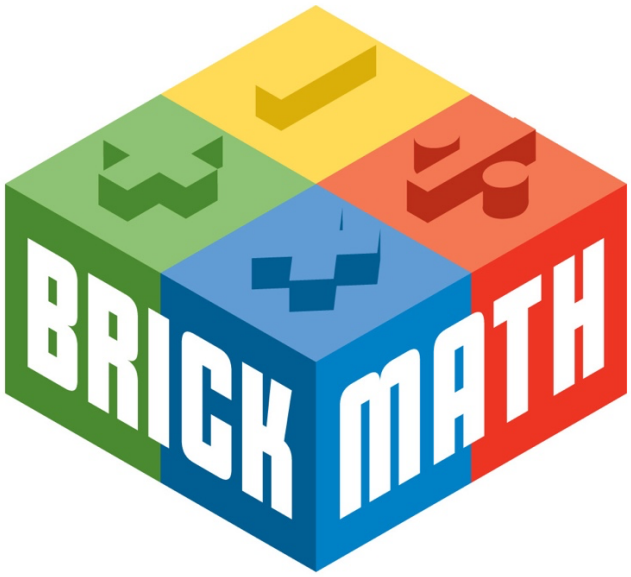

Building Skills with Brick Math

A 12-Day Program to Sharpen Basic Math Skills

Basic Fractions

Program Overview

During this **Building Skills with Brick Math** program, students dive deeply into **basic fractions**. 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 building models with manipulatives to drawing and to verbal explanations.

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

Schedule

12 Days **1.5 – 2 Hours Per Day**

Day 1	**Parts of a Fraction** • Define *numerator* • Define *denominator* • Learn the term *whole* and how it is represented in a fraction	**Vocabulary** • Numerator • Denominator
Day 2	**Benchmark Fractions** • Discover the benchmark fractions ¼, ½, and ¾	**Vocabulary** • Numerator • Denominator • Benchmark fractions
Day 3	**Adding Fractions with Like Denominators** • Add two fractions whose denominators are the same	**Vocabulary** • Numerator • Denominator • Like denominators
Day 4	**Subtracting Fractions with Like Denominators** • Subtract two fractions whose denominators are the same	**Vocabulary** • Numerator • Denominator • Like denominators
Day 5	**Factors** • Define *factor* • Find all the factors of numbers • Make models of fact families	**Vocabulary** • Numerator • Denominator • Like denominators • Factors
Day 6	**Equivalent Fractions** • Set up equivalent fraction family	**Vocabulary** • Equivalent fractions

Day 7	**Comparing and Ordering Fractions** • Compare two or more fractions with unlike denominators • Order fractions from least to greatest, and greatest to least	**Vocabulary** • Comparing fractions • Equivalent fractions • Least Common Denominators • Greater than • Less than
Day 8	**Adding Fractions with Unlike Denominators** • Add two fractions whose denominators are not the same • Find the Least Common Denominator	**Vocabulary** • Equivalent fractions • Fraction train • Least Common Denominator (LCD)
Day 9	**Subtracting Fractions with Unlike Denominators** • Subtract two fractions whose denominators are not the same • Review how to find the Least Common Denominator	**Vocabulary** • Different wholes • Difference • Subtrahend • Minuend
Day 10	**Mixed Numbers** • Identify and model mixed numbers • Understand the parts of a mixed numbers	**Vocabulary** • Mixed number
Day 11	**Adding and Subtracting Mixed and Numbers** • Add and subtract mixed numbers	**Vocabulary** • Different wholes • Sum • Addend • Difference • Subtrahend • Minuend • Mixed number or mixed fraction

Day 12	**Fraction Review** • Assessment • Optional Parent Activity and Materials Check in

Common Core Math Standards addressed:

CCSS.MATH.CONTENT.3.NF.A.1

Understand a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a*/*b* as the quantity formed by *a* parts of size 1/*b*.

CCSS.MATH.CONTENT.3.NF.A.2

Understand a fraction as a number on the number line; represent fractions on a number line diagram.

