Building Skills with Brick Math

A 10-Day Program to Sharpen Basic Math Skills

Addition

Program Overview

During this **Building Skills with Brick Math** program, students dive deeply into addition. 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 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.

10 Days   **1.5 – 2 Hours Per Day**

Day 1	**What Does it Mean to Add?** • Define addition • Discover what it means to add two numbers • Combine sets	**Vocabulary** • Add • Addend • Plus • Set • Sum
Day 2	**How Many Ways?** • Use multiple statements to find the same sum	**Vocabulary** • Addend • Equation • Sum
Day 3	**Ten-Frames Addition within Twenty** • How to add within 20	**Vocabulary** • Addend • Set • Sum • Ten-frames
Day 4	**Place Value Addition** • Model addition problems using place value of ones, tens, and hundreds	**Vocabulary** • Decompose • Place value • Ones • Tens • Hundreds
Day 5	**Decomposing Numbers** • Add numbers up to the sum of 20 using decomposing within 20	**Vocabulary** • Add • Addend • Compose • Decompose • Expanded form • Sum

Day 6	**Results Unknown Problems** • Use a model to find the missing sum in a problem	**Vocabulary** • Addend • Result • Sum • Ten-frames
Day 7	**Change Unknown Problems** • Model problems with a missing addend in the change location, which is the second addend or value in the problem	**Vocabulary** • Add • Addend • Change unknown • Sum
Day 8	**Start Unknown Problems** • Solve problems where the starting number in the problem is unknown	**Vocabulary** • Add • Start unknown
Day 9	**Adding Larger Numbers** • Add numbers to sums within 100 using a place value method	**Vocabulary** • Add • Sum • Addend • Compose • Decompose
Day 10	**Review and Assessment** • Assessment • Optional Parent Activity & Materials Check-In	

Common Core Math Standards addressed in the program:

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

CCSS.MATH.CONTENT.1.OA.A.2

Solve word problems that call for the 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.

CCSS.MATH.CONTENT.1.OA.C.5
Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

CCSS.MATH.CONTENT.1.OA.C.6
Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).

CCSS.MATH.CONTENT.1.OA.D.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? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.

CCSS.MATH.CONTENT.1.OA.D.8
Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 + \_ = 11$, $5 = \_ - 3$, $6 + 6 = \_$.

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

Materials Needed:
- Brick Math Addition Teacher Edition book
- Brick Math brick sets (one per student or one per pair of students)
- Brick Math Addition Student Edition book (one per student)
- Chart paper
- Markers or crayons (one set per student or pair of students)
- Sticky notes
- Cardstock
- Yarn
- Paper plates or large circles cut from 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 Addition 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 pieces. At the end of each day, the students will inventory one compartment of bricks in the box at your direction.

4. Students will need the following supplies:

   - One Brick Math Addition Student Edition book per student. 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.
   - Crayons or markers (one set per student or pair of students)
   - 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.
   - Cardstock
   - Yarn
   - Paper plates or large circles cut from tagboard or cardstock (3-4 per student)

5. Print on cardstock the following:

   Ones

   Tens

   Hundreds

   Addition sign (three of these)

   Equal sign (three of these)

   ? or empty box to represent unknown (three of these)

   The numbers zero through ten, each on a separate card. Two copies of each number are needed.

   One card each with the numbers 20, 30, 40, 50, 60, 70, 80, 90, 100, 200, and 300

Note: There are blank baseplate paper templates on pages 68-70 in the Addition Teacher Edition book. They may be helpful for the daily story problem activities. Make additional copies of blank baseplate paper as needed.

Day 1 – What Does it Mean to Add?

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 LEGO® 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 brick from the set. Tell us which color brick 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 bricks 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 a circle. Choose two students to go into the center of the circle. Ask how many students are in the center of the circle. Students should answer two. Ask them how they know it is two. Perhaps they counted "one-two." Say to students that if one student is added to one student there are two students, and now the class is starting to do addition!

Have the first two students stand near each other and choose a third student to move into the center of the circle but stand a bit away from the other two. Ask the students how many students are in the center of the circle. They should say three. Ask them if they can make an addition problem about two students and one more is added to the group. Show them that two students plus one student equal three students.

Have the three students return to their places around the circle.

Ask students what they think it means to add.

Have students look around the room and see things that they could add together.
Say:

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

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. 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.

What Does It Mean to Add?
Part 1: Show Them How

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

Follow the instructions on page 10 in the Brick Math Addition Teacher Edition. Complete #2.
Students complete page 5, Part 1, #2 in the Brick Math Addition Student Edition.

Follow the instructions on pages 10-11 in the Brick Math Addition Teacher Edition. Complete #3.
Students complete page 6, #3 in the Brick Math Addition Student Edition.

Follow the instructions on page 11 in the Brick Math Addition Teacher Edition. Complete #4.
Students complete page 6, #4 in the Brick Math Addition Student Edition.

Follow the instructions on page 12 in the Brick Math Addition Teacher Edition. Complete #5.
Students complete page 7, #5 in the Brick Math Addition Student Edition.

Follow the instructions on page 12 in the Brick Math Addition Teacher Edition. Complete #6.
Students complete page 7, #6 in the Brick Math Addition Student Edition.

Follow the instructions on page 13 in the Brick Math Addition Teacher Edition. Complete #7.
Students complete page 7, #7 in the Brick Math Addition Student Edition.

Follow the instructions on page 13 in the Brick Math Addition Teacher Edition. Complete #8.
Students complete page 8, #8 in the Brick Math Addition 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 addition song to have the students count and move around. The idea is for students to move and sing and have a chance to get their brains 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 14 in the Brick Math Addition Teacher Edition. Complete #1.
Students complete page 9, #1 in the Brick Math Addition Student Edition.

Follow the instructions on page 14 in the Brick Math Addition Teacher Edition. Complete #2.
Students complete page 10, #2 in the Brick Math Addition Student Edition.

Follow the instructions on page 15 in the Brick Math Addition Teacher Edition. Complete #3.
Students complete page 11, #3 in the Brick Math Addition Student Edition.

Follow the instructions on page 15 in the Brick Math Addition Teacher Edition. Complete #4.
Students complete page 12, #4 in the Brick Math Addition Student Edition.

Challenge

Read aloud the instructions for the Challenge at the bottom of page 15 in the Brick Math Addition Teacher Edition.
Students complete the Challenge on page 13 in the Brick Math Addition Student Edition.

Content Assessment

Students complete Assessment #1 on page 14 in the Brick Math Addition Student Edition.
Discuss the answers with the class. Help students improve their answers as needed.

