teacher** Talk with the person next to you about what shape we might see on the marker for today. Put your thumbs up when you have an idea, and I’ll pull sticks from the jar to pick children to share with the class.

**Students** I think a cube because it’s a pattern.

First there’s a pyramid and then a cylinder, and then comes the cube. There’s also a color pattern. It goes green, red, blue, yellow, purple. I think it’s starting over again, because we have green, red, blue already again. So the next one should be yellow. It’ll be a yellow cube. I know it!
After students have shared some of their predictions, post the marker for the day. Ask students to share their observations, and work with their input to fill in the information on the calendar grid observations sheet. Once you have moved beyond the first 6 markers, challenge students to think of objects other than the ones in your collection to list in the last column.

Students will probably notice that although markers 7 and 8 show the shapes from markers 1 and 2 turned on their sides, the cube on marker 9 looks just the same as the cube on marker 3, except for its color. Invite them to use blocks to test what happens if they turn a cube on its side. Why does it always look the same? They’ll notice that the same thing happens with the sphere on marker 12. Later in the month, they will notice that the cube and sphere are again unchanged, although the other shapes get skinnier and are turned on their sides.

As students begin to explain how they can tell what kind of shape is shown on each marker, regardless of its color, orientation, or size, use the shape labels to create a chart with students that shows the defining attributes of each shape. They can refer to objects in the world to describe the different ways each shape can look.

<table>
<thead>
<tr>
<th>Date</th>
<th>Shape Name</th>
<th>Looks Like</th>
<th>Color</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pyramid</td>
<td>a metronome</td>
<td>Green</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Cylinder</td>
<td>a can</td>
<td>Red</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Cube</td>
<td>dice</td>
<td>Blue</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Cone</td>
<td>paper cup</td>
<td>Yellow</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Rect. Prism</td>
<td>a block</td>
<td>Purple</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Sphere</td>
<td>a baseball</td>
<td>Green</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Pyramid</td>
<td>Egyptian pyramid</td>
<td>Red</td>
<td>sideways</td>
</tr>
<tr>
<td>8</td>
<td>Cylinder</td>
<td>coffee cup</td>
<td>Blue</td>
<td>sideways</td>
</tr>
<tr>
<td>9</td>
<td>Cube</td>
<td>alphabet block</td>
<td>Yellow</td>
<td>the same</td>
</tr>
</tbody>
</table>

A pyramid has triangle sides that come together at a point. It can have different shapes on the bottom, but ours always has a square. It can be tall and skinny or shorter, like a pyramid in Egypt. It can be any color or size.

A cylinder has straight sides and circles on the top and bottom. It can be any color or size. It can look like a can or a tube of chapstick.

A cube has a square on every side. It can be any color or size, but it always looks like the same shape.

A cone has a circle on the bottom, round sides, and a point on the top. It can be any color or size. It can be tall and skinny like a tower, or it can look like an ice cream cone.

A rectangular prism has a rectangle on every side. Remember that a square is a kind of rectangle. It can be any color or size. It can look like a cereal box or like a block.

A sphere is round all the way around like a ball. It can be any color or size, but it always looks like the same shape.
Here is a summary of the questions and prompts mentioned so far, as well as some others you might use through the month:

- Let's name the shape on each marker.
- What shape do you think we'll see on the next marker? Why?
- How do you know today's shape is a cube (cone, rectangular prism, sphere, pyramid, cylinder)?
- Can you see something else in our classroom that is shaped like a cube (cone, rectangular prism, sphere, pyramid, cylinder)? Let's see if we can find more examples around the school.
- How are the shapes on markers 2, 8, and 14 (or 3, 9, and 15; and so on) alike? How are they different?
- What shape do you see on the 3rd (5th, 9th) marker?
- Which of our calendar grid shapes will roll? Why? Which ones will not roll? Why not?
**March Calendar Pattern (cont.)**

**NOTE** Below is a representation of the March calendar grid. The full-size calendar markers are available at [http://gotomlc.org/calmarkers](http://gotomlc.org/calmarkers).
Shape Labels page 1 of 3

pyramid
cylinder
Shape Labels page 2 of 3

- Cube
- Cone
Shape Labels page 3 of 3

rectangular prism

sphere
GRADE 1 SUPPLEMENT

Set C8  Geometry: Congruent Shapes Calendar Pattern

Includes
April Calendar Pattern  C8.1

Skills & Concepts
★ recognize and construct shapes that are congruent
★ identify, name, and compare triangles, rectangles, rhombuses, parallelograms, and trapezoids
★ describe geometric attributes of shapes to determine how they are alike and different
★ recognize shapes when viewed from different perspectives and orientations
★ identify, describe, and extend repeating patterns
Bridges in Mathematics Grade 1 Supplement
Set C8 Geometry: Congruent Shapes Calendar Pattern

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Set C8 ★ April Calendar Pattern

Congruent Shapes

Overview
This set of Calendar Grid markers replaces the student-made markers in the month of April. Each marker presents a pair of figures, and students are challenged to determine whether the two are identical in shape and size (congruent) or not.

Skills & Concepts
★ recognize and construct shapes that are congruent
★ identify, name, and compare triangles, rectangles, rhombuses, parallelograms, and trapezoids
★ describe geometric attributes of shapes to determine how they are alike and different
★ recognize shapes when viewed from different perspectives and orientations
★ identify, describe, and extend repeating patterns

You’ll need
★ Calendar Grid pocket chart
★ Month and Year Calendar Grid cards
★ April Congruent Shapes Calendar Markers (available at http://gotomic.org/calmarkers) Print 1 copy of the calendar marker sheets in color, single-sided, on white cardstock. Cut the calendar markers apart and laminate if desired.
★ Calendar Grid Observations sheet from Set C2 (see Advance Preparation)
★ 2 clear geoboards (half-class set is optional)
★ helper jar containing a popsicle stick for each child with his/her name on it

Advance Preparation
Erase the Calendar Grid Observations sheet from Set C2. Draw 4 columns. Label the columns at the top of the first sheet as shown below for use with this month’s markers.

<table>
<thead>
<tr>
<th>Date</th>
<th>Shape A</th>
<th>Shape B</th>
<th>A &amp; B Congruent?</th>
</tr>
</thead>
</table>

Introducing the Congruent Shapes Calendar Grid Pattern
Open your first Number Corner lesson in April by directing students’ attention to the calendar grid. Place the first marker in the correct pocket, and ask children to pair-share observations.
After a few moments, pull popsicle sticks from your helper jar to call on children to share their observations with the class.

**Students** It has two triangles on it. They have letters on them, A on the top one, and B on the bottom one.

**Students** Those are skinny triangles. There are dots, kind of like a geoboard.

After they have had a chance to share some of their observations, work with input from the children to record the date and the name of each shape on the observation sheet.

Then read the heading on the last column to the class and explain that two shapes are congruent if they are exactly the same shape and the same size. Ask students to put their thumbs up if they believe the two shapes on the marker are congruent, down if they believe the two shapes are not congruent, and sideways if they are not sure. Then call on volunteers to share their thinking with the class.

**Teacher** I see a lot of thumbs up, but a few children are showing thumbs down, and some are showing thumbs sideways, which tells me that they're not sure whether these two shapes are congruent or not. Who would like to share and explain their idea?

**Terrell** They look the same to me so I put my thumbs up.

**Teacher** What makes you think they're the same size and shape, Terrell?

**Terrell** They just look that way. I can tell with my eyes.

**Lupe** I said yes because they're both skinny triangles.

**Sara** I said yes because they match. You can tell by looking. They both go up and over the same.

Chances are, most of your students will agree that the two triangles look congruent. One way to be sure is to build each figure on a clear geoboard and superimpose one board on top of the other, lining up the two figures to see if they are exactly the same shape and the same size. Suggest this to the students, and then work with their input to construct a copy of Shape A on a geoboard.
**Teacher** It seems like most of us agree that the two triangles look like they’re exactly the same shape and size. Let’s test this out so we can be absolutely sure. I have two clear geoboards here. Let’s build Shape A on one of the boards, and build Shape B on the other. Then we can set the two shapes on top of each other and see if they really do match each other exactly. What do I need to do to build Shape A on this board?

![Geoboard image](image)

**Students** Start in the top corner, the one on the left. Pull the rubber band down and stretch it over. Make it go over to almost the last peg in the second row.

Once Shape A is built, pull a stick from your helper jar to select a student to build Shape B on the other board. Then help the student hold the two boards together in such a way as to superimpose the two triangles. Are they exactly the same size and shape?

![Geoboard image](image)

**Students** Yes! They fit exactly on top of each other! I knew it just by looking. I knew it because you can tell by the dots. They both go up 1 dot and over 3 dots.

Finally, work with students’ input to record the results of the geoboard test on the observation chart. As you do so, remind students that when we say two shapes are congruent, that means those two shapes are exactly the same shape and size.

<table>
<thead>
<tr>
<th>Date</th>
<th>Shape A</th>
<th>Shape B</th>
<th>A &amp; B Congruent?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>triangle</td>
<td>triangle</td>
<td>A &amp; B ARE congruent</td>
</tr>
</tbody>
</table>
April Calendar Pattern (cont.)

**Continuing through April with the Calendar Grid**

Each day, have a helper point to the markers that have been posted in the pocket chart as the class names the shapes and reports whether or not they are congruent. Have children predict what the next marker will show before you place it on the chart.

*Teacher* Let’s say the name of the shapes on each marker we’ve posted so far, and say whether they’re congruent or not. Then we’ll make some predictions about what we’ll see on the marker for today. Antonio, will you point to the markers as we name each shape?

![Calendar Grid]

*Students* Triangles, congruent; rectangles, not congruent; rhombuses, congruent; parallelograms, not congruent; trapezoids, congruent; triangles, not congruent.

*Teacher* Talk with the person next to you about what we might see on the marker for today. Put your thumbs up when you have an idea, and I’ll pull sticks from the jar to pick children to share with the class.

*Students* It’s going to have a 7 on it for sure because 7 comes after 6. It will have 2 shapes, and they’ll probably be the same, like 2 triangles or something. It might be rectangles because maybe rectangles always come after triangles on this pattern. I think they’ll be the same size and shape because look how it goes so far: same, not the same; same, not the same; so it should be same today.

After students have shared some of their predictions, post the marker for the day. Ask students to share their observations. Then work with the group to test for congruence by building both shapes on the geoboards and superimposing them.
Students  Yep, it’s two rectangles.
They’re congruent. I know because of the pattern.
I can tell by looking. They look the same.
They look different to me. One is flat and the other goes up and down.
But they’re the same. If you just turned one, it would fit on top of the other.
Also, both of them fill up 3 squares, so you can tell they’re the same size.
Can I try it on the geoboards and see for sure?

![Geoboards with shapes](image)

<table>
<thead>
<tr>
<th>Calendar Grid Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
</tbody>
</table>

Here is a summary of the questions and prompts mentioned so far, as well as some others you might use through the month:

- Let’s name the shapes on each marker and tell whether or not they are congruent.
- What shapes do you think we’ll see on the next marker? Do you think they will be congruent or not? Why?
- How can we check to be sure these two shapes are actually congruent or not?
- What if the two shapes are exactly alike except that one is smaller than the other? Are they congruent? Why not?
- When mathematicians say two shapes are congruent, what do they mean?
- How do you know that the shapes on today’s marker are rectangles, not triangles (trapezoids, not parallelograms; triangles, not trapezoids)?
- The next time we get a marker with a pair of triangles (rectangles, rhombuses, parallelograms, trapezoids), do you think they will be congruent? Why or why not?
Extensions

- While it is important to conduct the geoboard test for congruence each day, you can vary the routine by having a couple of volunteers build and compare the shapes on the day's marker after Number Corner, and report to the class at the end of the day. You can also involve all the children by splitting your class into groups of four and giving each group 2 geoboards. Have two of the children in each group build Shape A while the other two build Shape B. Then have the groups of four superimpose their boards and discuss the results as a class.

