



# **Building Skills with Brick Math**

**An 8-Day Program to Sharpen Basic Math Skills**

## **Division**

## **Program Overview**

During this **Building Skills with Brick Math** program, students dive deeply into division. They use a variety of learning techniques including manipulatives, drawing, verbal explanation, physical movement, and song. Students work with a partner, use the vocabulary fluently in math conversations, and assess themselves on their abilities.

The program is written in the following daily format:

1. Introduction to the topic
2. Teacher and students work together on the new concepts
3. Student practice
4. Movement related to concepts
5. Student independent practice
6. Content assessment
7. Story problems
8. Self-assessment on content and partnering

The Brick Math program is successful because students transfer knowledge from using manipulatives to drawing and to verbal explanations.

Take the time your students need to learn each concept. Some classes will find one concept easily learned and a second concept much harder, requiring a slower pace. If all the daily activities are not completed during a session, you can choose to move the remaining activities to the following day or truncate an activity if you feel the students have fully learned the math concepts.

## Schedule

8 Days

1.5 – 2 Hours Per Day

Day 1	<b>Division Facts</b> <ul style="list-style-type: none"><li>• Divide with basic fact families</li><li>• Divide parts of a whole</li></ul>	<b>Vocabulary</b> <ul style="list-style-type: none"><li>• Division</li><li>• Whole</li><li>• Parts</li><li>• Fact Family</li></ul>
Day 2	<b>Factors</b> <ul style="list-style-type: none"><li>• Define factors</li><li>• Find all the factors of a number</li><li>• Make models of fact families</li></ul>	<b>Vocabulary</b> <ul style="list-style-type: none"><li>• Factors</li></ul>
Day 3	<b>Exploring Division</b> <ul style="list-style-type: none"><li>• How division relates to multiplication</li><li>• Division is repeated subtraction</li><li>• Model division facts</li></ul>	<b>Vocabulary</b> <ul style="list-style-type: none"><li>• Dividend</li><li>• Divisor</li><li>• Quotient</li></ul>
Day 4	<b>Equal Shares or Partitive Division</b> <ul style="list-style-type: none"><li>• Define partitive division</li><li>• Understand equal shares</li><li>• Divide into parts of a whole</li></ul>	<b>Vocabulary</b> <ul style="list-style-type: none"><li>• Partitive division</li><li>• Equal shares</li><li>•</li></ul>
Day 5	<b>Repeated Subtraction or Quotitive Division</b> <ul style="list-style-type: none"><li>• Define quotitive division</li><li>• Use repeated subtraction</li></ul>	<b>Vocabulary</b> <ul style="list-style-type: none"><li>• Quotitive division</li><li>•</li></ul>
Day 6	<b>Two-Digit Division</b> <ul style="list-style-type: none"><li>• Divide a two-digit number by a one-digit number</li><li>• Divide into parts of a whole</li><li>• Understand remainder</li></ul>	<b>Vocabulary</b> <ul style="list-style-type: none"><li>• Remainder</li></ul>

Day 7	<b>Diving Larger Numbers</b> <ul style="list-style-type: none"> <li>• Use place value to divide larger numbers</li> <li>• Define remainder</li> </ul>	<b>Vocabulary</b> <ul style="list-style-type: none"> <li>• Place value</li> <li>• Remainder</li> </ul>
Day 8	<b>Multiplication and Division</b> <ul style="list-style-type: none"> <li>• Use both multiplication and division to solve word problems</li> <li>• Build models to show the relationship between multiplication and division</li> </ul>	<b>Vocabulary</b> <ul style="list-style-type: none"> <li>• Remainder</li> <li>• Fact family</li> </ul>

**Common Core Math Standards addressed in the program:**

Represent and solve problems involving multiplication and division.

CCSS.MATH.CONTENT.3.OA.A.1

Interpret products of whole numbers, e.g., interpret  $5 \times 7$  as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as  $5 \times 7$ .*

CCSS.MATH.CONTENT.3.OA.A.2

Interpret whole-number quotients of whole numbers, e.g., interpret  $56 \div 8$  as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as  $56 \div 8$ .*

CCSS.MATH.CONTENT.3.OA.A.3

Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.<sup>1</sup>

CCSS.MATH.CONTENT.3.OA.A.4

Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations  $8 \times ? = 48$ ,  $5 = \_ \div 3$ ,  $6 \times 6 = ?$*

Understand properties of multiplication and the relationship between multiplication and division.

CCSS.MATH.CONTENT.3.OA.B.5

Apply properties of operations as strategies to multiply and divide.<sup>2</sup> *Examples: If  $6 \times 4 = 24$  is known, then  $4 \times 6 = 24$  is also known. (Commutative property of multiplication.)  $3 \times 5 \times 2$  can be found by  $3 \times 5 = 15$ , then  $15 \times 2 = 30$ , or by  $5 \times 2 = 10$ , then  $3 \times 10 = 30$ . (Associative property of multiplication.) Knowing*

that  $8 \times 5 = 40$  and  $8 \times 2 = 16$ , one can find  $8 \times 7$  as  $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$ .  
(Distributive property.)

CCSS.MATH.CONTENT.3.OA.B.6

Understand division as an unknown-factor problem. *For example, find  $32 \div 8$  by finding the number that makes 32 when multiplied by 8.*

Multiply and divide within 100.

CCSS.MATH.CONTENT.3.OA.C.7

Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that  $8 \times 5 = 40$ , one knows  $40 \div 5 = 8$ ) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Note: If your school uses other standards, please refer to these standards as a guide.

### **Materials Needed**

- Brick Math brick sets – (one per student or one per pair of students)
- Brick Math Division Teacher Edition book
- Brick Math Division Student Edition book (one per student)
- Chart paper
- Markers (one set per student or pair of students)
- Colored pencils or crayons (one set per student or pair of students)
- Sticky notes
- Cardstock
- Yarn
- Rulers (one per pair of students)
- Tagboard or cardstock (3-4 per student)
- Optional: Foam sheets or shelf liner cut into rectangles approximately 12" x 18" (one sheet per student)

### **Before the first day:**

1. Read the Introduction and How to Teach with Brick Math on pages 5-8 in the Division Teacher Edition.
2. Label all the Brick Math brick sets your students will use. Choose a system such as: Set 1, Set 2, Set 3, etc., or Zebra, Elephant, Tiger, etc.
3. Assign one brick set to each student or pair of students. They will use this same set every day. This materials' management step allows the student or the pair to be responsible for their own pieces.
4. Each student needs one Brick Math Division Student Edition book. If you are using PDFs, you will need to make copies of all the specific pages in each day's lesson so students

can correctly show and explain their work and make the knowledge transfer from manipulatives to drawings and verbal explanations.