Students complete Assessment #2 on page 14 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Students complete Assessment #3 on page 15 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Students complete Assessment #4 on page 15 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Story Problem

Tell students a story problem like the following:

> Juan had three red balloons for the birthday party. His friend Tavon
> brought 2 yellow balloons. Make a model to represent Juan's balloons and
> a model for Tavon's balloons. How many balloons do they have
> altogether?

Help students create brick models to show the balloons.

Have each pair work together to create a new story problem and a brick model that uses simple addition. 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.

Have the students remove all the 1x2 bricks from the box and count them. After the students have verified the number (30), 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 blank space at the bottom of page 15 in the Brick Math Addition Student Edition. Students need crayons to complete the self-assessment.

Ask students to write the word "partner" in the blank space at the bottom of page 15 in the Brick Math Student Edition. 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 as 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 "simple addition" in the blank space at the bottom of page 15. Students should draw a specific color brick after the words "simple addition" based on the following self-assessment.
Say:

I need help creating models to show simple addition. If this describes you today, draw an orange brick after the words "simple addition."

I can create models to show simple addition. If this describes you today, draw a green brick after the words "simple addition."

I can help others create models to show simple addition. If this describes you today, draw a blue brick after the words "simple addition."

Day 2 – How Many Ways?

Welcome

Welcome students back to Day 2. Start in the circle.

Ask students if they can remember who their partner is. Ask students if they can remember how to make models to show simple addition. Have students give verbal examples.

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

Have students find their partners and get crayons and one paper plate per team.

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

> All Stars
>
> 4 + 6 = 10

Partners work together to determine a team name and then write the name in the middle of the paper plate. Partners should determine an addition problem.

Have students color the edge of the paper plate with the numbers in the addition problem. In the example above, they could create four blue boxes on the left side of the plate and six red 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.

How Many Ways?

Have four students stand in a line. Ask the class how many students are in the line. [4]
You can have them count aloud if you like. Add zero students. How many students are there in the line? [4]

Have one student move a couple of feet away from the group. Ask students how many students are in the two groups. [1 and 3]
Ask the class if they can make an addition problem based on the two groups. [1 + 3 = 4 is one example]

Now have a second student move over with the first student so there are two groups of two. Ask the class how many students are in the two groups. [2 in each] Ask the class if they can make an addition problem based on the two groups. [2 + 2 = 4 is one example]

Have a third student move to the first group. Ask the class how many students are in the two groups. [3 and 1] Ask the class if they can make an addition problem based on the two groups. [3 + 1 = 4 is one example]

Now have all three students move back with the other student. Tell students that the first group has no students in it. Ask the class if they can make an addition problem based on the two groups. [0 + 4 = 4 is one example]

Point out that the students created 5 different ways to make a sum of 4.

Ask students what they think they will be doing today. Yes! Making a sum in different ways.

Have the students return to their seats with their partners.

Part 1: Show Them How
Follow the instructions on page 17 in the Brick Math Addition Teacher Edition. Complete #1. Students complete page 16, Part 1, #1 in the Brick Math Addition Student Edition.

Follow the instructions on page 17 in the Brick Math Addition Teacher Edition. Complete #2. Students complete page 16, Part 1, #2 in the Brick Math Addition Student Edition.

Follow the instructions on page 17 in the Brick Math Addition Teacher Edition. Complete #3. Students complete page 16, #3 in the Brick Math Addition Student Edition.

Follow the instructions on page 18 in the Brick Math Addition Teacher Edition. Complete #4. Students complete page 17, #4 in the Brick Math Addition Student Edition.

Follow the instructions on page 18 in the Brick Math Addition Teacher Edition. Complete #5. Students complete page 17, #5 in the Brick Math Addition Student Edition.

Move with Music
Have students get up from their places at the tables/desks because it is time for some movement.
Play a song that shows multiple ways to make a number. There are many music videos available on the Internet to help students learn ways to add to a sum of ten. Have students move to the music and sing. Students can use their bodies to show the numbers that add to ten.

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

Part 2: Show What You Know
Follow the instructions on page 18 in the Brick Math Addition Teacher Edition. Complete #1. Students complete page 18, Part 2, #1 in the Brick Math Addition Student Edition.

Follow the instructions on page 19 in the Brick Math Addition Teacher Edition. Complete #2. Students complete page 19, #2 in the Brick Math Addition Student Edition.

Follow the instructions on page 19 in the Brick Math Addition Teacher Edition. Complete #3. Students complete page 20, #3 in the Brick Math Addition Student Edition.

Content Assessment
Students complete Assessment #1 on page 21 in the Brick Math Addition Student Edition. Discuss the answers with the class. Help students improve their answers as needed.

Students complete Assessment #2 on page 22 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Students complete Assessment #3 on page 23 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Story Problem

Tell students a story problem like the following:

> Julia took five steps on the path. Her friend Donata asked her to take four additional steps. Then, Donata took three steps and then another six steps. Did each girl take the same number of steps?
>
> Create brick models to show the steps Julia took first and then the steps she added. How many total steps did Julia take?
> Create brick models to show the steps Donata took first and then the steps she added. How many total steps did Donata take?
> Did each girl take the same number of steps?

Help students complete the story problem and compare the steps.

Have each pair work together to create a new story problem that they can model with bricks and add to get a total of seven.

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.

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

Self-Assessment

Students need crayons to complete.

Ask students to write the word "partner" in the blank space at the bottom of page 23 in the Brick Math Addition Student Edition. 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 as 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 "more than one way" in the blank space at the bottom of page 23. Students should draw a specific color brick after the words "more than one way" 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 "more than one way."*

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

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 "more than one way." **Day 3 – Ten-Frames Addition within Twenty**

Preparation:

- **Read page 20 in the Brick Math Addition Teacher Edition**
- **Thirty paper plates or large cardstock circles**
- **Two packets of sticky notes**
- **Draw four ten-frames on chart paper or a whiteboard**

Welcome

Ask students if they remember different ways to make a sum of ten. Have several students make groups of classmates that equal ten and show the equation. Example: 4 + 6 = 10

Tell students today they are going to work with ten-frames.
Show students a model of a ten-frame, which is a 2x5 array. Since there are no bricks that are 2x5, it must be made from a combination of bricks. Make sure the bricks you choose to make the ten-frame are the same color.

Ask students how many studs are in a ten-frame. [10]
Show students two ten-frames. Ask students how many studs are in each ten-frame. [10]
Ask students what would be the largest number they could make with two ten-frames. [20]

Ask students if they are ready to get the materials and work with ten-frames. Yes!

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

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

Ten-Frames Review of Strategy
Complete the review of ten-frames on page 21 in the Brick Math Addition Teacher Edition. If students have never used ten-frames, slowly go through the activities focusing on the strategy.