- Introduce the symbols for congruence and non-congruence (shown below), and use them on your observation chart instead of writing out the results in longhand.

\[ \begin{align*}
A & \cong B \\
\text{Shape A is congruent to Shape B.} \\
A & \not\cong B \\
\text{Shape A is not congruent to Shape B.}
\end{align*} \]

- Encourage children to build examples of congruent and non-congruent shapes using geoboards, pattern blocks, or polydrons.

- Have students look for examples of congruent and non-congruent shapes on the playground, in the gym, in the cafeteria, and so on.
NOTE Below is a representation of the April calendar grid. The full-size calendar markers are available at http://gotomlc.org/calmarkers.
GRADE 1 SUPPLEMENT

Set D1  Measurement: Comparing Length

Includes
Activity 1: Longer, Shorter, or the Same  D1.1
Activity 2: How Long is the Teacher’s Belt?  D1.3
Activity 3: Compare, Spin & Win  D1.5
Activity 4: The Measuring Stick  D1.9
Activity 5: The Packing Box  D1.13

Skills & Concepts
★ compare and order objects according to length
★ comparing lengths using the transitive property
Bridges in Mathematics Grade 1 Supplement
Set D1 Measurement: Comparing Length

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Set D1 ★ Activity 1

Longer, Shorter, or the Same?

Overview
Students use the transitive property to compare the lengths of paper strips. (The transitive property states that if \( a = b \) and \( b = c \), then \( a = c \); or if \( a > b \) and \( b > c \), then \( a > c \); or if \( a < b \) and \( b < c \), then \( a < c \).

Skills & Concepts
★ compare and order objects according to length
★ compare lengths using the transitive property

You'll need
★ 12” × 18” construction paper (see Advance Preparation)
★ manila envelope
★ 12 index cards or 3” × 5” pieces of light-colored construction paper
★ wide-tipped felt marker

Advance Preparation Cut six 1-inch strips of construction paper to different lengths, none shorter than 5” and none longer than 18”. Use a variety of colors. Then cut two 1” × 9” inch strips, one in blue and one in white, and two 1” × 15” inch strips, one in brown and the other in red. Place all the paper strips in the manila envelope except the two 9-inch lengths.

Instructions for Longer, Shorter, or the Same?
1. Gather children to your discussion circle. Drop the two 1” × 9” strips of paper in the middle of the circle. Ask students to discuss which they think is longer. Then ask them to help you find out for sure. What do you need to do to compare these 2 lengths?

   **Students**  Hold them up together.
   Put them down on the rug right together so you can see.
   I can just tell. It’s the white one!

2. Use their suggestions to compare the 2 lengths. Don’t match them at the ends unless the children tell you to do so. If they don’t correct you, press the issue.

   **Teacher**  You told me to put the strips of paper side by side on the rug. Can we tell which is longer now?

   **Students**  The white one!
   No, the blue one! You can see it’s longer because it sticks out more!
   You have to make them the same at the end or you can’t tell.
Activity 1  Longer, Shorter, or the Same? (cont.)

3. Match the two ends of the paper strips and ask students to compare the lengths now. Which is longer? Write a label on an index card and place it beside the pair of lengths.

Students  They’re the same!
You can see now for sure because you put them together at the end.

4. Remove the blue strip and the label from the rug but leave the white one out. Show students the envelope of paper strips you’ve prepared. Invite a helper to pull one from the envelope and set it next to the white strip. Is it longer, shorter, or the same as the white one?

5. Set the new strip a couple of feet away from the white one, and ask a different helper to pull a second strip from the envelope and compare it to the white strip. Is it longer, shorter, or the same as the white one? Challenge students to use this information to predict which of the two strips just pulled from the envelope is longer.

Students  Okay, the red one was longer than the white one, and the green one Eloise just got is shorter than the white one.
That means the red one has to be longer than the green one.
It is! I can tell by just looking!

6. After the 2 strips have been compared, write a label for each on an index card and have 2 helpers set the labels where they belong.

7. Repeat steps 4–6 until the class has compared and labeled all the paper strips in the envelope.

Extension
- Make the paper strips and the labels available during Work Places so pairs of students can play the game on their own.
Set D1 ★ Activity 2

How Long Is the Teacher’s Belt?

Overview
Students each cut a piece of string to approximate the length of your belt, use the transitive property to find out how their string compares to your belt, and post it on a chart to show the results. (The transitive property states that if \(a = b\) and \(b = c\), then \(a = c\); or if \(a > b\) and \(b > c\), then \(a > c\); or if \(a < b\) and \(b < c\), then \(a < c\).)

Skills & Concepts
★ compare and order objects according to length
★ compare lengths using the transitive property

You’ll need
★ a belt (see Advance Preparation)
★ a ball of string for each group of 4 children
★ scissors (class set)
★ 3 pieces of 6” × 12” construction paper (see Advance Preparation)
★ masking tape (see Advance Preparation)
★ Work Places currently in use

Advance Preparation Label each piece of construction paper as shown below. Then run a length of masking tape, sticky side out, along the bottom of each sheet and fasten the ends with short strips of tape. Post these on the whiteboard where the children can reach them easily. Wear a belt to class the day you conduct this activity.

Instructions for How Long Is the Teacher’s Belt?
1. Gather children to your discussion circle. Draw their attention to the belt you’re wearing today. Ask them to use their arms to show how long they think it is.

2. Then remove your belt and stretch it out in the center of the circle where everyone can see it. Invite the children to make new estimates, again using their arms to show how long they think it is.

3. Show the children a ball of string and a pair of scissors. Explain that each of them is going to cut a piece of string they think matches the length of your belt. After they’ve cut their string, they’re going to test it out and then fasten it to one of the three charts you’ve posted at the whiteboard.

4. Next, cut a piece of string you estimate to be about the same length as your belt. Then work with input from the class to compare the two.

Teacher Is my string shorter than, longer than, or the same as my belt?
Activity 2  How Long Is the Teacher’s Belt? (cont.)

Students  It’s shorter!
Try it again!
Can I try?

5. Now have one of the children cut a length of string she thinks will match the length of your belt. Ask her to hold it up next to your string first. How does it compare to your string? If it’s shorter than your string, how will it compare to your belt? Discuss this with the class. If it’s longer than your string, how might it compare to your belt? Finally, have the student compare her string to your belt and hang it on the appropriate chart.

My piece of string is ____________ the belt.

shorter than the same as longer than

6. When students understand what to do, have them go back to their tables and help one another each cut a length of string they think will match the length of your belt. As they finish, have them hang the string they’ve cut around the back of their neck, just as a tailor might wear a measuring tape, and go to one of the Work Places. Invite them a few at a time to compare their string to one of the strings already hanging. Ask them to use the results of their comparison to predict whether their string will be shorter than, longer than, or the same length as your belt. Then have them check their prediction by comparing their string to your belt, and hanging it on the appropriate chart.

7. Discuss the results with the class at a later time. How many students cut strings that were shorter than, the same as, or longer than your belt? Which chart has the most strings? How can they tell for sure?

Extension
• Repeat this activity later in the year with something else that might appeal to your students. (Anything you wear or own is almost sure to interest them. You may even have a parent who’s willing to bring a pre-crawling baby to class to be measured. If you use blue masking tape to mark the length of the baby on the floor, students can cut string to approximate the length of the baby.)
Set D1 ★ Activity 3

Activity

Compare, Spin & Win

Overview
The teacher plays a whole-group game with the class to give children more practice using the transitive property to compare lengths. (*The transitive property states that if \(a = b\) and \(b = c\), then \(a = c\); or if \(a > b\) and \(b > c\), then \(a > c\); or if \(a < b\) and \(b < c\), then \(a < c\).*)

Skills & Concepts
★ compare and order objects according to length

Recommended Timing
Anytime in the early fall.

You’ll need
★ Length Comparison Spinner (page 7, see Advance Preparation)
★ the paper strips and envelope from Set D1, Activity 1
★ a 1” by 12” strip of black construction paper

Advance Preparation Follow the instructions on the blackline to prepare a spinner for this game.

Instructions for Compare, Spin & Win
1. Gather children to your discussion circle. Show them the envelope containing the paper strips from Set D1, Activity 1, and explain that you’re going to use them to play another game today. Then set the black strip out on the rug and explain that this is the official measuring strip for today.

2. Pull a strip out of the envelope and set it next to the black measuring strip. Is it longer, shorter, or the same? Place your strip on the rug, a couple of feet away from the black strip. Ask a helper to pull a second paper strip out of the envelope for the class. Have the children compare their strip to the black one and use the information to predict whether theirs will be longer, shorter, or the same as yours.

   **Students**  
   *Wow! Our strip is way longer than the black strip.*  
   *Teacher’s was shorter than the black strip.*  
   *Our strip will be longer than the teacher’s!*

3. Have students confirm their predictions by comparing their strip to yours directly. Then spin the spinner. If it lands on “longer than,” the class (in the example shown above) gets both paper strips. Give them to one of the students to hold. If it lands on “shorter than,” you get both strips. Pick them up and hold onto them. If it lands on “same as”, both strips go back in the envelope.
Activity 3  Compare, Spin & Win (cont.)

Students  It landed on shorter!
Teacher gets to have both of the strips.
Let’s do it again!

4. Repeat the steps above until you’ve used up all the paper strips.

Extension  
- Set up the envelope of paper strips and the spinner as a Work Place, and let pairs of students play the game on their own.
Length Comparison Spinner

Spinner-Making Instructions

1. Poke a brass fastener through a \( \frac{1}{4} \)" length of drinking straw and a paperclip. Be sure to insert the brad and straw into the large end of the paperclip, as shown.

2. Keeping the straw and the paperclip on the brass fastener, insert it into the midpoint hole of the spinner. Once it has been pushed through to the back side, bend each side of the fastener flat against the underside of the gameboard. The section of straw should serve as a spacer so the brad doesn’t push the paperclip flat against the gameboard and prevent it from spinning.

3. Give the paperclip a test spin to see if it works.
Set D1 ★ Activity 4

The Measuring Stick

Overview
There is a strip of paper marked with 3 big red dots stapled up on one wall, and a second strip of paper marked with 3 big red stars stapled up across the classroom. These two strips might be the same length, but then again, one might be longer than the other. They cannot be removed from the wall and compared directly, and you can’t really tell by looking. What to do? This activity becomes a Work Place once it has been introduced to the class.

Skills & Concepts
★ apply the concept of transitivity to comparing lengths
(The transitive property states that if \( a = b \) and \( b = c \), then \( a = c \); or if \( a > b \) and \( b > c \), then \( a > c \); or if \( a < b \) and \( b < c \), then \( a < c \).)