5. Students will need the following supplies:

One Brick Math Division Student Edition book per student

Colored pencils or crayons (one set per student or pair of students)

Markers (one set per student or pair of students)

Cardstock

Yarn

Paper plate or large circles cut from tagboard or cardstock (3-4 per student)

6. Cut long pieces of yarn, several feet in length, but not an exact number of feet (one piece per pair of students)
7. Optional: One foam sheet or shelf liner cut into 12" x 18" rectangles per student. These sheets help keep the bricks from sliding off desks and tables.

**Note:** There are blank baseplate paper templates on pages 49-50 in the Division Teacher Edition book. They may be helpful for the daily story problem activities. Make additional copies of blank baseplate paper as needed.

## Day 1 – Division Facts

Please read page 9 in the Brick Math Division Teacher Edition to prepare for the lesson.

### Welcome

Tell the students something similar to the following:

*Welcome! We are going to do a lot of interesting activities this week. We are going to build with bricks, work with a partner, create a team name, exercise with numbers, and more. Are you ready to get started?*

Show the students a Brick Math brick set.

Say:

*First, I want to show you the brick set. What colors do you see? Each color has a name. Each of you has a name. We need to learn all the names of the people in our class and the names of the bricks. I would like you to sit in a large circle. Each person will say his or her name. Then, please choose one piece from the set. Tell us which color piece you chose and something about the piece.*

*I will start.*

*My name is \_\_\_\_\_. I chose a purple brick because purple is the same color as my favorite flower.*

Go around the room with the brick set so each student can select a brick. After each person has said his or her name and chosen a brick, have the class repeat the names. For example: “Mrs. Smith, Paula, Alan, Rebecca.” Then, if the next child is Ben, you would all say together: “Mrs. Smith, Paula, Alan, Rebecca, Ben.” When all the students have said their names, have the students who chose a particular color stand with their brick in their hands.

Say:

*Everyone who chose a purple brick, please stand. Let’s see if we can remember their names. Together, let’s say the names of the children who are standing.*

Say all the students’ names, then have them sit down. Continue with different colors until all the children have stood and been called by name.

Look at the shapes of the bricks chosen. Explain to the students how the shapes also have names.

Explain to students how to name the bricks. Start with your brick. Perhaps you chose a 2x2 brick. Show students your brick. If you want, pass it around.

Say:

*This is called a 2x2 brick because it is a square with 2 studs or bumps on one side (width) and 2 studs or bumps on another side (length).*

Show students a 1x1 brick.

Say:

*Can you guess what this brick is called? It has 1 stud in width and 1 stud in length – but it has a total of only 1 stud.*

Make sure students understand that it is a 1x1 brick. Then show students a 1x6 brick. Continue to go through the bricks until students can do a good job of naming the bricks.

Ask the students to go around the circle and tell the name of the brick they chose. If a student is not sure or names it incorrectly, ask the student to count the width and length in studs, then help with the correct name.

When all the bricks have been named, ask the students to put the bricks into the proper location in the set. Their pieces should match the compartment or area in the container so the brick “family” will be all together.

### **Walking and Counting**

Have students sit in small groups in the room. Ask the class to look around the room.

Tell students the *whole* class has been *divided* into *groups*. Each group may not have the same number of students because the whole class has not been divided into *equal parts*.

Have students look around the room and see things that they could divide into equal parts. For example, perhaps there are windows that could be or are divided in half. Or, perhaps they could divide the class evenly into two or three groups.

Help students to think about the concept of division by having them explain their ideas of dividing items in the room.

Tell students that they will be working with a partner during the program and that they can learn from each other.

Say:

*Are you ready to work with a partner and do some fun building and division?*



## Working with a Partner

Ask students their favorite thing about working with a partner. Then ask them what is the *best* way to work with a partner. Help students create answers like the following:

- Partners share the work, but neither person does the other one's work.
- Partners learn together and can help each other learn.
- Partners communicate (talk) kindly with each other.
- Partners care about each other.
- Partners do not give each other the answers, but help the other person understand how to find an answer.

Create a set of Partner Rules and put them on chart paper and display them in the classroom so you can refer to them as needed.

Choose two students to be partners and assign them a place to sit at desks or tables. Students of the same ability level tend to work well together. You may wish to have all students stand in one area of the classroom while they wait for the partner and location assignments.

Have each set of partners move to that location as you assign them. Give the pair of students their Brick Math materials (either one set for two people or one set per person.) Tell each group that they always get set #X when it is time to gather materials. Tell the class that each team is responsible for all the bricks being returned to the set every time the set is used.

When all the students have their sets, give every student a 20x20 baseplate.

Say:

*You will work together every day. Being a partner is an important responsibility. You need to help one another and be kind to your partner.*

Students take bricks from the divided box as needed. At the end of the day, students make an inventory check of one compartment. At the end of each day, tell students which compartment to inventory and how many bricks of a certain size should be in that compartment.

## **Lesson 1**

### **What Does It Mean to Add?**

#### **Part 1: Show Them How**

Follow the instructions on page 10 in the Brick Math Division Teacher Edition. Complete #1. Students will complete page 5, Part 1, #1 in the Brick Math Division Student Edition.

Follow the instructions on pages 10-11 in the Brick Math Division Teacher Edition. Complete #2. Students will complete pages 6-7, #2 in the Brick Math Division Student Edition.

### **Move with Music**

Time for some music!

Have students stand and find places with enough room to move around a bit. Use any simple Division song to have the students start getting the vocabulary and concepts. The idea is for students to move and sing and have a chance to get their brain ready to work again after a short brain break.

Have students return to their desks/tables with their partners.

#### **Part 2: Show What You Know**

Follow the instructions on page 11 in the Brick Math Division Teacher Edition. Complete #1. Students will complete pages 7-8, #3 in the Brick Math Division Student Edition.

Follow the instructions on page 12 in the Brick Math Division Teacher Edition. Complete #2. Students will complete pages 8-9, #4 in the Brick Math Division Student Edition.

### **More Problems for Practice**

Students will complete page 10, #5 in the Brick Math Division Student Edition. Students will complete pages 10-11, #6 in the Brick Math Division Student Edition.

### **Content Assessment**

Students complete the Assessment #1 on page 11 in the Brick Math Division Student Edition. Discuss the answers with the class. Help students to improve their answers as needed.

Students complete the Assessment #2 on page 11 in the Brick Math Division Student Edition.