Students complete page 24, #1 in the Brick Math Addition Student Edition.

Students complete page 24, #2 in the Brick Math Addition Student Edition.

Students complete page 25, #3 in the Brick Math Addition Student Edition.

Part 1: Show Them How
Follow the instructions on page 22 in the Brick Math Addition Teacher Edition. Complete #1.
Students complete page 26, Part 1, #1 in the Brick Math Addition Student Edition.

Follow the instructions on page 22 in the Brick Math Addition Teacher Edition. Complete #2. Students complete page 26, Part 1, #2 in the Brick Math Addition Student Edition.

Follow the instructions on page 22 in the Brick Math Addition Teacher Edition. Complete #3. Students complete page 26, #3 in the Brick Math Addition Student Edition.

Follow the instructions on page 23 in the Brick Math Addition Teacher Edition. Complete #4. Students complete page 27, #4 in the Brick Math Addition Student Edition.

Move to a Number

Place ten circles on the floor in a 2x5 pattern, wide enough that a student can stand on a circle without touching another student. (This is like a giant ten-frame.)

Create a second set of ten circles to create a second giant ten-frame.

Create a third set of ten circles to create a third giant ten-frame.

Show students the three sets of circles and ask them if they recognize the patterns. They should see 3 ten-frames.

Tell students they will be working to create the math sentence 4 + 6.
Choose students to sit on the circles to show 4 on the first ten-frame.
Choose students to sit on the circles to show 6 on the second ten-frame.

Ask students how they would create the answer on the third ten-frame.
Have students move from the first and second ten-frame to the third one. Ask students what is the total of 4 + 6. [10]

Have students return to their original locations off the ten-frames.

Give every student a blank sticky note. Show the four ten-frames you have drawn on chart paper or a whiteboard. Use one color to create the first and third ten-frame. Use another color to create the second and fourth ten-frame.

Give the students the problem 3 + 6. Ask students to give you the number for the first ten-frame. [3] Have three students place their sticky notes on the first ten-frame. (Use sticky notes that are all the same color.)

Ask students to give you the number for the second ten-frame. [6] Have six students place their sticky notes on the second ten-frame. (If possible, use a second color of notes.)

Ask students how to move and combine the sticky notes to the third ten-frame to show the sum. [9]

Have students explain their thinking, and then have them move the sticky notes.

Repeat the exercise using the problem 5 + 8. Students who did not participate in the last set of ten-frames are chosen first.

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

Part 2: Show What You Know

Follow the instructions on page 24 in the Brick Math Addition Teacher Edition. Complete #1. Students complete page 28, Part 2, #1 in the Brick Math Addition Student Edition.

Follow the instructions on page 24 in the Brick Math Addition Teacher Edition. Complete #2. Students complete page 29, #2 in the Brick Math Addition Student Edition.

Follow the instructions on page 25 in the Brick Math Addition Teacher Edition. Complete #3. Students complete page 30, #3 in the Brick Math Addition Student Edition.

Follow the instructions on page 25 in the Brick Math Addition Teacher Edition. Complete #4. Students complete page 31, #4 in the Brick Math Addition Student Edition.

Content Assessment

Students complete Assessment #1 on page 32 in the Brick Math Addition Student Edition. Discuss the answers with the class. Help students improve their answers as needed.

Students complete Assessment #2 on page 32 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Students complete Assessment #3 on page 33 in the Brick Math Addition 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 this 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 show their friends how they can use a ten-frame to help them with numbers. They each created a ten-frame. Cecilia showed 9 with her model and Erin showed 6 with her model. They wanted to model the sum of the two numbers next.

Help students complete the story problem and create 15 on the ten-frames showing the sum.

Have each pair work together to create a new story problem that uses four ten-frames to show 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.

Have the students remove all the 2x3 bricks from the box and count them. After the students have verified the number (10), 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 31 in the Brick Math Addition Student Edition. Students need crayons to complete.

Ask students to write the word "partner" in the blank space at the bottom of page 31. 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 as 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 "ten-frames" in the blank space at the bottom of page 31.
Students should draw a specific color brick after the words ten-frames" based on the following:
Say:

I need help using four ten-frames to show addition. If this describes you today, draw an orange brick after the words "ten-frames."

I can use four ten-frames to show addition. If this describes you today, draw a green brick after the words "ten-frames."

I can help others use four ten-frames to show addition. If this describes you today, draw a blue brick after the words "ten-frames."

Day 4 – Place Value Addition

Welcome

Students start in their circle area.

Ask students to explain what a ten-frame is. If a ten-frame is filled with bricks, what number does it represent? [10]

Ask what each of the individual studs or bumps represents on a ten-frame. [1]

Ask students what ten represents. [10 ones]

Tell students they are going to work with numbers today with place values – ones, tens, and hundreds.

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

Working with a Partner

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

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

Part 1: Show Them How

Follow the instructions on page 27 in the Brick Math Addition Teacher Edition. Complete #1. Students complete page 34, Part 1, #1 in the Brick Math Addition Student Edition.

Follow the instructions on page 27 in the Brick Math Addition Teacher Edition. Complete #2. Students complete page 35, Part 1, #2 in the Brick Math Addition Student Edition.

Follow the instructions on page 28 in the Brick Math Addition Teacher Edition. Complete #3. Students complete page 35, #3 in the Brick Math Addition Student Edition.

Follow the instructions on page 28 in the Brick Math Addition Teacher Edition. Complete #4. Students complete page 36, #4 in the Brick Math Addition Student Edition.

Follow the instructions on page 28 in the Brick Math Addition Teacher Edition. Complete #5. Students complete page 37, #5 in the Brick Math Addition Student Edition.

Students should now be putting together the ones', tens', and hundreds' columns and what each represents.

Move with Place Value

Play a song about place value and encourage students to sing along and create motions to help them remember place value. Allow students to be creative and enjoy singing and movement. There are a variety of place-value songs that can be used with students.
Tell students they are going to represent different values. Then place the cards you have prepared with Ones, Tens, and Hundreds on the floor in the correct order.

Tell students they are going to line up behind the place values to make a three-digit number. Use the number 431 as an example.

Choose one student at a time to position themselves behind the place value and tell what the value of the number is now. Then have the child sit down in that position so all children can see how many students are behind each place.

If the first child moves to the hundreds place, the value is 100. If the second child moves to the ones place, the value is 101. Continue until the value 431 is created. Have the students help each other position themselves and say the current value. The students at the beginning of the place value lines should verify the number of ones, tens, or hundreds behind them.

Take time to do several rounds, making certain that every child has participated at least twice.