You’ll need
★ The Measuring Stick (page D1.12, run a half class set)
★ adding machine tape (see Advance Preparation)
★ 3 measuring sticks (see Advance Preparation)

Advance Preparation
Cut 8 pieces of adding machine tape to the following lengths: 12”, 15”, 24”, 28”, 40”, 40”, 48”, 54”. Code each strip of paper with the color and shape listed below:
- 12” strip—3 large blue dots
- 15” strip—3 large blue stars
- 24” strip—3 large red stars
- 28” strip—3 large red dots
- 40” strip—3 large green stars
- 40” strip — 3 large green dots
- 48” strip—3 large brown dots
- 54” strip—3 large brown stars

Staple the four strips marked with dots on one wall. Staple the four strips marked with stars somewhere else in the classroom, ideally clear across the room. Make 3 measuring sticks by cutting three 1” x 12” strips of very heavy cardboard or three 12” lengths of wooden dowling. You can also simply cover the markings on three foot-long rulers with blue masking tape.

Instructions for The Measuring Stick
1. Gather children to your discussion circle. Draw their attention to the two sets of paper strips you have stapled in two different locations. Give them a few moments to pair-share their observations, and then call on volunteers to share their thinking with the class. What do they notice about these paper strips?

Students
The ones over there have big dots on them.
The ones on the other wall have stars.
I like the one with the red stars. Red is my favorite.
Some of them are really long, like that one with the brown dots.
Some are short and some are long.
2. Note with students that there is one strip in each set that has been marked with blue shapes, another in each set that has been marked with red shapes, and so on. Then ask children to compare the two strips marked in blue. Do students think the strip marked with blue stars is shorter than, longer than, or the same length as the strip marked with blue dots? Have them pair-share their ideas, and then call on volunteers to share with the group.

   **Students**  I think they're the same.
   I think the one with stars is longer because it has stars on it.
   I think the one with dots might be longer because it looks a little bigger.

3. Then ask students how they might find out for sure whether one of the two strips is longer or not. Chances are, some students will suggest taking one of the strips off the wall, carrying it over to the other wall, and comparing the two directly. Let them know that the strips have to stay where they are. Is there some way to compare the lengths without moving them?

4. Give students a chance to discuss some possible strategies, and then show them one of the measuring sticks you have prepared. How might they use this measuring stick to help? Give them a few moments to pair-share ideas. Then call on volunteers to share their thinking, as you carry out their suggestions.

   **Students**  Hold the stick up to the strip with blue dots on it.
   Yeah, so you can see how long it is.

   **Teacher**  Like this?

   ![Measuring Stick](image)

   **Students**  Hey, look it's exactly the same.
   I think the one with the stars will be the same too.
   I think it's longer.
   Can I take the stick over to the one with the stars and try it?

   ![Measuring Stick](image)

   **Students**  I was right! The star paper is longer!
   Are you sure you put the stick right?
   I think the one with the dots is longer because it's the same as the stick.
   But the stars one sticks out more than the stick – it must be longer!

5. Now show students a copy of the Measuring Stick record sheet. Explain that sometime over the next few days during Work Places, they will each have a chance to work with a partner to measure the strips for themselves. If, after measuring both of the strips marked with blue shapes, they decide the blue dot strip is longer, they will color the dot blue. If they determine that the blue star strip is longer, they will color the star blue. If two of the strips marked in the same color turn out to be the same length, they will color in both the dot and the star.
Activity 4 The Measuring Stick (cont.)

6. Let students know where you are placing the record sheets and measuring sticks. You may decide to put them in one of your Work Place tubs, or place them on a small desk or table easily accessible to students during Work Places. There are enough materials for 6 students to do this measuring activity at one time if they work in pairs.

Extension

• Some students might enjoy using Unifix cubes or a measuring tape to determine the exact length of each strip, as well as the difference in length between the strips in the blue pair, the red pair, and the brown pair.
The Measuring Stick

Color the shape to show which strip in each pair is longer. If the strips are the same length, color both shapes.

<table>
<thead>
<tr>
<th>Blue Dot Strip</th>
<th>Blue Star Strip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Dot Strip</td>
<td>Red Star Strip</td>
</tr>
<tr>
<td>Green Dot Strip</td>
<td>Green Star Strip</td>
</tr>
<tr>
<td>Brown Dot Strip</td>
<td>Brown Star Strip</td>
</tr>
</tbody>
</table>

The Measuring Stick

Color the shape to show which strip in each pair is longer. If the strips are the same length, color both shapes.

<table>
<thead>
<tr>
<th>Blue Dot Strip</th>
<th>Blue Star Strip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Dot Strip</td>
<td>Red Star Strip</td>
</tr>
<tr>
<td>Green Dot Strip</td>
<td>Green Star Strip</td>
</tr>
<tr>
<td>Brown Dot Strip</td>
<td>Brown Star Strip</td>
</tr>
</tbody>
</table>
Set D1 ★ Activity 5

The Packing Box

Overview
Sometimes teachers need to store the things in their classrooms over a break so the custodians can get in to clean. What are some of the things in your room that might fit into the cardboard carton you’ve brought in for today’s activity? Students identify tools that will help them with this measuring job. This activity becomes a Work Place once it has been introduced to the class.

Skills & Concepts
★ apply the concept of transitivity to comparing lengths

You’ll need
★ The Packing Box (page D1.15, run a half class set plus a few extra)
★ a large cardboard carton with a lid such as a box that holds 10 reams of copy paper
★ the 3 measuring sticks from Set D1, Activity 4
★ a ball of string
★ a pair of scissors
★ blue masking tape (see Advance Preparation)

Advance Preparation
Locate 12 objects in your classroom, four of which are too big to fit into the cardboard carton, and eight of which will fit, one at a time rather than all 8 at once, into the carton when the lid is on. Mark each of the objects you have selected with a piece of blue masking tape labeled with the name of the object. Try to choose some objects that are located at a good distance from your discussion circle.

Instructions for The Packing Box

1. Gather children to your discussion circle. Explain that over the coming break, you may need to pack some of the things in the classroom to get them out of the way so the custodians can do a good job of cleaning. Show students the cardboard carton, and explain that this is one of the boxes you will use if you have to pack some of your things. Can the children spot and name things in the room that would fit into the carton when its lid is on? Can they spot things that would be too big? Give them a few moments to pair-share, and then call on volunteers to share with the group.

   Students
   You couldn’t fit even one of our chairs in that box.
   Some the books on our reading shelf would fit.
   You could put a bunch of papers in there.
   I bet one of our math tubs could fit in there.
   The box of pattern blocks—let’s put them in there!

2. Now show students the objects around the room you have marked with blue tape. Explain that you would like the children to identify which of these objects would fit into your packing box, without mov-
Activity 5  The Packing Box (cont.)

ing the box from its location or moving any of the objects. Let them know that you’ll need to be able to put the lid on the box; the object has to fit entirely inside the box, though it can be all by itself. It doesn’t need to fit in with other objects.

_Dani_ Why can’t we just bring the things over and see if they will fit into the box?

_Teacher_ Because I don’t want to damage the box moving things in and out of it, and all the things I have marked need to stay where they are. Is there a way you can find out whether or not these things will fit into the box without moving the box or the objects I have marked?

_Students_ We could maybe use the measuring sticks.
I think the measuring sticks are too long for the box when the lid is on.
I think they’re not big enough to check the long side of the box.

3. If you have found a copy paper box to use for this activity, it will be about 11 inches wide, 17 inches long, and 9 inches deep. Work with input from the class to compare one of the measuring sticks to each dimension of the box. Is the measuring stick a tool that will be accurate enough to help them find out which of the objects will fit into the box, or do they need to come up with something that will give them a better measure?

4. After some discussion, show students the ball of string. Suggest that when it is their turn to find out which of the objects will fit, they might want to cut a piece of string to match the length of the box. Some might want to cut a second string to match the depth, or mark the measuring stick to match. When they are satisfied that they have, or can make the tools they need, show them a copy of the Packing Box record sheet.

5. Review the sheet with the class. Explain it as needed, and note with the students that there is only room to record 6 objects. If they want to measure all 12 objects, they can use two sheets. If necessary, work with input from the students to model the process of measuring one of the objects and recording the results on the sheet.

6. Let students know where you are placing the record sheets, measuring sticks, and string. You may decide to put these materials in one of your Work Place tubs, or place them on a small desk or table easily accessible to students during Work Places. Place the packing box in a designated location and solicit agreement from the class that no one will move the box, or any of the objects you have marked with blue tape. The challenge is to do the job without moving anything.
### The Packing Box

Write the name of each object you measure and where it belongs on the chart.

<table>
<thead>
<tr>
<th><strong>It will fit into the box.</strong></th>
<th><strong>It is too big to fit into the box.</strong></th>
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</thead>
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### The Packing Box

Write the name of each object you measure and where it belongs on the chart.

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GRADE 1 SUPPLEMENT

Set D2  Measurement: Length in Non-Standard Units

Includes
Activity 1: Measuring Length with Popsicle Sticks  D2.1
Activity 2: Measuring Length with Unifix Cubes  D2.5
Activity 3: How Long is the Jump Rope?  D2.11

Skills & Concepts
★ estimate and measure using non-standard units
★ measure with multiple copies of units of the same size
★ demonstrate an understanding that using different measurement units will result in different numerical measurements for the same object
Set D2 ★ Activity 1

Measuring Length with Popsicle Sticks

Overview
Students use popsicle sticks to estimate and measure the length of different objects around the room.

Skills & Concepts
★ estimate and measure using non-standard units
★ measure with multiple copies of units of the same size

Recommended Timing
Anytime in the fall or winter, prior to Bridges in Mathematics, Unit 4 if possible.

You’ll need
★ How Long Is It? Measuring with Popsicle Sticks, sheets 1 and 2 (pages D2.3 and D2.4, half-class set plus a few extra, see Advance Preparation)
★ 4 to 6 baskets of popsicle sticks
★ piece of chart paper (or space on the whiteboard)
★ markers

Advance Preparation
Run a half-class set of both sheets (pages D2.3 and D2.4) plus a few extra. Cut the sheets in fourths along the lines. Collate and staple each set in the upper left corner to make a half-class set of 8-page mini-booklets plus one for yourself and a few extra in case you need them later.

Instructions for Measuring Length with Popsicle Sticks
1. Before you gather students to the discussion circle, post a piece of chart paper on an easel where you can reach it, or clear a similar amount of space on your whiteboard if that’s more accessible. You’ll also need a basket of popsicle sticks and the measuring booklets you’ve prepared to introduce the activity. Invite students to join you in the circle, and explain that you’re going to measure length with popsicle sticks today. Then choose a volunteer from the group to be your helper.

   Teacher  Boys and girls, today we’re going to use popsicle sticks to measure how long some of the things in our classroom are. I’m going to reach into my box and pull out someone’s name to be a helper for the first part of the lesson. Esteban, your name came out. Are you willing to help?

2. Have your helper lie down in the middle of the circle and ask the children to whisper to their neighbors how many popsicle sticks placed end-to-end they think it will take to measure the length of their classmate, from his heels to the top of his head. Have students volunteer estimates as you record them on the chart paper or whiteboard.

3. Lay out popsicle sticks end-to-end beside your helper, working from his heels up to his head, as the other students watch. Leave a large gap between 2 of the sticks as you work. Most likely, the children will say something about this immediately. If they don’t, ask them to comment. Is it okay to leave spaces between some of the sticks? Why or why not?
How many popsicle sticks long is Esteban?