CCSS.MATH.CONTENT.3.NF.A.2.A

Represent a fraction 1/*b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size 1/*b* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line.

CCSS.MATH.CONTENT.3.NF.A.2.B

Represent a fraction *a*/*b* on a number line diagram by marking off a lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line.

CCSS.MATH.CONTENT.3.NF.A.3

Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

CCSS.MATH.CONTENT.3.NF.A.3.A

Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.

CCSS.MATH.CONTENT.3.NF.A.3.B

Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3. Explain why the fractions are equivalent, e.g., by using a visual fraction model.

CCSS.MATH.CONTENT.3.NF.A.3.C

Express whole numbers as fractions, and recognize fractions that are equivalent to whole

numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram*.

CCSS.MATH.CONTENT.3.NF.A.3.D
Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

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

Materials Needed

- Brick Math Basic Fractions Teacher Edition book
- Brick Math Basic Fractions Student Edition book (one per student)
- Brick Math brick sets – (one per student or one per pair of students)
- Math journal - can be created from lined paper stapled together with tagboard cover or may be a spiral notebook (one per student – will be used daily)
- Chart paper
- Markers (one set per student or pair of students)
- Colored pencils or crayons (one set per student or pair of students)
- Pencils (one per student)
- Paper plates (one per student)
- Cardstock
- Dice (one die per student)
- Scissors
- Tagboard or cardstock (3-4 sheets 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 Basic Fractions 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 students to be responsible for

their own 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 Basic Fractions 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.
    - Colored pencils or crayons (one set per student or pair of students)
    - Student journals you have prepared (one per student)
    - Optional: One foam sheet or shelf liner cut into a 12" x 18" rectangle per student. These sheets help keep the bricks from sliding off desks and tables.
5. Write the numbers 0 through 9 on cardstock, with one number per sheet. Make enough of these sheets so that you have one sheet for as many students as there are in the class. (If you have more than 10 students in the class, you will have duplicate sheets of some or all the numbers.)

Note: There are blank baseplate paper templates on pages 96 - 97 in the Basic Fractions Teacher Edition book. They may be helpful for the daily story problem activities. Make additional copies of blank baseplate paper as needed.

Day 1 – Parts of a Fraction

Preparation:

- Read page 9 in the Brick Math *Basic Fractions Teacher Edition*
- Find the video online: Let's Learn Fractions – Understanding Math for Kids, which helps students begin to learn fractions.

Welcome

Tell the students something similar to the following:

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

Show the students a Brick Math brick set.

Say:

> *First, I want to show you the brick set. What colors do you see? Each color has a name. Each of you has a name. We need to learn all the names of the people in our class and the names of the bricks. I would like you to sit in a large circle. Each person will say his or her name. Then, please choose one piece from the set. Tell us which color piece you chose and why.*
> *I will start.*
> *My name is _____. I chose a purple brick because purple is the same color as my favorite flower.*

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

Say:

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

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

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

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

Say:

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

Show students a 1x1 brick.
Say:

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

Make sure students understand that it is a 1x1 brick. Then show students a 1x6 brick. Continue to go through the bricks until students can do a good job of naming the bricks.
Ask the students to go around the circle and tell the name of the brick they chose. If a student is not sure or names it incorrectly, ask the student to count the width and length in studs, then help with the correct name.

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

Fractions of a Whole

Have students sit in two groups. Ask the class to look around the room.
Tell students the *whole* class has been *divided* into *two groups*. (You may need to be part of one group to make it even.) The class has been divided in half or into two groups. The two is the *denominator* or the number that represents *how many groups* one whole is divided into. The denominator is the bottom number of a fraction.

Have students look around the room and see things that they could divide into two or three equal parts. For example, the windows in the room might be divided in half (two equal panes). Or they could divide the number of desks or tables evenly into two or three groups. If the desks or tables were divided into three groups, the fraction would be 1/3 instead of 1/2.

Help students think about the concept of fractions by having them explain their ideas of dividing items in the room. What items are easily divided into two groups? What items are more easily divided into three groups?

Math Journals

Give each student a journal. Tell students they will be using the math journal every day. Give students 5-10 minutes to decorate the covers with markers or colored pencils.