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

Part 2: Show What You Know

Follow the instructions on page 29 in the Brick Math Addition Teacher Edition. Complete #1. Students complete page 38, #1 in the Brick Math Addition Student Edition.

Follow the instructions on page 29 in the Brick Math Addition Teacher Edition. Complete #2. Students complete page 38, #2 in the Brick Math Addition Student Edition.

Follow the instructions on page 29 in the Brick Math Addition Teacher Edition. Complete #3. Students complete page 39, #3 in the Brick Math Addition Student Edition.

Follow the instructions on page 30 in the Brick Math Addition Teacher Edition. Complete #4. Students complete page 40, #4 in the Brick Math Addition Student Edition.

Follow the instructions on page 30 in the Brick Math Addition Teacher Edition. Complete #5. Students complete page 41, #5 in the Brick Math Addition Student Edition.

Follow the instructions on page 30 in the Brick Math Addition Teacher Edition. Complete #6. Students complete page 42, #6 in the Brick Math Addition Student Edition.

Content Assessment

Students complete Assessment #1 on page 43 in the Brick Math Addition Student Edition. Discuss the answers with the class. Help students improve their answers as needed.

Students complete Assessment #2 on page 43 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Students complete Assessment #3 on page 44 in the Brick Math Addition 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 this 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 a game. Each one rolled a die that had ten
> sides. Davie rolled first. The first number rolled was 8, and it was placed in

the ones' column. The second number rolled was 2 and it was placed in the tens' column. Then Howie rolled. He rolled "0" first and placed it in the ones' column. Then he rolled "9" and placed it in the tens' column. What numbers did each boy create?
Stop here and get answers from the students.

Davie created 28 and Howie created 90. If you add the two numbers together, what is the sum? [118]
How many ones, tens, and hundreds are in the sum? [1 hundred, 1 ten, and 8 ones]

Help students complete the story problem.

Have each pair work together to create a new story problem that they can model with bricks and explain the place values of the numbers 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.

Have the students remove all the 1x3 bricks from the box and count them. After the students have verified the number (20), 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 Addition Student Edition. Students need 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 as 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 "Place value" in the blank space at the bottom of page 44. Students should draw a specific color brick after the words "Place value" based on the following:

Say:

I need help adding numbers correctly using place value. If this describes you today, draw an orange brick after the words "Place value."

I can add numbers correctly using place value. If this describes you today, draw a green brick after the words "Place value."

I can help others add numbers correctly using place value. If this describes you today, draw a blue brick after the words "Place value."

Day 5 – Decomposing Numbers

Welcome

Students start in their circle area. Tell students they are going to represent different values.

Place the card stock pages marked Ones and Tens on the floor in the correct order.
Tell students they are going to line up behind the place values to make numbers.

Start with a number like 7. Ask how many students are needed to create that number. [7] Choose 7 students to sit behind the one's place. Ask students the maximum number that the one's place can hold. [9] Ask students why the one's place can only hold 9. [Because if there are 10 ones, it should be shown as 1 ten. Ten ones are the same as 1 ten.]

Tell students you want to add 5 more to the number. Choose 5 students to stand to the side as 5 ones. Ask students how many more could be added to the 7 students in the one's column to have 10 ones. [3] Have 3 of the 5 students join the 7 and then count from 1 to 10. Ask students what should happen now that there are 10 ones. Have them repeat "10 ones equals 1 ten." Have all 10 students in the one's place sit down in the circle after giving a high five to the newly chosen student with all students counting to 10 as they high five. (The person representing 10 should be someone who has not represented a number in the ones.) This new "10" moves to the tens place.

Have the remaining 2 students (still off to the side) who are ones move to the one's place. Ask students what the new number is. [12] [1 ten and 2 ones] [7 + 5 = 12]

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

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.

Part 1: Show Them How

Follow the instructions on page 32 in the Brick Math Addition Teacher Edition. Complete #1.
Students complete page 45, #1 in the Brick Math Addition Student Edition.

Follow the instructions on page 32 in the Brick Math Addition Teacher Edition. Complete #2.
Students complete page 46, #2 in the Brick Math Addition Student Edition.

Follow the instructions on pages 32-33 in the Brick Math Addition Teacher Edition. Complete #3.
Students complete page 46, #3 in the Brick Math Addition Student Edition.

Follow the instructions on page 33 in the Brick Math Addition Teacher Edition. Complete #4.
Students complete page 46, #4 in the Brick Math Addition Student Edition.

Follow the instructions on page 34 in the Brick Math Addition Teacher Edition. Complete #5.
Students complete page 47, #5 in the Brick Math Addition Student Edition.

Follow the instructions on page 34 in the Brick Math Addition Teacher Edition. Complete #6.
Students complete page 48, #6 in the Brick Math Addition Student Edition.

Follow the instructions on page 34 in the Brick Math Addition Teacher Edition. Complete #7.
Students complete page 48, #7 in the Brick Math Addition Student Edition.

Follow the instructions on page 35 in the Brick Math Addition Teacher Edition. Complete #8.
Students complete page 49, #8 in the Brick Math Addition Student Edition.

Follow the instructions on page 35 in the Brick Math Addition Teacher Edition. Complete #9.
Students complete page 49, #9 in the Brick Math Addition Student Edition.

Follow the instructions on page 36 in the Brick Math Addition Teacher Edition. Complete #10.
Students complete page 50, #10 in the Brick Math Addition Student Edition.

Follow the instructions on page 36 in the Brick Math Addition Teacher Edition. Complete #11.
Students can use the bottom of page 50 in the Brick Math Addition Student Edition to write their answers if desired.

Follow the instructions on pages 36-37 in the Brick Math Addition Teacher Edition. Complete #12.

Students can use the bottom of page 50 in the Brick Math Addition Student Edition to write their answers if desired.

Follow the instructions on page 37 in the Brick Math Addition Teacher Edition. Complete #13. Students can use the bottom of page 50 in the Brick Math Addition Student Edition to write their answers if desired.

Move to Decompose Larger Numbers

Have students return to the circle area and take a seat.

Place the pages of card stock with Ones and Tens on the floor in the correct order.
Tell students they are going to line up behind the place values to make numbers.

Start with a number like 16. Ask how many students are needed to create that number. [7] Choose 6 students to sit behind the one's place, and 1 student to sit behind the tens place.

Ask students the maximum number that the one's place can hold. [9] Ask students why the one's place can only hold 9. [Because if there are 10 ones, it should be shown as 1 ten. Ten ones are the same as, or equal to, 1 ten.]

Tell students you want to add 15 more to the number. Choose 5 students to stand to the right side as 5 ones, and 1 student to stand behind the tens place. Ask students how many more could be added to the one's column to get 10 [4]
Have 4 students join the 6 ones and then count from 1 to 10. Ask students what should happen now that there are 10 ones. Have them repeat "10 ones equals 1 ten." Choose a student from the circle to represent 1 ten.