10  5  25  100  29
50  70  12  20
3  9  11

4. After some discussion, adjust the sticks so they’re laid out correctly and continue until the line stretches from your helper’s heels to his head. (If the last stick goes over a little, that’s okay.) Then have your helper sit back down in the circle. Ask students if they think there are any estimates that can be eliminated from the chart before you count the sticks, and work with their suggestions to cross those out.

Teacher Before we count the sticks, let’s look at the chart again. Do you think there are any estimates that are way too big or way too small? If you do, we’ll cross them out.

Students I think 100 is way too much. There aren’t 100 sticks up there. Five is too small. I already counted them, and there are 12. Three isn’t enough. There are way more than 3 there.

5. Count the popsicle sticks with the children to determine the actual length of your helper. If the number is among those already on the board, circle it and cross out the rest. If not, cross out all the estimates and record the actual number of sticks on the board.

6. Show students the mini-booklets you’ve prepared. Explain that they will work in partners to measure things around the room with popsicle sticks. On each page, they’ll need to estimate how many sticks it will take to measure the length of the item shown, record the estimate, lay out sticks beside the item without leaving any gaps or holes, count the sticks to find the actual length, and record the total.

7. Once students understand what to do, have helpers set baskets of popsicle sticks around the room and send pairs out to work. Give the children as much time to work as you have available right now. Have them complete their booklets during Work Places over the next few days.
How Long Is It? Measuring with Popsicle Sticks, sheet 1

How long is it?
Measuring with popsicle sticks

by ___________________________
and __________________________

a chair

guess check

guess check

a whiteboard

a rug

guess check

guess check

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How Long Is It? Measuring with Popsicle Sticks, sheet 2

- A bookshelf
  - Guess
  - Check

- A table
  - Guess
  - Check

- A window
  - Guess
  - Check

- A friend
  - Guess
  - Check
Set D2 ★ Activity 2

Measuring Length with Unifix Cubes

Overview
Students use Unifix cubes to estimate and measure the length of different objects around the room.

Skills & Concepts
★ estimate and measure using non-standard units
★ measure with multiple copies of units of the same size
★ demonstrate an understanding that using different measurement units will result in different numerical measurements for the same object

Recommended Timing
Anytime after Set D2 Activity 1

You’ll need
★ How Long Is It? Measuring with Unifix Cubes, sheets 1 and 2 (pages D2.8 and D2.9, half-class set plus a few extra, see Advance Preparation)
★ 7 or 8 trains of 10 Unifix cubes plus 10 single cubes (see Advance Preparation)
★ 4–6 baskets or tubs of Unifix cubes
★ piece of chart paper (or space on the whiteboard)
★ popsicle sticks
★ markers

Advance Preparation    Build each train with 10 cubes of the same color, but make each train a different color than the rest. The 10 single cubes should be a single color as well. Run a half-class set of both sheets plus a few extra. Cut the sheets in fourths along the lines. Collate and staple each set in the upper left corner to make a half-class set of 8-page mini-booklets plus one for yourself and a few extra in case you need them later.

Note    Students will use standard units to measure length in Unit Four, so it would be ideal if you could do this activity and the one that follows before February.

Instructions for Measuring Length with Unifix Cubes
1. Before you gather students to the discussion circle, post a piece of chart paper on an easel where you can reach it, or clear a similar amount of space on your whiteboard if that’s more accessible. You’ll also need the Unifix cube trains and measuring booklets you’ve prepared to introduce the activity. Invite students to join you in the circle, and explain that you’re going to measure length with Unifix cubes today. Then choose a helper who’s roughly the same height as the student you measured with popsicle sticks in Set D2 Activity 1.

2. Tell the class that you’re going to snap together enough Unifix cubes to make a train the same length as your helper. Recall with them that you measured a different helper with popsicle sticks the other day. Have the two helpers stand back-to-back so the children can see they’re just about the same height. Then have your new helper lie down in the middle of the circle. Measure her with popsicle sticks, count them with the class, and record the number on the board. Now discuss the following question: Will it
Activity 2  Measuring Length with Unifix Cubes (cont.)

take more or fewer Unifix cubes than popsicle sticks to do the same job? Why? Some children may be able to explain that it will take more cubes than sticks because the cubes are much shorter.

3. Have your helper lie down in the middle of the circle and ask the children to whisper to their neighbors how many cubes they think it will take to make a train that matches her length. Next, count out 10 cubes, all the same color, while the children count with you. Lay the train on the floor so it’s level with your helper’s heel. Explain that this group of 10 cubes is a benchmark, a way to help make a more accurate estimate. Then ask students to volunteer estimates as you record them on the chart paper or whiteboard. (It’s fine if you get some very small and very large estimates, despite the fact that you’ve introduced a benchmark of 10.)

4. Add as many trains as needed to the first one to equal the length of your helper, breaking the last one so that the entire train starts at her heels and ends at her head. Then ask your helper to sit back down in the circle. Ask students if they think there are any estimates that can be eliminated from the chart before you count the cubes, and work with their suggestions to cross those out.

*Teacher* Before we count the cubes, let’s look at the chart again. Do you think there are any estimates that are way too big or way too small? If you do, we’ll cross them out.

*Students* I think it’s more than 21 or 25. Gloria’s longer than that.
I don’t think it’s 300. 300 is a really big number. I don’t think even Teacher is that big.
I think 236 is too big. That train is smaller than 100, I bet.
5. Break the cubes into 10's and 1's, counting with the students as you break off each train and each of the cubes at the end.

Then point to each of the trains and each of the single cubes and ask students to count them again with you. If students feel the need to count the cubes by 1's “just to make sure,” snap them back together and count them one by one with the class. How does the total compare with the number of popsicle sticks it took to measure your helper? Why did it take more cubes? Would it take more cubes or more popsicle sticks to measure the bookshelf? Why?

6. Show students the mini-booklets you've prepared. Explain that they will work in partners to measure things around the room with Unifix cubes. On each page, they'll need to estimate how many cubes it will take to measure the length of the item shown, record their estimate, build a train the length of the item, count the cubes to find the actual length, and record the total.

7. Once students understand what to do, have helpers set baskets of cubes around the room and send pairs out to work. Give the children as much time to work as you have available right now. Have them complete their booklets during Work Places over the next few days. Encourage them to arrange their cubes in trains of 10 before they measure, but don't insist on it. Even when they do this, many will need to count the cubes one by one to find the totals when working without your direct support, and this is fine.
How Long Is It? Measuring with Unifix Cubes, sheet 1

How long is it?
Measuring with Unifix cubes

by ____________________________

and __________________________

a chair

- guess
- check

a whiteboard ledge

- guess
- check

a rug

- guess
- check
How Long Is It? Measuring with Unifix Cubes, sheet 2

- A bookshelf
  - Guess
  - Check

- A table
  - Guess
  - Check

- A window
  - Guess
  - Check

- A friend
  - Guess
  - Check
Set D2 ★ Activity 3

How Long Is the Jump Rope?

Overview
Students use their feet to estimate and measure the length of a jump rope.

Skills & Concepts
★ estimate and measure using non-standard units
★ measure with multiple copies of units of the same size
★ demonstrate an understanding that using different measurement units will result in different numerical measurements for the same object

Recommended Timing
Anytime after Set D2 Activity 2

You’ll need
★ a long jump rope (16’–20’, borrow one from the gym if necessary)
★ 2 pieces of chart paper (or space on the whiteboard) and markers
★ How Big is a Foot? by Rolf Myller (optional)

Instructions for How Long Is the Jump Rope?
1. Invite students to your discussion circle. Show them the jump rope and then ask a volunteer to help you stretch it out to its full length on the floor as the others watch. Have students move to either side of the rope, leaving plenty of room on both sides.

2. If previous activities, students used popsicle sticks and Unifix cubes to measure length. Explain that in the past, people used their feet to measure length. Today, you're going to use your feet to find out how long the jump rope is. Start at one end of the rope and take 3 or 4 heel-to-toe steps, being careful not to leave any gaps or holes as you walk.
3. Stop after you've taken 3 or 4 steps and ask students to estimate how long the rope is in teacher steps. Have them whisper their ideas to their neighbors and then raise their hands to share their estimates with the class, as you record on chart paper or the whiteboard.

<table>
<thead>
<tr>
<th>How long is the jump rope in teacher steps?</th>
</tr>
</thead>
<tbody>
<tr>
<td>100    25    50</td>
</tr>
<tr>
<td>200    10    29</td>
</tr>
</tbody>
</table>

4. Start over at one end of the rope and walk about halfway this time, again taking careful heel-to-toe steps as students count with you. Stop around the mid-point and ask students to look at the chart of estimates. Do they see any numbers that could be eliminated? Ask a volunteer to cross out the numbers as his or her classmates make suggestions.

**Students**  Let's cross out 200. There's no way Mr. Lugo is going to take 200 steps.
No way for 100 either.
It can't be 10 because he's already gone 10 and there's still more of the rope.
I think it's going to be 20.

5. When some of the estimates have been crossed out, finish measuring the length of the jump rope as students count with you. Record the results on a new piece of chart paper or a different location on the whiteboard. Then choose a volunteer to measure the jump rope in the same manner. Ask this student to estimate how many steps it will take her to measure the rope, and record her guess on the board, using a chart similar to the one shown on the next page.

**Teacher**  Karina, I've pulled the stick with your name on it out of our feely box. Would you be willing to measure the jump rope with your feet?

**Karina**  Sure!

**Teacher**  It took me 21 steps to measure the length of the rope. How many steps do you think it will take you?

**Karina**  Maybe about 25.

6. Have your volunteer measure the length of the rope, taking careful heel-to-toe footsteps just like you did. Record the results on your chart and discuss them with the class. More than likely, it took the volunteer more footsteps than you to measure the rope. Why?

7. Repeat steps 5 and 6 with two other volunteers. Discuss the results with the class. Are they the same or different? Why?
**Activity 3** How Long Is the Jump Rope? (cont.)

The jump rope is 21 of Mr. Lugo’s steps. How many of your steps will it take to measure the jump rope?

<table>
<thead>
<tr>
<th></th>
<th>Guess</th>
<th>Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karina</td>
<td>25</td>
<td>40</td>
</tr>
<tr>
<td>Hunter</td>
<td>40</td>
<td>35</td>
</tr>
<tr>
<td>Bianca</td>
<td>50</td>
<td>42</td>
</tr>
</tbody>
</table>

8. Let students know that you’ll extend the chart to include a line for every child, labeled with his or her name. Over the next few days, you’ll give each of them a turn to measure the jump rope with their feet, entering an estimate first and then the actual results.

**Extensions**

- Once the chart described above is complete, discuss it with the class. You might pose some of the following questions:
  - Who took the most steps to measure the jump rope?
  - Who took the fewest?
  - Did anyone get the same answer as someone else in class?
  - Why did children get different answers?
  - Would it work the same way if you measured something else? Why or why not?