Ask partners to check the work but explain that they should not touch the brick model or they write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

### Story Problem

Tell students a story problem like the following:

Juan had a  $1 \times 12$  brick. Juan counted 12 total studs representing the whole. He wondered how many ways he could model dividing the whole into equal parts.

Help students create brick models to show multiple ways to divide the whole.

For example,

12 –  $1 \times 1$  bricks

6 –  $1 \times 2$  bricks

4 –  $1 \times 3$  bricks

3 –  $1 \times 4$  bricks

2 –  $1 \times 6$  bricks

Students may also use  $2 \times 3$  bricks (2) or  $2 \times 6$  brick (1).

Have each pair work together to create a new story problem using a  $1 \times 10$  or  $1 \times 16$  brick and brick models.

As time allows, have students share their stories and models with at least one other team.

### Inventory Check

Have students place all the bricks they have used today back into the correct compartments of the Brick Math box.

Tell students they will inventory the  $1 \times 2$  bricks today. Have students remove all the  $1 \times 2$  bricks from the box and count them. They should have 30 bricks. After the students have verified the number, they replace those bricks into the compartment and give you a thumbs-up. The brick set is ready for collection and storage.

### Self-Assessment

Remind students about the partner's rules they created earlier today. Refer to the Partner's Rules Chart to refresh their memories.

Ask students to use the journals. Students need colored pencils or crayons to complete.

Ask students to write the word “partner” in their journals. Read aloud the statements to the students and have them draw the correct color brick.

Students should draw a specific color brick after the word “partner” based on the following:  
Say:

*I need to work on being a better partner. I did not listen to and help my partner like I should have.*

*If this describes you today, draw an orange brick after the word “partner.”*

*I was a good partner today. I helped my partner but sometimes I did their work for them or I let them do my work.*

*If this describes you today, draw a green brick after the word “partner.”*

*I was a very good partner today. I helped my partner by checking their work and not by doing their work. If this describes you today, draw a blue brick after the word “partner.”*

Ask students to write “I can model dividing a whole” in the blank space at the bottom of page 15.

Students should draw a specific color brick after the words “I can model dividing a whole” based on the following self-assessment.

Say:

*I need help modeling dividing a whole. If this describes you today, draw an orange brick after the words “I can model dividing a whole.”*

*I can model dividing a whole. If this describes you today, draw a green brick after the words “I can model dividing a whole.”*

*I can help others dividing a whole. If this describes you today, draw a blue brick after the words “I can model dividing a whole.”*

## Day 2 – Factors

Please read page 13 in the Brick Math Division Teacher Edition to prepare for the lesson.

### Welcome

Welcome students back to **Building Skills with Brick Math**.

Ask students to welcome their partners and tell them that that they look forward to working together.

Ask students if they can remember how to make models to show simple division. Have students give verbal examples for a 1x4 brick. [4 – 1x1 bricks, 2 – 1x2 bricks, 1 – 2x2 brick]

Tell students that today they will create team names and division problems.

Have students find their partner and get colored pencils or crayons and one cardstock or tagboard sheet per team.

Show students an example of a team name and a division problem. For example,

All Stars

$$12 \div 4$$

Partners work together to determine a team name and then write the name in the middle of the sheet. Partners should determine a division problem.

Have students color the edge of the sheet with the numbers in the division problem. In the example above, they could create twelve blue boxes on the left side of the plate and four groups of three boxes on the right side of the plate.

### Working with a Partner

Remind students of the partner rules created on Day 1. Have students share one good thing they saw a partner do yesterday.

Have students get the correct Brick Math set(s) and 2 baseplates for their team.

### Finding Factors

Have ten students stand in a single line of 10. Ask the class how many students are in the line. [Ten]

Ask the students to break the group of ten into two equal groups. Ask students how many students are in each part. [Five] What are the factors? [2 and 5]

Ask the students if they can divide ten students evenly into another group. [1-student, 10 groups]

What are the factors? [1,10]

Have those ten students take their seats.

Ask nine students to stand in a single line of 9. Ask the class how many students are in the line. [Nine]

Ask the students to break the group of nine into two equal groups. Students cannot do that because nine is an odd number and two is an even number. Tell the class that 9 is not evenly divisible by 2.

Ask the students to break the group of nine into three equal groups. Ask students how many students are in each part. [3]

Ask students why they can evenly break nine into three parts. [Nine is divisible by 3.] What are the factors? [3 (and 3)]

Ask the students another way to break apart the nine into groups. [1 student in 9 groups] What are the factors? [1,9]

## **Lesson 2**

### **Part 1: Show Them How**

Follow the instructions on page 14 in the Brick Math Division Teacher Edition. Complete #1-7. Students will complete pages 12-13, #1 in the Brick Math Division Student Edition.

### **Move with Music**

Have students get up from their places at the tables/desks because it is time for some movement.

Choose a song that students can use to help show factors.

If you prefer, students can also create motions to do for the factors of a number. For example, students can clap the number of groups and stomp the number of items in a group. 2 [1 clap and two stomps for 1group of 2; 2 claps and 1 stomp for 2 groups of 1]

Have students return to their desks/tables with their partners.

### **Part 2: Show What You Know**

Follow the instructions on page 15 in the Brick Math Division Teacher Edition. Complete #1. Students will complete page 14, #2 in the Brick Math Division Student Edition.

Follow the instructions on page 16 in the Brick Math Division Teacher Edition. Complete #2. Students will complete page 14, #3 in the Brick Math Division Student Edition.

### **More Problems for Practice**

Students will complete page 15, #4 in the Brick Math Division Student Edition.

Students will complete page 16, #5 in the Brick Math Division Student Edition

### **Content Assessment**

Students complete the Assessment #1 on page 16 in the Brick Math Division Student Edition. Discuss the answers with the class. Help students to improve their answers as needed.

Students complete the Assessment #2 on page 16 in the Brick Math Division Student Edition. Ask partners to check the work but explain that they should not touch the brick model or they write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

Students complete the Assessment #3 on page 17 in the Brick Math Division Student Edition. Ask partners to check the work but explain that they should not touch the brick model or they write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

### **Story Problem**

Tell students a story problem like the following:

Julia and Donata are playing a game with marbles. They share 12 marbles. How many ways can they divide the marbles evenly?

Help students complete the story problem, build models, and find the factors.

Have each pair work together to create a new story problem that they can model with bricks.

As time allows, have students share their stories and models with at least one other team.

### **Inventory Check**

Have students place all the bricks they have used today back into the correct compartments of the Brick Math box.

Tell students they will inventory the 1x3 bricks today. Have students remove all the 1x3 bricks from the box and count them. They should have 20 bricks. After the students have verified the number, they replace those bricks into the compartment and give you a thumbs-up. The brick set is ready for collection and storage.