Have all 10 students in the one's place sit down in the circle after giving a high five to the newly chosen student with all students counting to 10 as they high five. (The person representing ten should be someone who has not represented a one.) This new "ten" moves to the tens place.

Then, have the remaining students to the side who are ones (1 one) move to the proper place value [one's place]. Ask students what the new number is. [31 [3 tens and 1 one] [16 + 15 = 31]

Repeat this process at least once more. Consider using a number like 29 and adding 11. Note that there will be zero ones in the one's place at the end of this problem. This is critical for students to work through.

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

Part 2: Show What You Know

Follow the instructions on page 38 in the Brick Math Addition Teacher Edition. Complete #1. Students complete page 51, #1 in the Brick Math Addition Student Edition.

Follow the instructions on page 38 in the Brick Math Addition Teacher Edition. Complete #2. Students complete page 52, #2 in the Brick Math Addition Student Edition.

Follow the instructions on page 38 in the Brick Math Addition Teacher Edition. Complete #3. Students complete page 53, #3 in the Brick Math Addition Student Edition.

Content Assessment

Students complete Assessment #1 on page 54 in the Brick Math Addition Student Edition. Discuss the answers with the class. Help students improve their answers as needed.

Students complete Assessment #2 on page 54 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Students complete Assessment #3 on page 54 in the Brick Math Addition 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 this 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 7 pennies and 6 dimes. Gerri had 3 dimes and 8 pennies. Build a place value model to help them know how much money they have altogether.

Help students complete the story problem and count the money. If using money is too difficult, then change the story to 67 marbles and 38 marbles.

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.

Ask students to write the expanded form of their sums on the bottom of page 54 under #3.

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

Have the students remove all the 1x1 bricks from the box and count them. After the students have verified the numbers (100, or 25 of each color), 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 54 in the Brick Math Addition Student Edition. Students need crayons to complete.

Ask students to write the word "partner" in the blank space at the bottom of page 54. 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 as 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 "Decompose" in the blank space at the bottom of page 54.

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

Say:

I need help decomposing a number. If this describes you today, draw an orange brick after the word "Decompose."

I can decompose a number. If this describes you today, draw a green brick after the word "Decompose."

I can help others decompose a number. If this describes you today, draw a blue brick after the word "Decompose."

Day 6 – Result Unknown Problems

Welcome

Welcome students to Day 6.

Students start in their circle area. Give each student a card with a number on it, as well as an addition sign and an equal sign.

Show students an addition problem like 3 + 6 = ?

Choose a student with the card "3" and a student with the card "6" and then choose two students to hold the addition sign and the equal sign, respectively.

Have students move into the correct positions to create the addition problem. Then ask students how they could determine the answer. There are several choices – including, but not limited to counting from 3 or having students move behind the numbers and then moving behind the space for the sum. After students have used one method correctly, ask them for another way to get the correct answer.

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

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.

Part 1: Show Them How

Follow the instructions on pages 41-42 in the Brick Math Addition Teacher Edition. Complete #1.
Students complete pages 55-56, #1 in the Brick Math Addition Student Edition.

Follow the instructions on pages 42-43 in the Brick Math Addition Teacher Edition. Complete #2.
Students complete page 57, #2 in the Brick Math Addition Student Edition.

Follow the instructions on pages 43-44 in the Brick Math Addition Teacher Edition. Complete #3.
Students complete page 58, #3 in the Brick Math Addition Student Edition.

More Than One Way

Have students return to the circle area and take a seat. Tell students that they are going to show more than one way to do something.

Challenge students to have them show six students in more than one way. For example, the six students could be in a single line, two people in three lines, or three people in two lines.

Have students repeat the activity with eight students.

Now, have students show more than one way to get the correct answer to the addition problem 3 + 5 = ?

Ask students how they could solve this problem in more than one way. They can move students around, they can count up, they can have students who represent the numbers pair up, and so forth. The critical part is that students come up with more than one way to solve the problem. Have students who did not raise their hands explain one way (a new way or a method that was already given), getting help from their partner or others as needed. Help students remember that helping is part of being a good partner or classmate.

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

Part 2: Show What You Know

Follow the instructions on page 44 in the Brick Math Addition Teacher Edition. Complete #1.
Students complete page 59, #1 in the Brick Math Addition Student Edition.

Follow the instructions on page 44 in the Brick Math Addition Teacher Edition. Complete #2.
Students complete page 60, #2 in the Brick Math Addition Student Edition.

Follow the instructions on page 45 in the Brick Math Addition Teacher Edition. Complete #3.

Students complete page 61, #3 in the Brick Math Addition Student Edition.

Challenge

Read aloud the Challenge question on page 45 in the Brick Math Addition Teacher Edition.
Write the Challenge equation on the whiteboard or chart paper.
Students complete the Challenge on page 62 in the Brick Math Addition Student Edition.

Content Assessment

Students complete Assessment #1 on page 63 in the Brick Math Addition Student Edition.
Discuss the answers with the class. Help students improve their answers as needed.

Students complete Assessment #2 on page 63 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Students complete Assessment #3 on page 64 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Story Problem

Tell students a story problem like the following:

> Samantha wanted to create a small garden. She planned to raise 6 tomato plants and 5 bean plants. How many total plants will she have in her garden?

Help students complete the story problem.

Have each pair work together to create a new story problem that they can model with bricks that shows simple addition with the sum (result) unknown.
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.

Have the students remove all the 1x6 bricks from the box and count them. After the students have verified the number (10), 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 64 in the Brick Math Addition Student Edition. Students need crayons to complete.

Ask students to write the word "partner" in the blank space at the bottom of page 64. 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 as 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 "Result unknown" in the blank space at the bottom of page 64. Students should draw a specific color brick after the words "Result unknown" based on the following:
Say:

>*I need help solving addition problems with the sum or result unknown. If this describes you today, draw an orange brick after the words "Result unknown."*

>*I can solve addition problems with the sum or result unknown. If this describes you today, draw a green brick after the words "Result unknown."*

I can help others solve addition problems with the sum or result unknown. If this describes you today, draw a blue brick after the words "Result unknown."

Day 7 – Change Unknown Problems

Preparation:

- **Read page 46 in the Brick Math Addition Teacher Edition**
- **Cards with numbers 0 through 9, +, =, and ?**

Welcome

Welcome students to Day 7.

Students start in their circle area. Give each student a card with a number on it. You can use the same cards as yesterday. Have an addition sign and an equal sign for use as well as a box or question mark.

Have students create the equation 6 + ? = 9 by standing with their cards.