- After all the students have had a chance to measure the jump rope, read *How Big is a Foot?* to the class. This book was first published in 1962 and reprinted in 1990. Chances are good you'll find it in your school library. It’s a cute story, very accessible to first graders, and helps students understand the need for standard units of measure. It provides a good follow-up to this activity and a nice introduction to the measuring activities in Unit Four, Penguins.
GRADE 1 SUPPLEMENT

Set D7  Measurement: Telling Time

Includes
Activity 1: The Alarm Clock D7.1
Activity 2: Analog & Digital Clocks: A Match Game D7.3
Activity 3: Danny’s School Day D7.9

Skills & Concepts
★ read time to the hour and half hour using digital and analog clocks
Bridges in Mathematics Grade 1 Supplement

Set D7 Measurement: Telling Time

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**Set D7 ★ Activity 1**

**The Alarm Clock**

**Overview**
Students read time to the hour and half hour on a digital and analog clock.

**Skills & Concepts**
- read time to the hour and half hour using digital and analog clocks

**You’ll need**
- a digital alarm clock
- an analog clock other than your classroom clock (optional)
- How to Tell Time on Digital and Analog Clocks!, by Jules Older (optional)

**Instructions for the Alarm Clock**

1. Set your digital clock so that the time matches your classroom clock. Set the alarm to go off exactly on the hour (i.e., 10:00 AM or 1:00 PM). Choose a time when most students will be in the classroom and a short interruption in your routine won't be too disturbing. Place the digital clock as close as possible to your classroom clock, or directly beside a small analog clock set to the same time. If children comment on the new addition to the classroom, don't tell them that the alarm is going to ring. Let it be a surprise the first time.

2. When the alarm rings, draw children's attention to the digital clock and your classroom clock (or the analog clock you've set beside the digital clock for this activity). Shut off the alarm and ask them to tell the time on both clocks. If you taught Tuesday’s Time in the October and November Number Corner, most of your students may be able to read time to the hour on the analog clock, and will be familiar with the notation on the digital clock from having played the time matching games during those months. If not, explain how to read the digital clock and be sure they understand that the time on the digital clock is set to match the time on your classroom or analog clock.

3. Set the digital alarm clock to go off at a different hour for the next few days and repeat step 2 each time. Set the digital alarm for a different half hour (i.e., 9:30 AM, 11:30 AM, 1:30 PM) each day the following week. Repeat step 2 each time the alarm rings. Some students may enjoy predicting at what time the alarm will ring each day.
Activity 1  The Alarm Clock (cont.)

Extensions

- Encourage students to use the digital clock to help tell the time on your classroom clock at regularly scheduled times throughout the day, such as recess, lunchtime, gym time, story time, and so on. You may find that students start nagging you about the time if you tend to run late!
- Sometime during your designated “alarm clock” weeks, read a book about telling time to your students. There are usually several such books in a school library, though not all of them deal with both analog and digital clocks. How to Tell Time on Digital and Analog Clocks!, by Jules Older, published in 2000 by Charlesbridge Publishing, is one book that does.
- If you are able to set an analog clock directly next to your digital clock and keep both clocks there for an extended period of weeks, you may find that a few students who are particularly interested in learning to tell time will do so on their own, or with just a bit of encouragement and help from you.
Set D7 ★ Activity 2

Analog & Digital Clocks A Match Game

Overview
Students review time to the hour and half hour by matching cards that show clock faces with cards that show digital clocks.

Skills & Concepts
★ read time to the hour and half hour using digital and analog clocks

You’ll need
★ Digital Hour & Digital Half Hour Clock cards (pages D7.5–D7.8, see Advance Preparation)
★ Hour Clocks & Half Hour Clocks (see Advance Preparation)
★ pocket chart
★ your key ring, a small bell, or a piano

Advance Preparation To make the Digital Hour & Digital Half Hour Clocks, run 1 copy of each blackline. Cut the cards apart along the thin lines and laminate if desired.

You’ll find the Hour & Half Hour Clocks among your Number Corner Pocket Chart Cards. (If you’re using the Economy version of the Number Corner and haven’t yet prepared these cards, you’ll find them in the Number Corner Components & Pocket Chart Cards blacklines.) After you’ve prepared all the cards, you’ll have 19 pairs of matching analog and digital clocks—38 cards in all. Match each analog clock with the corresponding digital clock before you stack the cards for use during this activity. Each student will need just 1 card, so depending your class size, you may want to set some of the pairs aside.

Instructions for Analog & Digital Clocks: A Match Game
1. Gather children to your discussion circle. Show them a few of the Hour & Half Hour Clocks and ask them to read the time on each. Then show them a few of the Digital Hour & Digital Half Hour Clocks and have them read the time on each.
2. Explain that you're going to pass out all of the analog and digital clock cards. Students will need to keep their cards hidden from one another until they hear you jingle your keys (or give some other signal, such as ringing a small bell or playing a melody on the piano). When the keys begin to jingle, everyone will get up and look for his or her partner. You'll be watching carefully and you'll stop jingling the keys as soon as you see that every card has a proper match.

3. Hand out the cards and then jingle your keys. Guide students' efforts as needed. (If you've never played the Match Game during Number Corner, you may want to give out cards to just half your students while the other half of the class stays seated. Make sure you hand out matching pairs so that each student holding a card will be able to find a partner.) Stop jingling your keys as soon as all of the cards are matched.

4. Ask children to return to the discussion circle and be seated with their partner. Call on children, two at a time, to place their matching cards into the pocket chart. Do all the pairs match? If you played the game with only half the class, repeat step 3 with the other half, using the pairs of cards you set aside the first time.

**Extension**

- Leave some or all of the pairs of analog and digital clock cards out for students to use during Work Places. You may want to shuffle the collection and have students work in pairs to match the clocks on their own, working on the floor or placing the cards in the pocket chart. Or, you might display all of the digital (or analog) clock cards in the pocket chart and leave the stack of analog (or digital) clock cards available for students to insert where they belong on the chart.
Digital Hour & Half Hour Clock Cards page 1 of 4

Digital Hour & Half Hour Clock Card

Digital Hour & Half Hour Clock Card

Digital Hour & Half Hour Clock Card

Digital Hour & Half Hour Clock Card

Digital Hour & Half Hour Clock Card

Digital Hour & Half Hour Clock Card

Digital Hour & Half Hour Clock Card
Digital Hour & Half Hour Clock Cards
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Digital Hour & Half Hour Clock Card

Digital Hour & Half Hour Clock Card
Digital Hour & Half Hour Clock Cards
Set D7 ★ Activity 3

Danny’s School Day

Overview
Students complete 2 worksheets that involve telling time to the hour and half hour on digital and analog clocks.

Skills & Concepts
★ read time to the hour and half hour using digital and analog clocks

Recommended Timing
Anytime after Set D7 Activities 1 and 2

Instructions for Danny’s School Day
1. Gather children to your discussion circle. Ask each of them to bring a clipboard or a large picture book with them so they’ll have a hard surface to write on. They’ll also each need a pencil. As they're getting organized, post a copy of Danny's School Day, front side up, on an easel or the whiteboard where you can reach it easily and the children can see it.

2. Once they’re seated in the circle, give each student a copy of the double-sided worksheet, and ask them to write their names on the front. Read the sentence at the top of the sheet to your class and give students a chance to comment.

Students  My brother’s name is Danny. I wonder if he’s in first grade like us. There are a bunch of clocks on this paper.
3. Read problem 1 with the children. Ask them to point to the clock on their sheets that says 8:00, checking with the people sitting next to them to see if they agree. Invite a volunteer to come up and point to the clock that says 8:00 on your sheet and explain why.

    Ramon   It’s this one because the other one says 9 on it. And this other clock says eight-three-oh, so it means 8:30.

    Andrea  Yeah! Eight o’clock is eight-oh-oh.

Ask your volunteer to circle the correct clock as students do so on their own sheets.

4. Complete the other 5 problems on sheet 1 as described in step 3. Then have students turn their papers over as you do the same with yours. Read sheet 2 to the class and model how to draw a line to match the first pair of clocks, working with input from the children. If most students seem confident with the task, send them back to their tables and ask them to complete the sheet independently. If it seems like many of them will need help, do the sheet together in the discussion circle, encouraging them to help one another as much as possible while you provide additional guidance.
This is Danny. He goes to school every day except Saturday and Sunday, just like you do.

1. At 8:00, Danny gets on the bus. Circle the clock that says 8:00.

2. At 10:00, Danny’s class goes to recess. Circle the clock that says 10:00.

3. At 11:30, Danny’s class does math. Circle the clock that says 11:30.

4. At 12:30, Danny’s class goes to lunch. Circle the clock that says 12:30.

5. At 1:00, Danny’s class has Story Time. Circle the clock that says 1:00.
Danny's School Day  sheet 2

Here are some other times in Danny's school day. Draw lines to connect the clocks that tell the same time.

School Starts

Reading Time

Writing Time

P.E.

Science Time

School Ends
GRADE 1 SUPPLEMENT

Set E1 Data Analysis: Bar Graphs

Includes
Activity 1: Which Book Shall We Read Tomorrow? E1.1
Activity 2: What’s Your Favorite Vegetable? E1.3

Skills & Concepts
★ pose questions and gather data
★ represent data using bar graphs
★ describe the data and draw conclusions
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*Bridges in Mathematics* is a standards-based K–5 curriculum that provides a unique blend of concept development and skills practice in the context of problem solving. It incorporates the Number Corner, a collection of daily skill-building activities for students.

The Math Learning Center is a nonprofit organization serving the education community. Our mission is to inspire and enable individuals to discover and develop their mathematical confidence and ability. We offer innovative and standards-based professional development, curriculum, materials, and resources to support learning and teaching. To find out more, visit us at www.mathlearningcenter.org.
Activity 1

Which Book Shall We Read Tomorrow?

Overview
Students create and discuss a bar graph to choose the book they’d most like to hear at story time the following day.

Skills & Concepts
★ pose questions and gather data
★ represent data using bar graphs
★ describe the data and draw conclusions

You’ll need
★ 3 books (see Advance Preparation)
★ 3" × 3" sticky notes

Advance Preparation
Choose 3 picture books that are likely to appeal to your students.

Instructions for Which Book Shall We Read Tomorrow?
1. Gather children to your discussion circle. Show them the three books you’ve selected and explain that you need their help in deciding which to read at story time tomorrow. Take a few minutes to examine the books with the class, looking at the covers and some of the illustrations. Perhaps you’ve selected books written by authors already known to the children or books that feature well-loved characters or topics.

2. Now explain that they’re going to work together to create a graph that will tell you which book to read. List the titles of the books along the bottom of the whiteboard. Work with input from the class to generate a symbol for each book, similar to the example below:

```
Which book shall we read tomorrow?

Stellaluna  Digging Up Dinosaurs  Dogzilla
```

3. Show students the sticky notes and explain that they’ll each get one in a minute. When they do, they’ll need to write their name on the note and draw the symbol that matches the book they’d like most to hear. In order to allow each person to make his or her own decision, ask them to do this without talking to one another. As soon as they get their note, have them take it to their table, write their name and symbol, bring the note back to the circle, and sit down quietly.

4. When they’ve all returned to the circle, call them up to the board a few at a time to post their notes above the book they chose. Stop periodically to discuss the results. How many children have voted for each book? How many votes are already up on the board? How many votes still need to be posted? Which book has received the most votes so far? Which one has received the fewest? How many more (or fewer) children have voted for one book than another?
**Activity 1 Which Book Shall We Read Tomorrow?** (cont.)

Students  It's 4, 3, and 6 so far.
There's 13 up there—1 counted!
Dogzilla has the most so far. I hope it wins!
Digging Up Dinosaurs doesn't have very many yet—only 3.

Teacher  How many more people have voted for Dogzilla than Stellaluna so far?

Dante  2 more! You can see 2 extras sticking up on top.

Teacher  How many fewer votes are there for Digging Up Dinosaurs than Dogzilla?

Marissa  3 because 3 and 3 is 6.

5. When all the votes have been posted, record the number of votes each book received at the top of the columns. Then ask students to draw some conclusions. What does this graph tell them?