## Self-Assessment

Ask students to use their journals. Students need colored pencils or crayons to complete.

Ask students to write the word “partner” in the blank space at the bottom of page 23. Read aloud the statements to the students and have them draw the correct color brick.

Students should draw a specific color brick after the word “partner” based on the following:  
Say:

*I need to work on being a better partner. I did not listen to and help my partner like I should have.*

*If this describes you today, draw an orange brick after the word “partner.”*

*I was a good partner today. I helped my partner but sometimes I did their work for them or I let them do my work.*

*If this describes you today, draw a green brick after the word “partner.”*

*I was a very good partner today. I helped my partner by checking their work and not by doing their work. If this describes you today, draw a blue brick after the word “partner.”*

Ask students to write “I can model the factors of a number” in their journals. Students should draw a specific color brick after the words “I can model the factors of a number” based on the following:

Say:

*I need help modeling more than one way to get a number. If this describes you today, draw an orange brick after the words “I can model the factors of a number.”*

*I can model more than one way to get a number. If this describes you today, draw a green brick after the words “I can model the factors of a number.”*

*I can help others model more than one way to get a number. If this describes you today, draw a blue brick after the words “I can model the factors of a number.”*



### **Day 3 – Exploring Division**

Please read page 17 in the Brick Math Division Teacher Edition to prepare for the lesson.

#### **Welcome**

Ask students if they remember different ways to divide twelve into equal parts. Have a few students work together to create a group of 12 students. Now, ask students how they could divide the group of 12 students into smaller, equal-sized groups. [2 groups of 6, 3 groups of 4, 4 groups of 3, 6 groups of 2]

Ask students the names of the parts of the equation  $12 \div 2 = 6$ .

12 is the dividend or the number being divided

2 is the divisor or the number or sets or groups

6 is the quotient which is the solution or answer

Tell students today they are going to work with division through repeated subtraction.

Have 6 students stand up. Tell the class you want to divide by 2. Take two away each time. Have two students leave the group of six and the now four remain. Take two away again and you have two students left. Take away those students and there are zero. How many times did you subtract 2? [3 times] therefore  $6 \text{ students} \div 2 \text{ students} = 3$

#### **Working with a Partner**

Remind students of the partner rules created on Day 1. Have students share with the class one good thing they did as a partners yesterday.

Have students find their partners and go to their places at the desks or table. Have students get the correct Brick Math set(s) and two baseplates for their team.

### **Lesson 3**

#### **Exploring Division**

##### **Part 1: Show Them How**

Follow the instructions on page 18 in the Brick Math Division Teacher Edition. Complete #1-9. Students will complete pages 18-19, #1-2 in the Brick Math Division Student Edition.

Follow the instructions on pages 19-20 in the Brick Math Division Teacher Edition. Complete #10.

Students will complete page 19, #3 in the Brick Math Division Student Edition.

Follow the instructions on pages 20-21 in the Brick Math Division Teacher Edition. Complete #12-17.

Students will complete page 20-21, #4 in the Brick Math Division Student Edition.

### **Challenge**

Follow the instructions on page 22 in the Brick Math Division Teacher Edition. Complete the Challenge.

Students will complete page 21, Challenge, in the Brick Math Division Student Edition

### **Move to a Number**

Have several students divide classmates into groups so that the total of all groups is twelve.

Tell students today they are going to work with division through repeated subtraction.

Have 16 students stand up. Tell the class you want to divide the 16 students by 2. Take two away each time. Counting how many times you take away 2. The answer becomes 8, because you took away 8 groups of two students from the 16 until you had zero students remaining.

Have students return to their tables or desks with their partners.

### **Part 2: Show What You Know #1**

Follow the instructions on pages 23-24 in the Brick Math Division Teacher Edition. Complete #1-5.

Students will complete page 22, #5 in the Brick Math Division Student Edition.

### **Show What You Know #2**

Follow the instructions on pages 24-25 in the Brick Math Division Teacher Edition. Complete #1-5.

Students will complete page 23, #6 in the Brick Math Division Student Edition.

### **Show What You Know #3**

Follow the instructions on pages 26-27 in the Brick Math Division Teacher Edition. Complete #1-5.

Students will complete page 24, #7 in the Brick Math Division Student Edition.

### **More Problems for Practice**

Students will complete page 25, #8 in the Brick Math Division Student Edition.

## Content Assessment

Students complete the Assessment #1 on page 26 in the Brick Math Division Student Edition. Discuss the answers with the class. Help students to improve their answers as needed.

Students complete the Assessment #2 on page 26 in the Brick Math Division Student Edition. Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

Students complete the Assessment #3 on page 26 in the Brick Math Division Student Edition. Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

Students complete the Assessment #4 on page 26 in the Brick Math Division Student Edition. Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

Students complete the Assessment #5 on page 27 in the Brick Math Division Student Edition. Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

Students complete the Assessment #6 on page 27 in the Brick Math Division Student Edition. Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

## Story Problem

Tell students a story problem like the following:

Cecilia and Erin wanted to divide 27 beads so three friends would be able to make necklaces with the same number of beads. How many beads will each friend receive?

Help students to complete the story problem, build a model, and explain the answer.

Have each pair work together to create a new story problem, build a model and explain the answer.

As time allows, have students share their stories and models with at least one other team.

### Inventory Check

Have students place all the bricks they have used today back into the correct compartments of the Brick Math box.

Tell students they will inventory the 1x1 bricks today. Have students remove all the 1x1 bricks from the box and count them. They should have 25 bricks of each color. After the students have verified the number, they replace those bricks into the compartment and give you a thumbs-up. The brick set is ready for collection and storage.

### Self-Assessment

Ask students to use the blank space at the bottom of page 27 in the Brick Math Division Student Edition. Students need crayons to complete.

Ask students to write the word “partner” in the blank space at the bottom of page 27. Read aloud the statements to the students and have them draw the correct color brick.

Students should draw a specific color brick after the word “partner” based on the following:  
Say:

*I need to work on being a better partner. I did not listen to and help my partner like I should have.*

*If this describes you today, draw an orange brick after the word “partner.”*

*I was a good partner today. I helped my partner but sometimes I did their work for them or I let them do my work.*

*If this describes you today, draw a green brick after the word “partner.”*

*I was a very good partner today. I helped my partner by checking their work and not by doing their work. If this describes you today, draw a blue brick after the word “partner.”*

Ask students to write “I can use repeated subtraction to show division” in the blank space at the bottom of page 27.