Ask students what number is the sum. [9]

Ask students what number is the addend. [6] [Some students may also say "unknown."]

Ask students if the unknown (or question mark or box) represents an addend or a sum.

This is a crucial part of understanding the difference between an addend and a sum. Students normally believe that any unknown is the sum. However, this unknown is called a "change unknown" because it is in the second position and is not the start number.

Have all students sit down and repeat the process using different equations such as

4 + ? = 8

2 + ? = 2 (again, important that an unknown can be zero)

3 + ? = 9

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

Working with a Partner

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

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

Part 1: Show Them How

Follow the instructions on pages 47-48 in the Brick Math Addition Teacher Edition. Complete #1.

Students complete pages 65-66, #1 in the Brick Math Addition Student Edition.

Follow the instructions on pages 48-49 in the Brick Math Addition Teacher Edition. Complete #2.
Students complete page 67, #2 in the Brick Math Addition Student Edition.

Follow the instructions on pages 49-50 in the Brick Math Addition Teacher Edition. Complete #3.
Students complete page 68, #3 in the Brick Math Addition Student Edition.

Move to Find a Missing Addend

Have students return to the circle area and take a seat.

Give each student a card with a number on it. Have an addition sign and an equal sign for use as well as a box or question mark.

Have students create the equation 5 + ? = 9 by standing with their cards.
Ask students what number is the sum. [9]
Ask students what number is the addend. [5 (and the unknown is also an addend)]
Ask students if the unknown (or question mark or box) is an addend or a sum if the students have not already identified it. [Addend]
Review that the unknown is called a change unknown because it is in the second position and is not the start number.

Ask students how they can determine the value of the missing number or change unknown. They should be able to explain at least two ways.

Then, ask students what is the value of the sum. [9]
Ask students what is the value of the change unknown. [4]
Ask students what value is the in the start position. [5]

Repeat the process with new students and the new equation 2 + ? = 8
Repeat the process with new students and the new equation 7 + ? = 7
Repeat the process with more equations until all students have been a part of a math sentence.

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

Part 2: Show What You Know

Follow the instructions on pages 50-51 in the Brick Math Addition Teacher Edition. Complete #1.
Students complete page 69, #1 in the Brick Math Addition Student Edition.

Follow the instructions on pages 52-53 in the Brick Math Addition Teacher Edition. Complete #2.
Students complete page 70, #2 in the Brick Math Addition Student Edition.

Follow the instructions on pages 53-54 in the Brick Math Addition Teacher Edition. Complete #3.
Students complete page 71, #3 in the Brick Math Addition Student Edition.

Challenge

Read students the Challenge on page 54 in the Brick Math Addition Teacher Edition.
Write the Challenge problem on the whiteboard or chart paper so everyone can see it.
Students complete the Challenge on page 72 in the Brick Math Addition Student Edition.

Content Assessment

Students complete Assessment #1 on page 73 in the Brick Math Addition Student Edition.
Discuss the answers with the class. Help students improve their answers as needed.

Students complete Assessment #2 on page 73 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Students complete Assessment #3 on page 73 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Students complete Assessment #4 on page 73 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Students complete Assessment #5 on page 74 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Story Problem
Tell students a story problem like the following:

> Jasmine and Jason need 7 apples so everyone at the table can have one.
> They found 4 apples in the pantry. How many more apples do they need?

Help students complete the story problem. Have students explain what values are the addends and what value is the sum. Ask students the value of the change unknown.

Have each pair work together to create a new story problem that they can model with bricks. Have students write the math sentence on page 74 underneath the line. 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.

Have the students remove all the 2x6, 1x12, and 1x16 bricks from the box and count them. After the students have verified the numbers (4 2x6, 6 1x12, and 2 1x16), 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 74 in the Brick Math Addition Student Edition. Students need crayons to complete.

Ask students to write the word "partner" in the blank space at the bottom of page 74. 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 as 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 "Change unknown" in the blank space at the bottom of page 74. Students should draw a specific color brick after the words "Change unknown" based on the following:

Say:

I need help solving addition problems with a change unknown. If this describes you today, draw an orange brick after the words "Change unknown."

I can solve addition problems with a change unknown. If this describes you today, draw a green brick after the words "Change unknown."

I can help others solve addition problems with a change unknown. If this describes you today, draw a blue brick after the words "Change unknown."

Day 8 – Start Unknown Problems

Welcome

Welcome students to Day 8. Tell students they did a great job yesterday. Reminding them what they did yesterday will make what they are learning today a lot easier.

Students start in their circle area. Give each student a card with a number on it. You can use the same cards as yesterday. Have an addition sign and an equal sign for use as well as a box or question mark.

Review yesterday's lesson (this should be fairly quick). Have students create the equation 6 + ? = 9 by standing with their cards.
Ask students what number is the sum. [9]
Ask students what number is the addend. [6 — some students may also say "unknown"]
Ask students if the unknown (or question mark or box) represents an addend or a sum. [addend]

Have students sit down and change the equation to ? + 6 = 9.
Have different students create the equation ? + 6 = 9 by standing with their cards.
Ask students what number is the sum. [9]
Ask students what number is the addend. [6 (and unknown)]
Ask students if the start unknown (or question mark or box represents) is an addend or a sum. [Addend or start number]

Ask students if they can guess what they are going to work with today. [Start unknowns or the first addend missing]

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

Working with a Partner

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

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

Part 1: Show Them How

Follow the instructions on page 56 in the Brick Math Addition Teacher Edition. Complete #1.
Students complete page 75, #1 in the Brick Math Addition Student Edition.

Follow the instructions on page 56 in the Brick Math Addition Teacher Edition. Complete #2.
Students complete page 76, #2 in the Brick Math Addition Student Edition.

Follow the instructions on page 57 in the Brick Math Addition Teacher Edition. Complete #3.
Students complete page 76, #3 in the Brick Math Addition Student Edition.

Follow the instructions on page 57 in the Brick Math Addition Teacher Edition. Complete #4.
Students complete page 76, #4 in the Brick Math Addition Student Edition.

Follow the instructions on page 57 in the Brick Math Addition Teacher Edition. Complete #5.
Students complete page 76, #5 in the Brick Math Addition Student Edition.

Follow the instructions on page 58 in the Brick Math Addition Teacher Edition. Complete #6.
Students complete page 77, #6 in the Brick Math Addition Student Edition.

Follow the instructions on pages 58-59 in the Brick Math Addition Teacher Edition. Complete #7.
Students complete page 77, #7 in the Brick Math Addition Student Edition.