Students  More people want Dogzilla than the other books.
That's the book we're going to read tomorrow.
Stellaluna got the next most votes. We should read that one the next day.
Digging Up Dinosaurs didn't get many votes, but some kids want to hear it.
Maybe we could read it the next day.
Set E1 ★ Activity 2

What's Your Favorite Vegetable?

Overview
Students create and discuss a graph about the raw vegetables they like to eat for lunch.

Skills & Concepts
★ pose questions and gather data
★ represent data using bar graphs
★ describe the data and draw conclusions

Recommended Timing
Anytime after Set E1 Activity 1

You’ll need
★ a piece of chart paper (see Advance Preparation)
★ a felt pen
★ a yardstick

Advance Preparation
Rule off columns and rows on a piece of chart paper to create a blank 3-column graph similar to the one shown below.

Instructions for What’s Your Favorite Vegetable?
1. Gather children to your discussion circle. Ask them to discuss some of the raw vegetables people usually eat for lunch. Record the three that seem to come up most often at the bottom of the chart paper graph you’ve prepared.

<table>
<thead>
<tr>
<th></th>
<th>Carrots</th>
<th>Celery</th>
<th>Tomatoes</th>
</tr>
</thead>
</table>

2. Over the course of the day, have students each write their name in the column that shows their favorite of the three. Remind them to work from the bottom of the graph up.
3. Later in the day or the following day, when everyone’s had a chance to enter his or her name, take some time to discuss the results. Ask students to share any observations they have about the data, and pose questions such as the ones listed below:

- How many votes did each vegetable get?
- Which vegetable is most popular in our class? How do you know?
- Which vegetable is least popular? How do you know?
- How many more votes did carrots get than celery?
- How many fewer votes did tomatoes get?
- How many votes are there in all? How did you count them?
- Do you think the graph would turn out the same way in a different first grade? Why or why not?

4. Finally, ask students to draw some conclusions. What does this graph tell them? Who else might find the information useful?

**Teacher**  What does this graph tell us?

**Students**  Kids like carrots more than celery or tomatoes.
Not many kids like tomatoes. I think it’s ‘cause they’re squishy.
Yeah! I think kids like crunchy stuff better.

**Teacher**  Can you think of anyone who might be interested in seeing our graph?

**Students**  Mrs. Gonzalez!
Yeah, let’s take it down to the office to show her.
No, I know! Let’s take it to the cafeteria ladies so they can see which vegetables we like best.
I want to show it to my mom. She always puts tomatoes in my lunch.
BRIDGES GRADE 1

PUBLISHER’S CORRELATIONS TO COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 1
Bridges Grade 1 Correlations to Common Core State Standards

Common Core State Standards for Mathematics, Grade 1

In Grade 1, instructional time should focus on four critical areas: (1) developing understanding of addition, subtraction, and strategies for addition and subtraction within 20; (2) developing understanding of whole number relationships and place value, including grouping in tens and ones; (3) developing understanding of linear measurement and measuring lengths as iterating length units; and (4) reasoning about attributes of, and composing and decomposing geometric shapes.

(1) Students develop strategies for adding and subtracting whole numbers based on their prior work with small numbers. They use a variety of models, including discrete objects and length-based models (e.g., cubes connected to form lengths), to model add-to, take-from, put-together, take-apart, and compare situations to develop meaning for the operations of addition and subtraction, and to develop strategies to solve arithmetic problems with these operations. Students understand connections between counting and addition and subtraction (e.g., adding two is the same as counting on two). They use properties of addition to add whole numbers and to create and use increasingly sophisticated strategies based on these properties (e.g., “making tens”) to solve addition and subtraction problems within 20. By comparing a variety of solution strategies, children build their understanding of the relationship between addition and subtraction.

(2) Students develop, discuss, and use efficient, accurate, and generalizable methods to add within 100 and subtract multiples of 10. They compare whole numbers (at least to 100) to develop understanding of and solve problems involving their relative sizes. They think of whole numbers between 10 and 100 in terms of tens and ones (especially recognizing the numbers 11 to 19 as composed of a ten and some ones). Through activities that build number sense, they understand the order of the counting numbers and their relative magnitudes.

(3) Students develop an understanding of the meaning and processes of measurement, including underlying concepts such as iterating (the mental activity of building up the length of an object with equal-sized units) and the transitivity principle for indirect measurement. (Note: Students should apply the principle of transitivity of measurement to make indirect comparisons, but they need not use this technical term.)

(4) Students compose and decompose plane or solid figures (e.g., put two triangles together to make a quadrilateral) and build understanding of part-whole relationships as well as the properties of the original and composite shapes. As they combine shapes, they recognize them from different perspectives and orientations, describe their geometric attributes, and determine how they are alike and different, to develop the background for measurement and for initial understandings of properties such as congruence and symmetry.

Taken from the Common Core State Standards for Mathematics 2010, pages 13 & 14.
Bridges Grade 1 Correlations to Common Core State Standards (cont.)

**OPERATIONS AND ALGEBRAIC THINKING 1.OA**

1.OA.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions. (e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.)

- Unit 1, Sessions 6–10
- Unit 2, Sessions 3, 8, 15, 23–25
- Unit 2, Work Places 2F, 2G
- Unit 3, Sessions 1, 2, 11, 12, 13, 15, 16
- Unit 4, Sessions 27, 29, 30*
- Unit 6, Sessions 27, 28, 30*

Set A3 Number & Operations: Addition & Subtraction on the Number Line, Activities 1–3

Set A9 Number & Operations: Number Puzzles Calendar Pattern

Set B1 Algebra: Properties & Relationships, Activities 1–3 and Ind. Worksheets 1–3

Bridges Practice Book, pp 4, 5, 8, 9, 44

Informal

- Unit 1, Session 10 (Work Sample)
- Unit 3, Session 16 (Work Sample)
- Unit 6, Day 16 (Work Sample)

Formal

- Grade 1 Picture Problems, all sets

1.OA.2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20 (e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem)

- Unit 3, Sessions 5, 14
- Unit 3, Work Places 3C, 3G
- Unit 6, Sessions 27, 28*

Set A3 Number & Operations: Addition & Subtraction on the Number Line, Activities 2 & 3

Set A4 Number & Operations: Activities 1 & 2

Bridges Practice Book, pp 9, 51

Informal

- Bridges Practice Book, pp 9, 51

Formal

- Grade 1 Yearlong Skills Interview, Tasks 6, 7, 8
- Grade 1 Picture Problems, all sets**

1.OA.3. Apply properties of operations as strategies to add and subtract. (Students need not use formal terms for these properties.)

- Unit 2, Sessions 3, 8, 23, 24
- Unit 3, Sessions 1, 2, 11, 12
- Unit 3, Sessions 13, 15, 16
- Unit 4, Sessions 7, 11*
- Unit 6, Sessions 27, 28*

Set A4 Number & Operations: Equivalent Names, Activities 1–3

Set B1 Algebra: Properties & Relationships, Activities 1–3 and Ind. Worksheets 1–3

Bridges Practice Book, pp 12, 37, 38

Informal

- Bridges Practice Book, pp 12, 37, 38

Formal

- Grade 1 Yearlong Skills Interview, Task 6
- Grade 1 Picture Problems, all sets**

1.OA.4. Understand subtraction as an unknown-addend problem. For example, subtract 10 – 8 by finding the number that makes 10 when added to 8.

- Unit 2, Sessions 23, 24
- Unit 3, Sessions 11–13, 15, 16
- Unit 4, Sessions 27, 29, 30*

Set A9 Number & Operations: Number Puzzles Calendar Pattern

Set B1 Algebra: Properties & Relationships, Activities 1–3 and Ind. Worksheets 1–3

Bridges Practice Book, pp 18, 35, 40

Informal

- Bridges Practice Book, pp 18, 35, 40

Formal

- Grade 1 Yearlong Skills Interview, Task 6
- Grade 1 Picture Problems, all sets**

1.OA.5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2; by counting back 2 from a number to subtract 2).

- March Monday Challenges 1–4
- September Wednesday Challenges 3 & 4
- May Friday’s Figuring 3

1.OA.6. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.

- Equations (third grade) have the symbol on the left side and the equal sign followed by a symbol on the right side.
- Examples: 7 = 2 + 5 (true), 6 = 9 – 3 (false)

- The symbol does not provide information about the quantities; it presents a relationship between the expressions.

- Examples: 5 + 2 = 2 + 5 (true) (Commutative Property of Addition)
- Examples: 5 + 6 = 6 + 5 (true) (Commutative Property of Addition)
- Examples: 5 + 6 = 11 (true) (Closure Property of Addition)
- Examples: 5 = 5 (true) (Identity Property of Addition)
- Examples: 5 + 0 = 5 (true) (Identity Property of Addition)
- Examples: 5 + 4 = 9 (false)

Grade 1 Picture Problems can be accessed under “Assessment Tools” on the Bridges Support for Grade 1 Teachers page at http://mathlearningcenter.org/resources/materials/grade-one

Note: Citations for Units 4 and 6 are based on revised Unit Planners found in Supplement Sets A10 and A11 on pages A10.4–A10.6 and A11.3–A11.5 in the CCSS Supplement.
### Bridges Grade 1 Correlations to Common Core State Standards (cont.)

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<td></td>
<td>Grade 1 Picture Problems, all sets**</td>
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* Citations for Units 4 and 6 are based on revised Unit Planners found in Supplement Sets A10 and A11 on pages A10.4–A10.6 and A11.3–A11.5 in the CCSS Supplement.

** The Grade 1 Fact Fluency Assessment can be accessed under "Assessment Tools" on the Bridges Support for Grade 1 Teachers page at http://mathlearningcenter.org/resources/materials/grade-one
## Bridges Grade 1 Correlations to Common Core State Standards

### OPERATIONS & ALGEBRAIC THINKING 1.OA

#### 1.OA.7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 − 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.

- **Unit 2, Sessions 5, 8, 15, 23, 24**
- **Unit 2, Work Places 2B, 2D, 2F, 2G**
- **Unit 3, Sessions 1, 2, 4, 5, 14**
- **Unit 3, Work Places 3B, 3C, 3G**

#### 1.OA.8. Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 + x = 11, 5 = x − 3, 6 + 6 = x.

- **Unit 2, Session 15**
- **Unit 2, Work Places 2B, 2F, 2G**
- **Unit 4, Sessions 27, 29, 30**

### NUMBER AND OPERATIONS IN BASE TEN 1.NBT

#### 1.NBT.1a. Count to 120, starting at any number less than 120.

- **Unit 1, Session 1**
- **Unit 2, Sessions 1, 10, 11, 14, 17, 18**
- **Unit 2, Work Place 2H**
- **Unit 3, Sessions 20, 21**
- **Unit 4, Sessions 3, 6, 8, 9, 12, 15, 16, 18, 20, 21, 24**

### Number Corner

- **Set A1 Number & Operations: Numbers to 120, Activities 1–4**
- **Set A5 Number & Operations: Place Value, Activities 1–3**
- **Bridges Practice Book, pp 11, 13, 15, 16, 19, 20, 22, 23, 24, 27, 30, 33, 43, 46, 50**

### Formal

- **Unit 3, Session 2 (Work Sample)**
- **Unit 3, Session 3 (Work Sample)**
- **Unit 4, Session 1 (Work Sample)**

### Informal

- **Unit 3, Session 2 (Work Sample)**
- **Unit 3, Session 3 (Work Sample)**
- **Unit 4, Session 1 (Work Sample)**

---

**Assessment:**

- **:number**
- **:operator**
- **:operator**
- **:operator**

**Support:**

- **:operator**
- **:operator**
- **:operator**

**Number Corner:**

- **:operator**
- **:operator**
- **:operator**

**Bridges (Sessions, WP, HC):**

- **:operator**
- **:operator**
- **:operator**

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**Problem Set:**

- **:operator**
- **:operator**
- **:operator**

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**Operations & Algebraic Thinking 1.OA**

- **:operator**
- **:operator**
- **:operator**

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**Grade 1 Yearlong Skills Interview, Tasks 1, 3**

- **:operator**
- **:operator**
- **:operator**

**Grade 1 Yearlong Skills Paper/Pencil Assessment**

- **:operator**
- **:operator**
- **:operator**

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* Citations for Units 4 and 6 are based on revised Unit Planners found in Supplement Sets A10 and A11 on pages A10.4–A10.6 and A11.3–A11.5 in the CCSS Supplement.