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

Say:

Are you ready to work with a partner and do some fun building and learn about fractions?

Working with a Partner

Ask students their favorite thing about working with a partner. Then ask them what the best way is 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.

Work with the class to 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.

Parts of a Fraction

Part 1: Show Them How

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

Follow the instructions on page 11 in the Brick Math Basic Fractions Teacher Edition. Complete #2. Students complete page 6, #2 in the Brick Math Basic Fractions Student Edition.

Follow the instructions on page 11 in the Brick Math Basic Fractions Teacher Edition. Complete #3. Students complete page 7, #3 in the Brick Math Basic Fractions Student Edition.

Move with Music

Time for some movement! Show students the video Let's Learn Fractions – Understanding Math for Kids. Then, have students stand and move into small groups of their choice.

As you move around the room to each group, ask the class to tell how many students are in each group – they should not all be the same number. If groups appear to all have the same number of students, please combine a couple of groups. The intent is to have more than one denominator. Then talk about that group as a whole and ask how many parts would be in the whole. [The number of students]
Ask them what the number of students in the group would be called as part of a fraction. [Denominator]
Ask students if it makes sense to have a 0 in the denominator. [No – that means there isn't a whole, which is impossible to divide into parts.]

Ask each group to give the fraction of how many people wearing jeans are in the group.
Ask them what that number (the number wearing jeans) would be called as part of a fraction. [Numerator]

Ask each group to give the fraction of how many people have some purple in any of their clothing are in the group.

Ask them what that number (the number of people that have purple on their clothing) would be called as part of a fraction. [Numerator] Remind students that a numerator can be 0.

Repeat the activity after having at least two groups merge into one whole.

Have students return to their desks/tables with their partners. Have students work in small groups of 4 (two teams combined). These groups will continue to work together throughout the program to create a song, rap, or rhyme to help them with fractions. Have them start their group's song, rap, or rhyme today with a way to remember the definition of numerator and denominator. All students in the group write the words they create in their journals.

Part 2: Show What You Know

Read aloud the instructions for Part 2, #1 on page 11 in the Brick Math Basic Fractions Teacher Edition. Students complete page 7, Part 2, #1 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for #2 on page 12 in the Brick Math Basic Fractions Teacher Edition. Students complete page 8, #2 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for #3 on page 13 in the Brick Math Basic Fractions Teacher Edition. Students complete page 9, #3 in the Brick Math Basic Fractions Student Edition.

Challenge

Read aloud the instructions for #4, the Challenge Problem, on page 13 in the Brick Math Basic Fractions Teacher Edition.
Students complete page 10, the Challenge Problem, in the Brick Math Basic Fractions Student Edition.

Content Assessment

Tell students that they will complete the Content Assessment on their own. However, they will ask their partners to check the work *after* they have completed the assessment. Partners check the work, but they should not change their partner's models or write anything on another person's paper. Partners discuss the differences they might have on an answer.

Students complete Assessment #1 on page 10 in the Brick Math Basic Fractions Student Edition. Discuss the answers with the class. Help students to improve their answers as needed.

Students complete Assessment #2 on page 10 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work. Walk around the room and check students' work.

Students complete Assessment #3 on page 10 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work. Walk around the room and check students' work.

Students complete Assessment #4 on page 10 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work. Walk around the room and check students' work.

Students complete Assessment #5 on page 11 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work. Walk around the room and check students' work.

Story Problem

Tell students a story problem like the following:

> Juan had 16 bricks. He shared the bricks with his friend Antonio. He gave Antonio 5 of the bricks. What fraction of the bricks did Antonio have? Identify the numerator and denominator. [5/16; 5 is the numerator, and 16 is the denominator]

Students use their brick sets and journals to answer the story problem.

Have each pair work together to create a new story problem that they can model with bricks Have students write the story problem they have created in their journals.

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 journals. Students need colored pencils or crayons to complete.