Students should draw a specific color brick after the words “I can use repeated subtraction to show division” based on the following:

Say:

*I need help using repeated subtraction to show division. If this describes you today, draw an orange brick after the words “I can use repeated subtraction to show division.”*

*I can use repeated subtraction to show division. If this describes you today, draw a green brick after the words “I can use repeated subtraction to show division.”*

*I can help others use repeated subtraction to show division. If this describes you today, draw a blue brick after the words “I can use repeated subtraction to show division.”*

## **Day 4 – Equal Shares or Partitive Division**

Please read page 28 in the Brick Math Division Teacher Edition to prepare for the lesson.

### **Welcome**

Welcome students to Day 4. Ask students if they remember how to show division through repeated subtraction. Have a couple of students demonstrate the concept using classmates.

Tell students today they are going to make equal shares from one whole.

Ask students to start with the number 16. How many ways can they create equal groups from the whole 16?

[1 group of 16  
2 groups of 8  
4 groups of 4  
8 groups of 2  
16 groups of 1]

Have students find their partners and go to their places at the desks or table.

### **Working with a Partner**

Remind students of the partner rules created on Day 1. Have students share something with their partners that they appreciate about working with that person.

Have students find their partners and go to their places at the desks or table. Have students get the correct Brick Math set(s) and two baseplates for their team.

## **Lesson 4**

### **Part 1: Show Them How**

Follow the instructions on page 29 in the Brick Math Division Teacher Edition. Complete #1. Students will complete page 28, #1 in the Brick Math Division Student Edition.

Follow the instructions on page 29 in the Brick Math Division Teacher Edition. Complete #2. Students will complete page 29, #2 in the Brick Math Division Student Edition.

Follow the instructions on page 29 in the Brick Math Division Teacher Edition. Complete #3. Students will complete pages 29-30, #3 in the Brick Math Division Student Edition.

Follow the instructions on page 30 in the Brick Math Division Teacher Edition. Complete #4.

Students will complete pages 30-31, #4 in the Brick Math Division Student Edition.

### **Move with Place Value**

There are a variety of division songs that can be used with students. If you look on the internet, you can find something that appeals to you and the age of the children you are working with.

If you don't find anything age appropriate, place students in small groups and ask them to create a song about sets to a tune they all know - like Happy Birthday or Three Blind Mice. Remember, the words do not have to rhyme. Have the student groups teach their song to the class. Let them laugh and have fun. Suggest to the groups that adding motions makes it more fun.

Have students return to their tables or desks with their partners.

### **Part 2: Show What You Know**

Follow the instructions on page 31 in the Brick Math Division Teacher Edition. Complete #1. Students will complete page 32, #5 in the Brick Math Division Student Edition.

Follow the instructions on page 31 in the Brick Math Division Teacher Edition. Complete #2. Students will complete page 32, #6 in the Brick Math Division Student Edition.

Follow the instructions on page 31 in the Brick Math Division Teacher Edition. Complete #3. Students will complete page 33, #7 in the Brick Math Division Student Edition.

### **More Problems for Practice**

Students will complete page 34, #8 in the Brick Math Division Student Edition.  
Students will complete page 44, #9 in the Brick Math Division Student Edition.

### **Content Assessment**

Students complete the Assessment #1 on page 35 in the Brick Math Division Student Edition. Discuss the answers with the class. Help students to improve their answers as needed.

Students complete the Assessment #2 on page 35 in the Brick Math Division Student Edition. Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

Students complete the Assessment #3 on page 35 in the Brick Math Division Student Edition.

Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

Students complete the Assessment #4 on page 35 in the Brick Math Division Student Edition. Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

### Story Problem

Tell students a story problem like the following:

Davie and Howie were playing with small cars. Together they had 20 cars.

How many ways could they equally divide the small cars?

[2 groups of 10

4 groups of 5

5 groups of 4

10 groups of 2

20 groups of 1]

Help students to complete the story problem, build models, and answer the question.

Have each pair work together to create a new story problem that they can model with bricks and explain how all groups have equal parts.

As time allows, have students share their stories and models with at least one other team.

### Inventory Check

Have students place all the bricks they have used today back into the correct compartments of the Brick Math box.

Tell students they will inventory the 1x4 bricks today. Have students remove all the 1x4 bricks from the box and count them. They should have 21 bricks. After the students have verified the number, they replace those bricks into the compartment and give you a thumbs-up. The brick set is ready for collection and storage.

### Self-Assessment



Ask students to use the blank space at the bottom of page 44 in the Brick Math Division Student Edition. Students need colored pencils or crayons to complete.

Ask students to write the word “partner” in the blank space at the bottom of page 44. Read aloud the statements to the students and have them draw the correct color brick.

Students should draw a specific color brick after the word “partner” based on the following:  
Say:

*I need to work on being a better partner. I did not listen to and help my partner like I should have.*

*If this describes you today, draw an orange brick after the word “partner.”*

*I was a good partner today. I helped my partner but sometimes I did their work for them or I let them do my work.*

*If this describes you today, draw a green brick after the word “partner.”*

*I was a very good partner today. I helped my partner by checking their work and not by doing their work. If this describes you today, draw a blue brick after the word “partner.”*

Ask students to write “I can divide numbers into equal parts” in the blank space at the bottom of page 44.

Students should draw a specific color brick after the words “I divide numbers into equal parts” based on the following:

Say:

*I need help dividing numbers into equal parts. If this describes you today, draw an orange brick after the words “I can divide numbers into equal parts.”*

*I can divide numbers into equal parts. If this describes you today, draw a green brick after the words “I can divide numbers into equal parts.”*

*I can help others divide numbers into equal parts. If this describes you today, draw a blue brick after the words “I can divide numbers into equal parts*

## **Day 5 – Repeated Subtraction or Quotitive Division**

Please read page 32 in the Brick Math Division Teacher Edition to prepare for the lesson.

### **Welcome**

Welcome students to Day 5.

Tell them: Today they are going to do something very similar to what they did yesterday.

Yesterday they made equal shares from one whole. They knew how many groups were needed and had to determine the number of items in the group.

Today they will have to determine how many groups because they will be given the number of items in each group and the total amount in the whole.

Choose 10 students and ask them stand. Tell the class that there will be two students in each group. Have the 10 student make groups of 2. Now, ask one group at a time to sit down. Start by saying the Dividend is 10. When the first group of 2 sits down, have them hold up 1 finger to show group 1 and say 1 group. Ask a second group of 2 students to sit down and have them hold up one finger and say 2 groups. Repeat the process until all groups have taken a seat and you have said 5 groups. Dividend 10, Divisor 2, Quotient 5. 10 students divided by 2 students equals five groups. Tell students they have used repeated subtraction to determine the answer.