**The Grade 1 Yearlong Skills Interview and Paper/Pencil Assessment can be accessed under Assessment Tools on the Bridges Support for Grade 1 Teachers page at http://mathlearningcenter.org/resources/materials/grade-one.
### NUMBER AND OPERATIONS IN BASE TEN 1.NBT

<table>
<thead>
<tr>
<th>Standard</th>
<th>Bridges (Sessions, WP, HC)</th>
<th>Number Corner</th>
<th>Supplement</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Extend the Counting Sequence</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.NBT.1a. In this range, read and write numerals and</td>
<td>Unit 2, Sessions 11, 14</td>
<td>Sep/Feb/Apr Tuesday’s Time, Tally &amp; Temperature</td>
<td>Set A1 Number &amp; Operations: Numbers to 120, Activities 1–4</td>
<td>Formal</td>
</tr>
<tr>
<td></td>
<td>Unit 4, Sessions 3, 6, 8, 9, 12, 15, 16, 18, 20, 21, 24*</td>
<td>Oct/Nov Wed. Workouts</td>
<td>Set A5 Number &amp; Operations: Place Value, Activities 1–3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit 6, Sessions 3, 4, 6, 7, 8, 11–13, 16–19*</td>
<td>Dec/Jan/Mar Monday’s Money</td>
<td>Bridges Practice Book, pp 1, 2, 3, 11, 12, 13, 15, 16, 19, 20, 22, 23, 24, 27, 30, 33, 43, 46</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sep/Feb/Apr Tuesday’s Time, Tally &amp; Temperature</td>
<td>Dec/Jan/Mar Monday’s Money</td>
<td>Bridges Practice Book, pp 1, 2, 3, 11, 12, 13, 15, 16, 19, 20, 22, 23, 24, 27, 30, 33, 43, 46</td>
<td></td>
</tr>
<tr>
<td>1.NBT.1c. Represent a number of objects with a written numeral.</td>
<td>Unit 4, Sessions 11, 24*</td>
<td>Nov Wednesday’s Workout</td>
<td>Set A1 Number &amp; Operations: Numbers to 120, Activities 1–4</td>
<td>Formal</td>
</tr>
<tr>
<td></td>
<td>Unit 6, Session 26*</td>
<td>Dec/Jan/Mar Monday’s Money</td>
<td>Set A5 Number &amp; Operations: Place Value, Activities 1–3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bridges Practice Book, pp 2, 3, 13, 16, 19, 20, 23, 27, 30, 33, 43, 50</td>
<td></td>
</tr>
<tr>
<td><strong>Understand place value.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.NBT.2. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.NBT.2a. 10 can be thought of as a bundle of ten ones — called a “ten.”</td>
<td>Unit 1, Session 13</td>
<td>Sep/Nov/Dec/Feb Wed. Workout</td>
<td>Set A1 Number &amp; Operations: Numbers to 120, Activities 1–4</td>
<td>Formal</td>
</tr>
<tr>
<td></td>
<td>Unit 2, Sessions 1, 10, 11, 19–22</td>
<td>Oct/Nov Mar Thursday’s Thinking</td>
<td>Set A5 Number &amp; Operations: Place Value, Activities 1–3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit 2, Work Places 2J, 2I</td>
<td></td>
<td>Bridges Practice Book, pp 19, 30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit 4, Sessions 4, 11*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit 6, Sessions 3, 4, 6, 7, 8, 11–13, 16–19*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.NBT.2b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.</td>
<td>Unit 1, Session 13</td>
<td>Oct/Nov Mar Thursday’s Thinking</td>
<td>Set A1 Number &amp; Operations: Numbers to 120, Activities 1–4</td>
<td>Formal</td>
</tr>
<tr>
<td></td>
<td>Unit 2, Sessions 19–22</td>
<td>Nov/Dec/Feb Wed. Workout</td>
<td>Set A5 Number &amp; Operations: Place Value, Activities 1–3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit 2, Work Places 2J, 2I</td>
<td></td>
<td>Bridges Practice Book, pp 3, 21, 22, 30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit 4, Sessions 4, 11*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit 6, Sessions 3, 4, 6, 7, 8, 11–13, 16–19*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.NBT.2c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).</td>
<td>Unit 1, Session 13</td>
<td>Sep/Nov/Dec/Feb Wed. Workout</td>
<td>Set A1 Number &amp; Operations: Numbers to 120, Activities 1–4</td>
<td>Formal</td>
</tr>
<tr>
<td></td>
<td>Unit 2, Sessions 1, 10, 11, 20–22</td>
<td>Mar Thursday’s Thinking</td>
<td>Set A5 Number &amp; Operations: Place Value, Activities 1–3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit 2 Work Place 2J</td>
<td></td>
<td>Bridges Practice Book, pp 23, 30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit 4, Sessions 4, 11*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit 6, Sessions 3, 4, 6, 7, 8, 11–13, 16–19*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Citations for Units 4 and 6 are based on revised Unit Planners found in Supplement Sets A10 and A11 on pages A10.4–A10.6 and A11.3–A11.5 in the CCSS Supplement.
# Bridges in Mathematics Grade 1 CCSS Correlations (cont.)

## NUMBER AND OPERATIONS IN BASE TEN 1.NBT

### 1.NBT.3a. Compare two two-digit numbers based on meanings of the tens and ones digits.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Session</th>
<th>Supplement</th>
<th>Number Corner Supplement Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>Oct–Feb</td>
<td>Tuesday's Time, Tally &amp; Temperature</td>
</tr>
<tr>
<td>4</td>
<td>4, 7, 8</td>
<td>Mar</td>
<td>Monday's Money</td>
</tr>
<tr>
<td>4</td>
<td>9, 16</td>
<td>Feb</td>
<td>Wednesday's Workout</td>
</tr>
<tr>
<td>6</td>
<td>8, 13</td>
<td>Dec/Feb</td>
<td>Wednesday's Workout</td>
</tr>
<tr>
<td>6</td>
<td>13*</td>
<td>Mar</td>
<td>Thursday's Thinking</td>
</tr>
<tr>
<td>6</td>
<td>16–19*</td>
<td>Dec/Feb</td>
<td>Wednesday's Workout</td>
</tr>
<tr>
<td>6</td>
<td>19</td>
<td>Mar</td>
<td>Thursday's Thinking</td>
</tr>
<tr>
<td>6</td>
<td>26*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit</th>
<th>Session</th>
<th>Supplement</th>
<th>Number Corner Supplement Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>4, 7</td>
<td>Nov/Apr</td>
<td>Monday's Money</td>
</tr>
<tr>
<td>6</td>
<td>3, 6, 7, 8, 11–13</td>
<td>Nov</td>
<td>Monday's Money</td>
</tr>
<tr>
<td>6</td>
<td>11–19*</td>
<td>Mar</td>
<td>Thursday's Thinking</td>
</tr>
</tbody>
</table>

### 1.NBT.3b. Recording the results of comparisons with the symbols >, =, and <.

<table>
<thead>
<tr>
<th>Set</th>
<th>Number &amp; Operations: Numbers to 120, Activities 1–4</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Bridges Practice Book, pp 36</td>
</tr>
</tbody>
</table>

### 1.NBT.4a. Add within 100, including adding a two-digit number and a one-digit number.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Session</th>
<th>Supplement</th>
<th>Number Corner Supplement Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>4, 7</td>
<td>Nov/Apr</td>
<td>Monday's Money</td>
</tr>
<tr>
<td>6</td>
<td>3, 6, 7, 8, 11–13</td>
<td>Nov</td>
<td>Monday's Money</td>
</tr>
<tr>
<td>6</td>
<td>11–19*</td>
<td>Mar</td>
<td>Thursday's Thinking</td>
</tr>
</tbody>
</table>

### 1.NBT.4b. And adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Session</th>
<th>Supplement</th>
<th>Number Corner Supplement Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>4, 7</td>
<td>Nov/Apr</td>
<td>Monday's Money</td>
</tr>
<tr>
<td>6</td>
<td>3, 4, 6, 7, 8, 11–13</td>
<td>Nov</td>
<td>Monday's Money</td>
</tr>
<tr>
<td>6</td>
<td>11–19*</td>
<td>Mar</td>
<td>Thursday's Thinking</td>
</tr>
</tbody>
</table>

### 1.NBT.4c. Relate the strategy to a written method and explain the reasoning used.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Session</th>
<th>Supplement</th>
<th>Number Corner Supplement Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>3, 4</td>
<td>Dec/Feb</td>
<td>Wednesday's Workout</td>
</tr>
<tr>
<td>6</td>
<td>13</td>
<td>Mar</td>
<td>Thursday's Thinking</td>
</tr>
</tbody>
</table>

### 1.NBT.4d. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Session</th>
<th>Supplement</th>
<th>Number Corner Supplement Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>3, 4, 6, 7, 8, 11–13</td>
<td>Dec/Feb</td>
<td>Wednesday's Workout</td>
</tr>
<tr>
<td>6</td>
<td>13</td>
<td>Mar</td>
<td>Thursday's Thinking</td>
</tr>
</tbody>
</table>

### 1.NBT.5a. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Session</th>
<th>Supplement</th>
<th>Number Corner Supplement Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>3, 4, 6, 7, 8, 11–13</td>
<td>Dec/Feb</td>
<td>Wednesday's Workout</td>
</tr>
<tr>
<td>6</td>
<td>13</td>
<td>Mar</td>
<td>Thursday's Thinking</td>
</tr>
</tbody>
</table>

### 1.NBT.5b. Explain the reasoning used.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Session</th>
<th>Supplement</th>
<th>Number Corner Supplement Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>3, 4, 6, 7, 8, 11–13</td>
<td>Dec/Feb</td>
<td>Wednesday's Workout</td>
</tr>
<tr>
<td>6</td>
<td>13</td>
<td>Mar</td>
<td>Thursday's Thinking</td>
</tr>
</tbody>
</table>

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### Supplementary Assessments

- **Assessment:** Focus on understanding and properties of operations to add and subtract.
  - Set A1: Number & Operations: Place Value
  - Set A2: Number & Operations: Number & Operations
  - Set A3: Number & Operations: Place Value
  - Set A4: Number & Operations: Number & Operations
  - Set A5: Number & Operations: Place Value

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### Bridges (Session, WP, HC)

- **Formal:** Grade 1 Yearlong Skills Paper/Pencil Assessment
- **Informal:** Bridges Practice Book, pp 12, 15, 36, 38, 54, 63