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

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

> *I need to work on being a better partner. I did not listen to and help my partner like I should have.*
> *If this describes you today, draw an orange brick after the word "partner."*
>
> *I was a good partner today. I helped my partner but sometimes I did their work for them or I let them do my work.*
> *If this describes you today, draw a green brick after the word "partner."*
>
> *I was a very good partner today. I helped my partner by checking their work and not by doing their work. If this describes you today, draw a blue brick after the word "partner."*

Ask students to write "*I can identify the numerator and denominator*" in their journals. Students should draw a specific color brick after the words "*I can identify the numerator and denominator*" based on the following self-assessment.
Say:

> *I need help identifying the numerator and denominator. If this describes you today, draw an orange brick after the words "I can identify the numerator and denominator."*
>
> *I can identify the numerator and denominator. If this describes you today, draw a green brick after the words "I can identify the numerator and denominator."*
>
> *I can help others identify the numerator and denominator. If this describes you today, draw a blue brick after the words "I can identify the numerator and denominator."*

Day 2 – Benchmark Fractions

Preparation:

- Read page 14 and the top of page 15 in the Brick Math Basic Fractions Teacher Edition
- Find the video online Fractions Music Video by Washington School
- One sheet of tagboard or cardstock for each pair of students

Welcome

Welcome students back to day 2 of Building Skills with Brick Math.
Ask students to welcome their partners and tell them that that they look forward to working together.

Ask students if they can remember how to identify the numerator and denominator when working with parts of a whole. Ask students to identify the numerator and denominator in the following fractions:

1/8 [numerator = 1, denominator = 8]
2/3 [numerator = 2, denominator = 3]
4/5 [numerator = 4, denominator = 5]

Tell students that today they will create team names and fractions.
Have students team up with their partner and get colored pencils or crayons and one cardstock or tagboard sheet per team.

Show students an example of a team name and a fraction.
Example: All Stars and 7/8
Partners work together to determine a team name and then write the name in the middle of the sheet. Partners should determine a fraction.

Have students color the edge of the sheet with the numbers in the division problem. In the example above, they could draw and color seven slices of a pizza cut into 8 slices.

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 their assigned brick set(s) and 2 baseplates for their team.

Fractions – Parts of a Whole

Have ten students stand in a single line of ten. Ask the class how many students are in the line. [10]
Ask the students to break the group of ten into two equal groups. Ask students what each group represents using a fraction. [Half – ½, 5/10]

Ask the students if they can divide ten students evenly into ten groups. [Yes, 1 student per group, 1/10 of the whole]

Have those ten students take their seats. Have nine students stand in a line. Ask the students to divide the nine students into three equal parts. [3 students in a group, 3/9 or 1/3 of the whole]

Ask two of the groups to merge so there are 6 students in one group. What is the fraction of the whole? [6 students in the group, 6/9 or 2/3 or the whole]

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

Part 1: Show Them How

Follow the instructions on page 15 in the Brick Math Basic Fractions Teacher Edition. Complete #1. Students complete page 12, #1 in the Brick Math Basic Fractions Student Edition.

Follow the instructions on page 15 in the Brick Math Basic Fractions Teacher Edition. Complete #2. Students complete page 12, #2 in the Brick Math Basic Fractions Student Edition.

Follow the instructions on page 16 in the Brick Math Basic Fractions Teacher Edition. Complete #3. Students complete page 13, #3 in the Brick Math Basic Fractions Student Edition.

Follow the instructions on pages 16-17 in the Brick Math Basic Fractions Teacher Edition. Complete #4. Students complete page 13, #4 in the Brick Math Basic Fractions Student Edition.

Follow the instructions on page 17 in the Brick Math Basic Fractions Teacher Edition. Complete #5. Students complete page 14, #5 in the Brick Math Basic Fractions Student Edition.

Move with Music

Show students the video Fractions Music Video by Washington School.

Have students return to their desks/tables with their partners. Ask students to work in the small groups of two teams combined to add to their song, rap, or rhyme. Today they will add to the song, rap, or rhyme by creating a way to remember that the numerator is how many parts of the whole and the denominator is the total number of parts in the whole. All students in the group write the words they create in their journals adding to what they wrote previously.