Have students find their partners and go to their places at the desks or table.

### **Working with a Partner**

Remind students of the partner rules created on Day 1. Have students share which rule they think is the most important.

Have students get the correct Brick Math set(s) and two baseplates for their team.

## **Lesson 5**

### **Part 1: Show Them How**

Follow the instructions on pages 33-34 in the Brick Math Division Teacher Edition. Complete #1 and 2.

Students will complete pages 36-37, #1 in the Brick Math Division Student Edition.

Follow the instructions on page 35 in the Brick Math Division Teacher Edition. Complete #2.

Students will complete pages 37-38, #2 in the Brick Math Division Student Edition.

### **Move to Repeated Subtraction**

Have students stand in somewhat of a circle around the room.

Students will create a slow pattern of stomp, stomp, clap, clap, snap, snap.

They will be speaking only during the snap, snap.

Students will use a pattern of speech to do repeated subtraction.

You will begin by giving them a dividend number. Example: Dividend 6.

The next person in the circle tells how many items in each group by saying Divisor 2. (Choices would be 1,2,3,6)

The person to his/her right says one group of 2 leaves 4.

The person to his/her right says one group of 2 leaves 2.

The person to his/her right says one group of 2 leaves 0.

The person to his/her right says Quotient 3 groups.

When the class gets one completed – and there will be a lot of answers slow to come – everyone cheers. The first two sets are the hardest as students get the hang of it. Make sure you start slowly.

Move to the position to the right of the last person who spoke. You will start a new round with Dividend 8.

Have students return to their tables or desks with their partners.

### **Part 2: Show What You Know**

Follow the instructions on page 36 in the Brick Math Division Teacher Edition. Complete #1.

Students will complete pages 38-39, #3 in the Brick Math Division Student Edition.

### **More Problems for Practice (shown in Student Edition)**

Follow the instructions on page 36 in the Brick Math Division Teacher Edition. Complete #2.

Students will complete page 39, #4 in the Brick Math Division Student Edition.

Follow the instructions on page 36 in the Brick Math Division Teacher Edition. Complete #3.

Students will complete page 40, #5 in the Brick Math Division Student Edition.

### **Content Assessment**

Students complete the Assessment #1 on page 41 in the Brick Math Division Student Edition.

Discuss the answers with the class. Help students to improve their answers as needed.

Students complete the Assessment #2 on page 41 in the Brick Math Division Student Edition.

Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

Students complete the Assessment #3 on page 41 in the Brick Math Division Student Edition. Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

Students complete the Assessment #4 on page 41 in the Brick Math Division Student Edition. Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

### Story Problem

Tell students a story problem like the following:

Tonica and Gerri were counting money in a piggy bank. Tonica had seventeen pennies. Gerri had nine pennies. The girls put their pennies together and wanted to make groups of three pennies. How many groups of three pennies would they have?

This is a two-step problem, because the students have to add the pennies together before they start making groups of three. If students are struggling, you can suggest that they add or count all the pennies first. Using bricks to model will be helpful in obtaining the answer. Have students write the repeated subtraction problem and the division sentence in their journals.

Have each pair work together to create a new story problem that they can model with bricks.

As time allows, have students share their stories and models with at least one other team.

### Inventory Check

Have students place all the bricks they have used today back into the correct compartments of the Brick Math box.

Tell students they will inventory the 2x2 bricks today. Have students remove all the 2x2 bricks from the box and count them. They should have 20 bricks. After the students have verified the number, they replace those bricks into the compartment and give you a thumbs-up. The brick set is ready for collection and storage.

## Self-Assessment

Ask students to use their journals. Students need colored pencils or crayons to complete.

Ask students to write the word “partner” in their journals. Read aloud the statements to the students and have them draw the correct color brick.

Students should draw a specific color brick after the word “partner” based on the following:  
Say:

*I need to work on being a better partner. I did not listen to and help my partner like I should have.*

*If this describes you today, draw an orange brick after the word “partner.”*

*I was a good partner today. I helped my partner but sometimes I did their work for them or I let them do my work.*

*If this describes you today, draw a green brick after the word “partner.”*

*I was a very good partner today. I helped my partner by checking their work and not by doing their work. If this describes you today, draw a blue brick after the word “partner.”*

Ask students to write “I can use repeated subtraction to determine the number of groups” in their journals.

Students should draw a specific color brick after the words “I can use repeated subtraction to determine the number of groups” based on the following:

Say:

*I need help using repeated subtraction to determine the number of groups. If this describes you today, draw an orange brick after the words “I can use repeated subtraction to determine the number of groups.”*

*I can use repeated subtraction to determine the number of groups. If this describes you today, draw a green brick after the words “I can use repeated subtraction to determine the number of groups.”*

*I can help others use repeated subtraction to determine the number of groups. If this describes you today, draw a blue brick after the words “I can use repeated subtraction to determine the number of groups.”*

## Day 6 – Two-Digit Division

Please read page 37 in the Brick Math Division Teacher Edition to prepare for the lesson.

### Welcome

Welcome students to Day 6.

Tell them today we are going to work with remainders. A remainder is what is left over when we have taken away the groups from a whole.

Have 11 students stand. Ask the students to form groups of 5. That will leave one person by him/herself. That one person represents the remainder.  $11 \div 5 = 2$  Remainder 1

Repeat the process with 15 students forming groups of 4. There will be three students representing the remainder.  $15 \div 4 = 3$  Remainder 3.

Have students find their partners and go to their places at the desks or table.

### Working with a Partner

Remind students of the partner rules created on Day 1. Have students draw a picture of their team and how the two of them work well together.

Have students get the correct Brick Math set(s) and two baseplates for their team.

## Lesson 6

### Part 1: Show Them How

Follow the instructions on page 38 in the Brick Math Division Teacher Edition. Complete #1-2. Students will complete page 42, #1 in the Brick Math Division Student Edition.

Follow the instructions on pages 38-39 in the Brick Math Division Teacher Edition. Complete #3. Students will complete page 43, #2 in the Brick Math Division Student Edition.

Follow the instructions on page 39 in the Brick Math Division Teacher Edition. Complete #4. Students will complete page 43, #3 in the Brick Math Division Student Edition.

Follow the instructions on page 39 in the Brick Math Division Teacher Edition. Complete #5. Students will complete page 44, #4 in the Brick Math Division Student Edition.

### Move with Remainders

Have students stand behind their chairs or around the edge of the classroom. Students will have to move around the room for this activity.