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* Citations for Units 4 and 6 are based on revised unit planners found in Supplement Sets A10 and A11 of the CCSS Supplement.
### NUMBER AND OPERATIONS IN BASE TEN 1.NBT

<table>
<thead>
<tr>
<th>Standard</th>
<th>Bridges (Sessions, WP, HC)</th>
<th>Number Corner</th>
<th>Supplement</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.NBT.6a. Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction;</td>
<td></td>
<td>Mar Thursday's Thinking May Thursday's Thinking</td>
<td>Informal Bridges Practice Book, pp 12, 15, 36, 38, 54, 63</td>
<td></td>
</tr>
<tr>
<td>1.NBT.6b. relate the strategy to a written method and explain the reasoning used.</td>
<td></td>
<td>Mar Thursday’s Thinking May Thursday’s Thinking</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### MEASUREMENT AND DATA 1.MD

<table>
<thead>
<tr>
<th>Standard</th>
<th>Bridges (Sessions, WP, HC)</th>
<th>Number Corner</th>
<th>Supplement</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.MD.1a. Order three objects by length;</td>
<td>Unit 4, Session 20*</td>
<td></td>
<td>Set A5 Number &amp; Operations: Place Value, Activity 3</td>
<td></td>
</tr>
<tr>
<td>1.MD.1b. compare the lengths of two objects indirectly by using a third object.</td>
<td>Unit 4, Session 26*</td>
<td></td>
<td>Set D1 Measurement: Comparing Length, Activities 1–5</td>
<td></td>
</tr>
<tr>
<td>1.MD.2a. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end;</td>
<td></td>
<td>Set A5 Number &amp; Operations: Place Value, Activity 3 Set D2 Measurement: Length in Non-Standard Units, Activities 1–3 Bridges Practice Book, pp 52, 67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.MD.2b. understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.</td>
<td>Unit 4, Sessions 3, 6, 8, 12, 15, 18, 20, 23*</td>
<td></td>
<td>Set A5 Number &amp; Operations: Place Value, Activity 3 Set D2 Measurement: Length in Non-Standard Units, Activities 1–3 Bridges Practice Book, pp 52, 67</td>
<td></td>
</tr>
</tbody>
</table>

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### Bridges Grade 1 Correlations to Common Core State Standards (cont.)

#### GEOMETRY 1.G

<table>
<thead>
<tr>
<th>Standard</th>
<th>Bridges (Sessions, WP, HC)</th>
<th>Number Corner</th>
<th>Supplement</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.G.1a. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size)</td>
<td>Bridges Practice Book pp. 27, 79</td>
<td>Number Corner: Assessment 3, 6</td>
<td>Number Corner: Assessments 3, 6</td>
<td>Formal</td>
</tr>
<tr>
<td>1.G.1b. Given sets of two-dimensional shapes (e.g., triangles, quadrilaterals), recognize and distinguish them in another context.</td>
<td>Bridges Practice Book pp. 6, 9</td>
<td>Number Corner: Assessment 1, 2</td>
<td>Number Corner: Assessments 1, 2</td>
<td>Informal</td>
</tr>
<tr>
<td>1.G.2. Partition circles and rectangles into two and four equal shares, describe the shares and describe the whole as two halves, four quarters, half of, or one fourth of the whole, and understand that equal shares of identical wholes need not have the same shape.</td>
<td>Bridges Practice Book pp. 23, 61, 63</td>
<td>Number Corner: Measurement Time</td>
<td>Number Corner: Measurement Time</td>
<td>Formal</td>
</tr>
</tbody>
</table>

#### MEASUREMENT AND DATA 1.MD

<table>
<thead>
<tr>
<th>Standard</th>
<th>Bridges (Sessions, WP, HC)</th>
<th>Number Corner</th>
<th>Supplement</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.MD.3. Tell and write time to hour and half-hour using both analog and digital clocks.</td>
<td>Informal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.MD.4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.</td>
<td>Bridges Practice Book pp. 27, 29</td>
<td>Number Corner: Assessment 3</td>
<td>Number Corner: Assessment 3</td>
<td>Formal</td>
</tr>
</tbody>
</table>

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Formal assessments are based on revised unit planners found in Supplement Sets A10 and A11 in the CCSS Supplement.
### Bridges Grade 1 Correlations to Common Core State Standards (cont.)

#### GEOMETRY 1.G

<table>
<thead>
<tr>
<th>Standard</th>
<th>Bridges (Sessions, WP, HC)</th>
<th>Number Corner</th>
<th>Supplement</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.G.1b.</td>
<td>build and draw shapes to possess defining attributes.</td>
<td></td>
<td>Set C4 Geometry: Symmetry Calendar Pattern</td>
<td>Formal</td>
</tr>
<tr>
<td></td>
<td>Unit 5, Sessions 7–10, 12, 14, 20</td>
<td></td>
<td>Set C6 Geometry: 2-D Shapes Attributes Calendar Pattern</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit 5, Work Places 4B, 4C, 4D, 4E, 4F, 4G, 4l</td>
<td></td>
<td>Set C8 Geometry: Congruent Shapes Calendar Pattern</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit 6, Sessions 3, 4, 9, 14, 23, 24*</td>
<td></td>
<td>Bridges Practice Book, pp 49</td>
<td></td>
</tr>
<tr>
<td>1.G.2.</td>
<td>Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and ( \frac{1}{4} )-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.</td>
<td></td>
<td>Unit 5 Interview 1 (Shape Makers)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit 2, Session 6</td>
<td>Sep Thursday’s Thinking</td>
<td>Set C4 Geometry: Symmetry Calendar Pattern</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit 5, Sessions 3–5, 14</td>
<td>Jan Wednesday’s Workout</td>
<td>Set C6 Geometry: 2-D Shapes Attributes Calendar Pattern</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit 5, Work Places 4B, 4C, 4D, 4G</td>
<td></td>
<td>Set C8 Geometry: Congruent Shapes Calendar Pattern</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit 5, pp 591–593 (Computer Work Places 1–4)</td>
<td></td>
<td>Bridges Practice Book, pp 49</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit 6, Sessions 3, 4, 9, 14, 23, 24*</td>
<td></td>
<td>Unit 5 Interview 1 (Shape Makers)</td>
<td></td>
</tr>
<tr>
<td>1.G.2a.</td>
<td>Partition circles and rectangles into two and four equal shares,</td>
<td></td>
<td>Set A6 Number &amp; Operations: Fractions, Activities 1–3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit 2, Session 12</td>
<td></td>
<td>Set C4 Geometry: Symmetry Calendar Pattern</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit 6, Session 23*</td>
<td></td>
<td>Set C6 Geometry: 2-D Shapes Attributes Calendar Pattern</td>
<td></td>
</tr>
<tr>
<td>1.G.2b.</td>
<td>describe the shares using the words halves, fourths, and quarters, and</td>
<td></td>
<td>Set C8 Geometry: Congruent Shapes Calendar Pattern</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit 2, Session 12</td>
<td></td>
<td>Bridges Practice Book, pp 49</td>
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<tr>
<td></td>
<td>Unit 6, Session 23*</td>
<td></td>
<td>Unit 5 Interview 1 (Shape Makers)</td>
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<tr>
<td>1.G.2c.</td>
<td>use the phrases half of, fourth of, and quarter of.</td>
<td></td>
<td>Set A6 Number &amp; Operations: Fractions, Activities 1–3</td>
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<td></td>
<td>Set C4 Geometry: Symmetry Calendar Pattern</td>
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<tr>
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<td>Unit 4, Sessions 27, 28*</td>
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<td>Set C6 Geometry: 2-D Shapes Attributes Calendar Pattern</td>
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<td>Unit 6, Session 23*</td>
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<td>Set C8 Geometry: Congruent Shapes Calendar Pattern</td>
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<tr>
<td>1.G.2d.</td>
<td>Describe the whole as two of, or four of the shares.</td>
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<td>Set A6 Number &amp; Operations: Fractions, Activities 1–3</td>
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<tr>
<td>1.G.2e.</td>
<td>Understand for these examples that decomposing into more equal shares creates smaller shares.</td>
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<td>Set C8 Geometry: Congruent Shapes Calendar Pattern</td>
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</tbody>
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* Citations for Units 4 and 6 are based on revised Unit Planners found in Supplement Sets A10 and A11 on pages A10.4–A10.6 and A11.3–A11.5 in the CCSS Supplement.
# Bridges in Mathematics & the Common Core State Standards (CCSS) – Grade 1

## Pacing Guide (157 Sessions Total)

|---|---|---|---|---|---|---|---|
| **OPERATIONS & ALG. THINKING**  
- Add & Subtract Word Problems  
- Understand Addition & Subtraction  
- Add & Subtract within 20, mastery to 10  
- Addition & Subtraction Equations |  
**NUMBER & OPS IN BASE 10**  
- Place Value to 120  
- Add & Subtract 2-Digit Numbers w/out Regrouping |  
**MEASUREMENT & DATA**  
- Compare and Order Lengths  
- Length in Non-Standard Units  
- Tell Time to the Half Hour  
- Data/3 Categories |  
**GEOMETRY**  
- 2-D and 3-D Shapes  
- Fractions of Shapes (half, quarter)  
- Area & Perimeter |  
**SUPPLEMENT SETS**  
Bridges Units: 1, 2, 3, 4  
Number Corner: Sep–May/June  
Supplement Sets: A3, A4, A9, B1 |  
**SET A1:** Numbers to 120 Use during NC. |  
**SET A2:** 20 Sessions From Land to Sea (Add/Subtract, Counting, Place Value, Money) |  
**SET A3:** 18 Sessions Lobster Legs & Whale Tails (Skip Counting, Add/Subtract Word Problems, Money, Sorting & Graphing) |  
**SET A4:** 30 Sessions Penguins (Length, Weight, Skip Counting, Facts to 18, Word Problems, Number to 100) |  
**SET A5:** Place Value of Shapes  
- Shapes, Area, Sorting & Graphing |  
**SET A6:** 14 Sessions Pattern Blocks, Polygons & Paper Quilts (2-D and 3-D Shapes, Composing & Decomposing Shapes, Symmetry, Area) |  
**SET A7:** Congruent Shapes  
- Use during NC. |  
**SET A8:** Bar Graphs Use during NC. |  
**SET A9:** Number Puzzles Use during NC. |

## Number Corner

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<th>Number Corner</th>
<th>OCT</th>
<th>DEC</th>
<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>APR</th>
<th>MAY/JUNE</th>
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</table>
| **Add & Subtract Word Problems**  
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- Add & Subtract Word Problems  
- Place Value to 120  
- Add & Subtract 2-Digit Numbers w/out Regrouping  
- Place Value of Shapes  
- Number Puzzles |  
- Skip counting: counting by 10’s and 1’s; basic facts (+); sorting, money, temperature |  
- Skip counting: counting by 10’s and 1’s; basic facts (+); sorting, money, temperature; time; data |  
- Skip counting: counting by 10’s and 1’s; basic facts (+); sorting, money, temperature; time; data |  
- Skip counting: counting by 10’s and 1’s; basic facts (+); sorting, money, temperature; time; data |  
- Skip counting: counting by 10’s and 1’s; basic facts (+); sorting, money, temperature; time; data |  
- Skip counting: counting by 100’s, 10’s and 1’s; basic facts (+); sorting, money, temperature; time; data |  
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