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

Part 2: Show What You Know

Read aloud the instructions on page 18 in the Brick Math Basic Fractions Teacher Edition.
Students complete page 14, #1 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions on page 18 in the Brick Math Basic Fractions Teacher Edition.
Students complete page 15, #2 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions on page 18 in the Brick Math Basic Fractions Teacher Edition.
Students complete page 15, #3 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions on pages 18-19 in the Brick Math Basic Fractions Teacher Edition.
Students complete pages 16-17-18, #4 in the Brick Math Basic Fractions Student Edition.

Content Assessment

Remind students that they will complete the Content Assessment on their own. However, they will ask their partners to check the work *after* they have completed the assessment. Partners check the work, but they should not change their partner's models nor write anything on another person's paper. Partners discuss the differences they might have on an answer.

Students complete the Assessment on page 18 in the Brick Math Basic Fractions Student Edition.
Discuss the answers with the class. Help students to improve their answers as needed.

Story Problem

Tell students a story problem like the following:

Julia and Donata are playing a game with marbles. They share 12 marbles. Each player has ½ the marbles at the beginning of the game. How many marbles does each of them have? [6 marbles each]

Help students complete the story problem, build models, and explain the fraction and the fractional number of the whole. Students use their brick sets and journals to answer the story problem.

Have each pair work together to create a new story problem that they can model with bricks. Have students write the story problem they have created in their journals.

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

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

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

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

I need to work on being a better partner. I did not listen to and help my partner like I should have.
If this describes you today, draw an orange brick after the word “partner.”

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

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

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

Ask students to write "I can model benchmark fractions" in their journals.
Students should draw a specific color brick after the words "I can model benchmark fractions" based on the following:
Say:

I need help modeling benchmark fractions. If this describes you today, draw an orange brick after the words "I can model benchmark fractions."

I can model benchmark fractions. If this describes you today, draw a green brick after the words "I can model benchmark fractions."

I can help others model benchmark fractions. If this describes you today, draw a blue brick after the words "I can model benchmark fractions."

Day 3 – Adding Fractions with Like Denominators

Preparation:

- Read page 20 in the Brick Math Basic Fractions Teacher Edition
- Write a number from 0 to 9 on cardstock (one number on a sheet). Make enough sheets so every student can have one number. The class will need two copies of at least three numbers other than 0 to make like denominators.
- One die per student or pair of students
- Have chart paper and a marker available

Welcome

Ask students if they remember which part of a fraction is the numerator and which part is the denominator. Have them tell the numerator and denominator for the following fractions:

1/4
2/3
8/9

Tell students today they will be adding fractions with like denominators. Ask them what they think the term "like denominators" means. [Both fractions have the same number as the denominator]

Say aloud two fractions. Ask the students if the two fractions have like denominators. Have students give you a verbal response or have everyone give you thumbs up or down.

1/2 and 1/4 [No]
2/3 and 3/9 [No]
1/5 and 3/5 [Yes]
2/9 and 4/7 [No]
3/4 and 1/4 [Yes]

Working with a Partner

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

Have students find their partners and go to their desks/table. Have students get their assigned brick set(s) and two baseplates for their team.

Part 1: Show Them How

Follow the instructions on page 21 in the Brick Math Basic Fractions Teacher Edition. Complete Problem #1, steps 1 - 3. Students complete pages 19 - 20, Problem #1, steps 1 - 3 in the Brick Math Basic Fractions Student Edition.

Follow the instructions on page 22 in the Brick Math Basic Fractions Teacher Edition. Complete Problem #2, steps 1 - 2. Students complete page 21, Problem #2, steps 1 - 2 in the Brick Math Basic Fractions Student Edition.

Move with Fractions

Give each student a cardstock sheet with a number written on it. (The class will need two copies of at least three numbers other than 0 to show like denominators.) Have students stand around the room. Tell them they are to work together and form groups of two fractions with like denominators.

When students have made as many sets as possible, ask students to explain how to add the two fractions together and then give the sum. [Add the numerators, keep the denominator the same]

Ask students to find all new partners and create new fraction pairs with like denominators and repeat the activity.