More to Find a Missing Addend
Have students return to the circle area and take a seat.
Give each student a card with a number on it. Have an addition sign, an equal sign, as well as a box or question mark available for use

Have students create the equation ? + 7 = 9 by standing with their cards.
Ask students what number is the sum. [9]
Ask students what number is the addend. [7 (and the unknown is also an addend)]
Ask students if the unknown (or question mark or box) is an addend or a sum if the students have not already identified it. [Addend]
Review that the unknown is called a start unknown because it is in the first position and is the start number, but it is unknown.

Ask students how they can determine the value of the missing number or start unknown. They should be able to explain at least two ways.

Then, ask students what is the value of the sum. [9]
Ask students what is the value of the addends. [2 and 7]
Ask students what value is the in the start unknown. [2]

Repeat the process with new students and the new equation ? + 5 = 8
Repeat the process with new students and the new equation ? + 7 = 7
Repeat the process with more equations until all students have been a part of the math sentence.

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

Part 2: Show What You Know

Follow the instructions on page 59 in the Brick Math Addition Teacher Edition. Complete #1, steps 1-3.
Students complete page 78, #1, steps 1-3 in the Brick Math Addition Student Edition.

Follow the instructions on page 60 in the Brick Math Addition Teacher Edition. Complete #2, steps 1-3.
Students complete page 79, #2, steps 1-3 in the Brick Math Addition Student Edition.

Follow the instructions on page 60 in the Brick Math Addition Teacher Edition. Complete #3, steps 1-3.
Students complete page 80, #3, steps 1-3 in the Brick Math Addition Student Edition.

Content Assessment

Students complete Assessment #1 on page 81 in the Brick Math Addition Student Edition.
Discuss the answers with the class. Help students improve their answers as needed.

Students complete Assessment #2 on page 81 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Students complete Assessment #3 on page 82 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Students complete Assessment #4 on page 82 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Students complete Assessment #5 on page 74 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Story Problem

Tell students a story problem like the following:

> Benjamin and Rebecca needed 10 marbles to play a game. Benjamin did not know where he left his marbles the last time they played. Rebecca had 6 marbles in her pocket. How many marbles does Benjamin need to find?

Help students complete the story problem. Assist them to create the math sentence
? + 6 = 10
Have students explain what values are the addends and what value is the sum. Ask students the value of the start unknown.

Have each pair work together to create a new story problem that they can model with bricks. Have students write the math sentence on page 82 underneath the line. Then have students solve for the start 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.

Have the students remove all the 1x10 bricks from the box and count them. After the students have verified the number (8), 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 82 in the Brick Math Addition Student Edition. Students need crayons to complete.

Ask students to write the word "partner" in the blank space at the bottom of page 82. 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 as 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 "Start unknown" in the blank space at the bottom of page 82. Students should draw a specific color brick after the words "Start unknown" based on the following:
Say:

> *I need help solving addition problems with a start unknown. If this describes you today, draw an orange brick after the words "Start unknown."*
>
> *I can solve addition problems with a start unknown. If this describes you today, draw a green brick after the words "Start unknown."*
>
> *I can help others solve addition problems with a start unknown. If this describes you today, draw a blue brick after the words "Start unknown."*

Day 9 – Adding Larger Numbers

Preparation:

- **Read page 61 in the Brick Math Addition Teacher Edition**
- **Cards with numbers 0 through 9, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 200, 300, +, =, and ?**

Welcome

Welcome students to Day 9. Tell students they did so well yesterday that today they are going to work with larger numbers.

Have students count by tens. [10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
Ask students to name large numbers that are less than 100. [For example, 63]

Give students a number, for example - 72, and ask students how many tens are in 72. [7]
Ask students how many ones are in the ones place of 72. [2] Then ask how many ones are in 72, and explain that the answer is 72. Help students see the difference.

Repeat this activity with 2 or 3 additional numbers.

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

Working with a Partner

Remind students of the partner rules created on Day 1. Have students write a short thank-you note to his or her partner for helping them this week. Students will exchange thank-you notes tomorrow.

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

Part 1: Show Them How

Follow the instructions on page 62 in the Brick Math Addition Teacher Edition. Complete #1. Students complete page 83, #1 in the Brick Math Addition Student Edition.

Follow the instructions on page 62 in the Brick Math Addition Teacher Edition. Complete #2. Students complete page 83, #2 in the Brick Math Addition Student Edition.

Follow the instructions on page 62 in the Brick Math Addition Teacher Edition. Complete #3. Students complete page 84, #3 in the Brick Math Addition Student Edition.

Follow the instructions on page 62 in the Brick Math Addition Teacher Edition. Complete #4. Students complete page 84, #4 in the Brick Math Addition Student Edition.

Follow the instructions on page 63 in the Brick Math Addition Teacher Edition. Complete #5. Students complete page 85, #5 in the Brick Math Addition Student Edition.

Building Bigger Numbers

Have students return to the circle area and take a seat.

Give each student a card with a number on it. These cards need to have these numbers: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 200, and 300.

Have an addition sign and an equal sign for use as well as a box or question mark.

Have students stand to create the math sentence 12 + 23 = ? using their cards.

Ask students how they can make 12 from the numbers they have on the cards. [10 and 2]

Ask students how they can make 23 from the numbers they have on the cards. [20 and 3]

Then place students with the addition sign and the equal sign and the box or question mark with the students holding 10, 2, 20, and 3 to make a math sentence.

Ask students what numbers are the addends. [12 and 23]

Ask students the name of the unknown. [Sum]

Ask students how they can determine the value of the missing number or sum. They should be able to explain at least two ways.

Ask students what is the value of the sum. [35]

Ask students the values of the addends. [12 and 23]

Ask students the value of the start number. [12]

Ask students the value of the change number. [23]

Repeat the process with new students and the new equation 56 + 31 = ?

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

Part 2: Show What You Know

Follow the instructions on page 63 in the Brick Math Addition Teacher Edition. Complete #1, steps 1-3.

Students complete page 86, #1 in the Brick Math Addition Student Edition.

Follow the instructions on page 64 in the Brick Math Addition Teacher Edition. Complete #2. Students complete page 86, #2 in the Brick Math Addition Student Edition.

Follow the instructions on page 64 in the Brick Math Addition Teacher Edition. Complete #3. Students complete page 87, #3 in the Brick Math Addition Student Edition.

Challenge

Read the Challenge problem on page 64 in the Brick Math Addition Teacher Edition to students. Students complete the Challenge on page 87 in the Brick Math Addition Student Edition.

Content Assessment

Students complete Assessment #1 on page 88 in the Brick Math Addition Student Edition. Discuss the answers with the class. Help students improve their answers as needed.