Have students count off to know how many students are in the class. You may wish to count yourself and be part of the group.

Give the students the number of people in each group. For example, there are 23 people in the class. You give them 4 as the number of students in a group. The students move to form groups of four. There will be 3 students as remainder. Ask students for the correct division sentence. [23 ÷ 4 = 5 remainder 3]

Give students a new number of people in each group AND they cannot be in a group with anyone from their last group. 5 people in a group. Ask students for the correct division sentence. [23 ÷ 5 = 4 remainder 3]

Give students a new number of people in each group AND they cannot be in a group with anyone from their last group. 6 people in a group. Ask students for the correct division sentence. [23 ÷ 6 = 3 remainder 5]

Have students return to their tables or desks with their partners.

## **Part 2: Show What You Know**

### **(More problems for practice in Student Edition)**

Follow the instructions on page 40 in the Brick Math Division Teacher Edition. Complete #1. Students will complete page 44, #5 in the Brick Math Division Student Edition.

Follow the instructions on page 40 in the Brick Math Division Teacher Edition. Complete #2. Students will complete page 45, #6 in the Brick Math Division Student Edition.

Follow the instructions on page 40 in the Brick Math Division Teacher Edition. Complete #3. Students will complete page 46, #8 in the Brick Math Division Student Edition.

Follow the instructions on page 40 in the Brick Math Division Teacher Edition. Complete #4. Students will complete page 45, #7 in the Brick Math Division Student Edition.

Students complete page 47, #9 in the Brick Math Division Student Edition.

Students complete page 48, #10 in the Brick Math Division Student Edition.

### Content Assessment

Students complete the Assessment #1 on page 48 in the Brick Math Division Student Edition. Discuss the answers with the class. Help students to improve their answers as needed.

Students complete the Assessment #2 on page 48 in the Brick Math Division Student Edition. Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

Students complete the Assessment #3 on page 49 in the Brick Math Division Student Edition. Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

### Story Problem

Tell students a story problem like the following:

Samantha had 52 beans from her garden. She wanted to make groups of 10 beans. How many groups of beans will Samantha have? How many beans will be left over?

Help students to complete the story problem through modeling.

Have each pair work together to create a new story problem that they can model with bricks that shows a division problem with a remainder.

As time allows, have students share their stories and models with at least one other team.

### Inventory Check

Have students place all the bricks they have used today back into the correct compartments of the Brick Math box.

Tell students they will inventory the 2x3 bricks today. Have students remove all the 2x3 bricks from the box and count them. They should have 10 bricks. After the students have verified the number, they replace those bricks into the compartment and give you a thumbs-up. The brick set is ready for collection and storage.

### Self-Assessment



Ask students to use the blank space at the bottom of page 49 in the Brick Math Division Student Edition. Students need colored pencils or crayons to complete.

Ask students to write the word “partner” in the blank space at the bottom of page 49. Read aloud the statements to the students and have them draw the correct color brick.

Students should draw a specific color brick after the word “partner” based on the following:  
Say:

*I need to work on being a better partner. I did not listen to and help my partner like I should have.*

*If this describes you today, draw an orange brick after the word “partner.”*

*I was a good partner today. I helped my partner but sometimes I did their work for them or I let them do my work.*

*If this describes you today, draw a green brick after the word “partner.”*

*I was a very good partner today. I helped my partner by checking their work and not by doing their work. If this describes you today, draw a blue brick after the word “partner.”*

Ask students to write “I can solve division problems that have a remainder” in the blank space at the bottom of page 64.

Students should draw a specific color brick after the words “I can solve division problems that have a remainder” based on the following:

Say:

*I need help solving division problems that have a remainder. If this describes you today, draw an orange brick after the words “I can solve division problems that have a remainder.”*

*I can solve division problems that have a remainder. If this describes you today, draw a green brick after the words “I solve division problems that have a remainder.”*

*I can help others solve division problems that have a remainder. If this describes you today, draw a blue brick after the words “I can solve division problems that have a remainder.”*

## Day 7 – Dividing Larger Numbers

Please read page 41 in the Brick Math Division Teacher Edition to prepare for the lesson.

### Welcome

Welcome students to Day 7.

Show students a box of markers, crayons, or colored pencils. Tell them they are going to figure out how much one of the items in the box would cost. For example, if there are 10 colored pencils in a box and the box costs \$1.50, then each colored pencil would cost 15 cents.

Dividend \$1.50, Divisor 10, Quotient \$.15

Tell students a new price for a box of markers, crayons, or colored pencils and have them look at the package and see the number of items it contains. Have the students determine the cost per item. The students can work together in small groups or as a class. Ask students to identify the dividend, divisor, and quotient.

Have students find their partners and go to their places at the desks or table.

### Working with a Partner

Remind students of the partner rules created on Day 1. Have students share something they enjoyed with their partner yesterday.

Have students get the correct Brick Math set(s) and two baseplates for their team.

### Lesson 1

#### Part 1: Show Them How

Follow the instructions on page 42 in the Brick Math Division Teacher Edition. Complete the top of the page.

Students will complete pages 50-51, #1, 2, &3 in the Brick Math Division Student Edition.

Follow the instructions on pages 48-49 in the Brick Math Division Teacher Edition. Complete #1-6.

Students will complete pages 51-52, #4 in the Brick Math Division Student Edition.

#### Move to Find a Missing Addend

Give all students a long piece of yarn and a ruler. The pieces do not have to be the same length.

Ask students to measure the length of the yarn. That is the dividend.

Ask the students to determine if the piece of yarn can be divided evenly into feet. [No]

Ask students to determine the number of feet and the remaining number of inches contained in the piece of yarn.

Verify the students' answers and then have groups exchange pieces of yarn. Have the two teams check each others answers and work together if there are differences.

Have students return to their tables or desks with their partners.

### **Part 2: Show What You Know**

Follow the instructions on pages 44-45 in the Brick Math Division Teacher Edition. Complete #1-4.

Students will complete page 52, #5 in the Brick Math Division Student Edition.

Follow the instructions on page 46 in the Brick Math Division Teacher Edition. Complete #1.

Students will complete page 53, #6 in the Brick Math Division Student Edition.

Follow the instructions on page 46 in the Brick Math Division Teacher Edition. Complete #2.

Students will complete page 53, #7 in the Brick Math Division Student Edition.

Follow the instructions on page 47 in the Brick Math Division Teacher Edition. Complete #3.

Students will complete page 54, #8 in the Brick Math Division Student Edition.

### **More Problems for Practice**

Students will complete page 54, #9 in the Brick Math Division Student Edition.