Have students return to their tables or desks with their partners. Each pair will need one die.

Have all students create space for 5 groups of 2 fractions in their journals. Have students write a fraction line for each pair of fractions with space above for the numerator and below for the denominator. You may wish to demonstrate on chart paper.

Each partner rolls the die and writes the number represented in a location on the first two fraction templates. The fourth roll only has one choice because numbers are in the other locations.
Students circle the denominators and write “like” if they are the same and “unlike” if they are different.

After all the fractions have been created and identified, have students add the like fraction pairs. Students should write the correct sum in their journals.

Have students return the dice to you.

Have students return to their desks/tables with their partners. Ask students to work in the small groups of two teams combined to add to the song, rap, or rhyme they have been writing to help them with fractions. Have students write words to remember the difference between like and unlike denominators and how to add fractions with like denominators. All students in the group write the words they create in their journals adding to what they wrote previously.

Part 2: Show What You Know

Read aloud the instructions for Problem #1 on pages 23-24 in the Brick Math Basic Fractions Teacher Edition. Students complete Problem #1 on pages 22-23, steps 1 - 2 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for Problem #2 on page 25 in the Brick Math Basic Fractions Teacher Edition. Students complete pages 23-24, Problem #2, steps 1 - 2 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for Problem #3 on page 26 in the Brick Math Basic Fractions Teacher Edition. Students complete page 25, Problem #3 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for Problem #4 on page 27 in the Brick Math Basic Fractions Teacher Edition. Students complete page 26, Problem #4 in the Brick Math Basic Fractions Student Edition.

Content Assessment

Remind students that they will complete the Content Assessment on their own. However, they will ask their partners to check the work *after* they have completed the assessment. Partners check the work, but they should not change their partner's models nor write anything on another person's paper. Partners discuss the differences they might have on an answer.

Students complete Assessment #1 on page 27 in the Brick Math Basic Fractions Student Edition. Discuss the answers with the class. Help students to improve their answers as needed.

Students complete Assessment #2 on page 27 in the Brick Math Basic Fractions Student Edition.

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

Story Problems

Tell students a story problem like the following:

> Cecilia and Erin each have 1/3 of a pie to share. How much pie do they have altogether? [2/3 of a pie]

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

Tell students another story problem like the following:

> Cecilia and Erin have been gathering beads to make a necklace. Cecilia has 3/8 of the beads and Erin has 4/8 of the beads. Do they have enough beads to make a necklace? What fractional part of a necklace do the two girls have? [3/8 + 4/8 = 7/8 part of a necklace; no, they do not have enough beads to make a necklace]

Have students work with their partners to solve the story problem. Students use their brick sets and journals to answer the story problem. Students write the equation and answer in their journals.

Have each pair work together to create a new story problem, build a model and explain the answer. Have students write the story problem they have created in their journals.

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 their journals to complete the self-assessment. Students need colored pencils or crayons to complete.

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

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

> *I need to work on being a better partner. I did not listen to and help my partner like I should have.*
> *If this describes you today, draw an orange brick after the word "partner."*
>
> *I was a good partner today. I helped my partner but sometimes I did their work for them, or I let them do my work.*
> *If this describes you today, draw a green brick after the word "partner."*
>
> *I was a very good partner today. I helped my partner by checking their work and not by doing their work. If this describes you today, draw a blue brick after the word "partner."*

Ask students to write "I can add fractions with like denominators" in their journals. Students should draw a specific color brick after the words "I can add fractions with like denominators" based on the following:
Say:

> *I need help adding fractions with like denominators. If this describes you today, draw an orange brick after the words "I can add fractions with like denominators."*
>
> *I can add fractions with like denominators. If this describes you today, draw a green brick after the words "I can add fractions with like denominators."*
>
> *I can help others add fractions with like denominators. If this describes you today, draw a blue brick after the words "I can add fractions with like denominators."*

Day 4 – Subtracting Fractions with Like Denominators

Preparation:

- Read page 28 and the top of page 29 in the Brick Math Basic Fractions Teacher Edition
- Have the numbers 1, 2, 2, 4, 5, 5, 7, 7 on cardstock available
- Chart paper and markers for each group of 3-4 students
- Three dice per group of 3 or 4 students

Welcome

Welcome students to Day 4. Ask students if they remember how to add fractions with like denominators.