Students complete Assessment #2 on page 88 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Students complete Assessment #3 on page 88 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Story Problem

Tell students a story problem like the following:

> Rei Fiona had two piles of 2x4 bricks. The first pile had 46 bricks and the second pile had 32 bricks. How many 2x4 bricks did Rei Fiona have altogether?

Help students complete the story problem. Assist them to create the math sentence $46 + 32 = ?$

Have each pair work together to create a new story problem that they can model with bricks. Have students write the math sentence on page 85 underneath the line. Then have students solve for the start 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.

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

Have the students remove all the 2x4 bricks from the box and count them. After the students have verified the number (9), 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 85 in the Brick Math Addition Student Edition. Students need crayons to complete.

Ask students to write the word "partner" in the blank space at the bottom of page 85. 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 as 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 "Larger numbers" in the blank space at the bottom of page 82.

Students should draw a specific color brick after the words "Larger numbers" based on the following:

Say:

> *I need help solving addition problems with larger numbers. If this describes you today, draw an orange brick after the words "Larger numbers."*
>
> *I can solve addition problems with larger numbers. If this describes you today, draw a green brick after the words "Larger numbers."*
>
> *I can help others solve addition problems with larger numbers. If this describes you today, draw a blue brick after the words "Larger numbers."*

Reminder: Complete the Student Assessment Charts so they will be available to students at the end of class tomorrow. The Student Assessment Charts on page 89 of the Brick Math Addition Student Edition should be completed before Day 10 class begins. You will need to make your own assessments and make appropriate comments so students and parents can see the progress made. If you wish, students can complete this as a self-assessment by making a checkmark in the correct boxes, and then you can add your own assessments and comments.

Day 10 – Review and Assessment

Welcome

Welcome students to the final day of camp. Ask them if they have had fun and learned a lot about math. YES!

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

Working with a Partner

Remind students of the partner rules created on Day 1. Have students exchange the short thank-you notes they wrote yesterday with their partners.

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

How Many Ways?

Have students each show as many different ways to model the number 8 on their baseplates. Have several students share with the class one more way until all the possibilities on the baseplates have been shown.
Put the bricks back into the correct locations.

Ten-Frames Addition

Ask students to create 4 ten-frames on their baseplates.

Ask students to model 9 on the first ten-frame and 8 on the second ten-frame.
Tell students to add 9 + 8 and use the third and fourth ten-frames to model the answer.
Have students explain their answers. Ask students which values are the addends and which value is the sum.

Put the bricks back into the correct locations.

Where is the Unknown?

Ask students to model this math statement: 18 + ? = 20
Ask students the value of the start number. [18]
Ask students the value of the sum. [20]
Ask students the name of the unknown. [Change unknown]
Ask students the value of the change unknown. [2]

Ask students to model this math statement: ? + 23 = 45
Ask students the value of the change number. [23]
Ask students the value of the sum. [45]
Ask students the name of the unknown. [Start unknown or start number]

Ask students the value of the start unknown. [Twenty-two]

Ask students to model this math statement: 54 + 32 = ?
Ask students the value of the start number. [54]
Ask students the value of the change number. [32]
Ask students the name of the unknown. [Sum]
Ask students the value of the unknown sum. [86]

Expanded Form

Ask students to build a model of the number 43. There are a variety of ways. You can ask students to use place value if you wish.
Ask students how many tens are in 43. [4]
Ask students what is the value of the one's place. [3]
Ask students to give the expanded form for the number 43. [10 + 10 + 10 + 10 + 1 + 1 + 1]

Repeat this activity using the number 87.

Repeat the activity using the number 29.

Story Problem

Tell students a story problem like the following:

> Rei Fiona had two piles of 1x1 bricks. The first pile had 64 bricks and the second pile had 38 bricks. How many 1x1 bricks did Rei Fiona have altogether?

Help students complete the story problem. Assist them to create the math sentence
64 + 38 = ?
Have students explain what values are the addends. Ask students what type of number is unknown. [Sum]

Now, have each pair work together to create a new story problem that they can show on their baseplate. Have students write the math sentence on page 85 underneath the last line. Then, have students solve for the start unknown. Have students label the addends and the sum.

Content Assessment

Students complete Assessment #1 on page 88 in the Brick Math Addition Student Edition. Discuss the answers with the class. Help students improve their answers as needed.

Students complete Assessment #2 on page 88 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Students complete Assessment #3 on page 88 in the Brick Math Addition 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 this with their partners. Walk around the room and check students' work.

Optional Parent Activity and Materials Check-In

Allow parents to come to the classroom for 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.

Have students ask their parents to create a model of the number 6, using a 1x6. Ask if the number is odd or even. [Even] Have the students tell their parents the math statements for the model. [6 + 0 = 6 and 0 + 6 = 6]
Have students ask the parents to show another way to make the number six by stacking bricks on top of the 1x6.

Continue until all the possible ways have been created.

1 + 5 = 6

5 + 1 = 6

2 + 4 = 6

4 + 2 = 6

3 + 3 = 6

Place all the bricks back in the correct compartment of the box.

Then have students do the same thing with the number 8. Start with a 1x8 brick and then build on top.

The math statements are:

0 + 8 = 8

8 + 0 = 8

1 + 7 = 8

7 + 1 = 8

2 + 6 = 8

6 + 2 = 8

3 + 5 = 8

5 + 3 = 8

4 + 4 = 8

Place all the bricks back in the correct compartment of the box.

Adding Numbers using Place Value

Have students use 1x1 bricks to show ones and 1x2 bricks to show tens.

Have students show their parents how to build 23 using bricks. They can use either horizontal or vertical models.

Take the bricks off the baseplates.

Have students ask their parents to build 47 using the bricks with place value.

Have students verify the models.

Have students ask parents to build a second model for the number 21.

Have students verify the models.

Have students explain to parents that these two numbers are addends. Tell students to show their parents the start number and the change number. Have students tell their parents that they are going to find the sum of the two addends.

Have students ask parents to add the numbers together and create a model for the sum. Have students verify the models for the sum. [68]

Have a cheer for the parents!

Ask the students to tell the parents how many tens are in the sum. [6 tens]
Ask the students to tell the parents the number in the one's place. [8]

Ask the students to tell the parents the expanded form for 68. [10 + 10 + 10 + 10 + 10 + 10 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1]

Story Problem
Tell students a story problem like the following:

> Rei Fiona had two piles of 2x4 bricks. The first pile had 63 bricks and the
> second pile had 32 bricks. How many 2x4 bricks did Rei Fiona have
> altogether?

Ask students to help parents create models for the story problem and to create the sentence 63 + 32 = ?

Inventory Check
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.

Give each child or parent the completed Student Assessment Chart, noting growth in addition.

Tell everyone thanks for coming!