Students will complete page 55, #10 in the Brick Math Division Student Edition.

### **Content Assessment**

Students complete the Assessment #1 on page 55 in the Brick Math Division Student Edition.

Discuss the answers with the class. Help students to improve their answers as needed.

Students complete the Assessment #2 on page 56 in the Brick Math Division Student Edition.

Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

Students complete the Assessment #3 on page 56 in the Brick Math Division Student Edition.

Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

### Story Problem

Tell students a story problem like the following:

Jasmine and Jason had 25 apples in a basket. They wanted to sell the apples in groups of 6. How many groups of apples can they sell and how many apples will be left over?

Help students to complete the story problem by using models and explaining their process. Have students write the math sentence in their journals.

Have each pair work together to create a new story problem that they can model with bricks. Have students write the math sentence in their journals. Then have students solve for the change unknown. Have students label the addends and the sum.

As time allows, have students share their stories and models with at least one other team.

### Inventory Check

Have students place all the bricks they have used today back into the correct compartments of the Brick Math box.

Tell students they will inventory the 2x4 bricks today. Have students remove all the 2x4 bricks from the box and count them. They should have 9 bricks. After the students have verified the number, they replace those bricks into the compartment and give you a thumbs-up. The brick set is ready for collection and storage.

### Self-Assessment

Ask students to use their student journals to complete the self-assessment. Students need colored pencils or crayons to complete.

Ask students to write the word "partner" in their journals. Read aloud the statements to the students and have them draw the correct color brick.

Students should draw a specific color brick after the word "partner" based on the following:  
Say:

*I need to work on being a better partner. I did not listen to and help my partner like I should have.*

*If this describes you today, draw an orange brick after the word "partner."*

*I was a good partner today. I helped my partner but sometimes I did their work for them or I let them do my work.*

*If this describes you today, draw a green brick after the word "partner."*

*I was a very good partner today. I helped my partner by checking their work and not by doing their work. If this describes you today, draw a blue brick after the word "partner."*

Ask students to write "I can divide larger numbers" in their journals.

Students should draw a specific color brick after the words "I can divide larger numbers" based on the following:

Say:

*I need help dividing larger numbers. If this describes you today, draw an orange brick after the words "I can divide larger numbers."*

*I can divide larger numbers. If this describes you today, draw a green brick after the words "I can divide larger numbers."*

*I can help others divide larger numbers. If this describes you today, draw a blue brick after the words "I can divide larger numbers."*

## Day 8 – Review of Multiplication and Division

Students will need copies of the baseplate templates on page 50 along with their journals.

### Welcome

Welcome students to the final day of the program. Tell them how proud you are of the work they have done and what they have accomplished.

Tell students that today they will solve problems using both multiplication and division.

Choose 12 students to stand in groups of 3. Ask students how they would determine the number of groups using a division statement. [Dividend 12 ÷ Divisor 3 = Quotient unknown (4)]

Now ask students to create a multiplication statement that could be used to solve the problem.

[Minuend 3 x Multiplicand Unknown (4) = Product 12]

Have students explain the relationship between multiplication and division.

Have students find their partners and go to their places at the desks or table.

### Working with a Partner

Remind students of the partner rules created on Day 1. Have students write a thank-you note to their partners. Students share these thank you notes at the end of the day.

Have students get the correct Brick Math set(s) and two baseplates for their team.

### Story Problems for Multiplication and Division

Students write a division and a multiplication sentence to solve each of the story problems in their journals. They build models and write the vocabulary terms for each sentence. Then, students draw their models and write their explanations.

1. Jaylee and Jaydee found 72 marbles. They want to create games that use 8 marbles. How many games can they make?
2. There were 6 rows of 12 chairs in the classroom. How many students does the room hold?
3. The pet store received a shipment of 225 fish. Each bag contained 25 fish. How many bags of fish were received?

4. The school secretary ordered 360 pencils for students to use during testing. There are 32 classrooms. How many pencils should be given to each class and how many pencils will be left over?
5. Skye, Petra, and Jon shared a pizza equally. There were 12 slices when it was served. How many pieces of pizza did they each eat?
6. When Skye, Petra, and Jon finished the pizza they were still hungry so they ordered a dessert. The dessert was cut into 8 equal pieces. How many pieces of dessert did each person get and how many pieces remained?

Note: This may be more difficult to set up as a multiplication problem. You may wish to only have them show division.  $[(3x?) + \text{Remainder} = 8]$  Some students can solve this through the use of bricks.

### Move to Divide, Factor

Have students stand around the edge of the room. Give each student a card with a number on it. Have a division sign, an equal sign, as well as a box or question mark available for use.

Choose students to create the division problem  $15 \div 3 = ?$  with cards. Then have 15 students group themselves in threes.

Ask students what are different ways they could solve this problem. [Repeated subtraction, division facts, and so forth]

Have all students return to locations around the room.

Ask the class to work together to create all the factors for the product 12. [1,2,3,4,6,12]

Have students return to their tables or desks with their partners.

### More Story Problems

Students write a division and a multiplication sentence to solve each of the story problems in their journals. They build models and write the vocabulary terms for each sentence. Then, students draw their models and write their explanations.

1. Benjamin and Rebecca needed 70 pictures to create a collage. They wanted 5 pictures for each area of the collage. How many areas are there?

2. Jorge and Juanita need 55 leaves for their science assignment. They must collect 5 leaves from different trees. How many different trees must they find?
3. Suzanne and Allison want to sew 13 quilts. They need 2 yards of fabric for each quilt. How many yards of fabric do they need?
4. Have each pair work together to create a new story problem that they can model with bricks. Have students write the problem in their journals. Once they have completed the problem, have students trade with another team. Each team should trade with at least 3 teams and verify the solutions.

### **Optional Parent Activity and Materials Check-In**

Allow parents to come to the classroom the last 20 minutes of the day.

Each parent will work with their child. The child will be the teacher for these activities and will help their parents learn how to use the bricks.

If a parent is unable to attend, the student can do the activity on their own or with a partner.

Ask the students to show their parents how to build the number 222 using bricks. Have students show their parents how to divide 222 by 2.

Ask students to have their parents build the number 325 and divide by 2. Students must explain to parents how to handle the remainder.

Have a cheer for the parents!

Place all the bricks back in the correct compartments in the box.

Ask the students and parents to spot check the compartments and make sure all the bricks are in the correct locations. Have students look on the floor to find any stray bricks.

Have each team bring their materials to you in numerical order so you can keep track of your sets. You should have your sets in order and organized for the next use.

Have each student give their partner the thank-you note that they wrote this morning.

Thank everyone for coming!