Give 4 students cards with the numbers 1,2,5,5. Have them create the fractions 1/5 and 2/5. Ask students to identify the numerators and denominators.
Ask the class to show one process to add these two fractions. [Sum is 3/5]

Give 4 different students cards with the numbers 2,4,7,7. Have them create the fractions 2/7 and 4/7. Ask the students to identify the numerators and denominators.
Ask the class to consider how they might subtract 2/7 from 4/7. [Difference is 2/7]

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

Working with a Partner

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

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

Part 1: Show Them How

Follow the instructions for Problem #1 on pages 29-30 in the Brick Math Basic Fractions Teacher Edition. Complete 1-4. Students complete pages 28-29, Problem #1, 1-4 in the Brick Math Basic Fractions Student Edition.

Follow the instructions for Problem #2 on page 30 in the Brick Math Basic Fractions Teacher Edition. Complete 1-2. Students complete pages 29-30, Problem #2, 1-2 in the Brick Math Basic Fractions Student Edition.

Challenge

Read aloud the instructions for the Challenge at the bottom of page 31 in the Brick Math Basic Fractions Teacher Edition.
Students complete the Challenge on page 30 in the Brick Math Basic Fractions Student Edition.

Move with Fractions

Have chart paper (or white boards) and markers available for student use. Place the chart paper where everyone can view. Students will use dice for this activity.

Have students stand around the room where they can see the chart paper. Give three students one die each and have them roll. The largest number of the three rolled is the denominator. The other two numbers will be the numerators of the fractions. Have a fourth student start to write two blank fractions: two lines with a subtraction sign between them. Then the student writes the denominator below both lines. Have a fifth student write the other two numbers rolled in the numerator spots that will be subtracted. For example, if 3, 6, and 2 were rolled, 6 would be the denominator, 3 the first numerator and 2 the second numerator creating the math sentence 3/6 – 2/6 = ? Ask the class to determine the difference. [1/6]

Break the students into groups of 3 - 4. Groups should be placed around the room. Each group will need one piece of chart paper, one marker, and three dice. Each group will repeat the activity – rolling dice, creating fractions, and solving.

When the groups have completed one fraction subtraction, ask students to change to different groups. The new group can have a maximum of two people who have worked together previously. Repeat the activity.

Ask students to change to different groups. Each new group can have a maximum of two people who have worked together previously. Repeat the activity.

Have students return to their desks/tables with their partners. Ask students to work in the small groups of two teams combined. Today they add to the song, rap, or rhyme to help them with fractions, writing words to remember how to subtract two fractions. Have all the students write the words they create in their journals, adding to what they wrote previously.

Part 2: Show What You Know

Read aloud the instructions for #1 on page 31 in the Brick Math Basic Fractions Teacher Edition. Students complete page 31, #1 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for #2 on page 32 in the Brick Math Basic Fractions Teacher Edition. Students complete page 32, #2 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for #3 on page 33 in the Brick Math Basic Fractions Teacher Edition. Students complete page 33, #3 in the Brick Math Basic Fractions Student Edition.

Content Assessment

Remind students that they will complete the Content Assessment on their own. However, they will ask their partners to check the work *after* they have completed the assessment. Partners check the work but they should not change their partner's models nor write anything on another person's paper. Partners discuss the differences they might have for an answer.

Students complete Assessment #1 on page 34 in the Brick Math Basic Fractions Student Edition. Discuss the answers with the class. Help students to improve their answers as needed.

Students complete Assessment #2 on pages 34-35 in the Brick Math Basic Fractions Student Edition.
Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

Students complete Assessment #3 on page 35 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work. Walk around the room and check students' work.

Story Problem

Tell students a story problem like the following:

> Davie and Howie were baking cookies. Davie measured ¼ cup of flour. The recipe required ¾ cup of flour. How much more flour does Howie need to measure? [3/4 – 1/4 = 2/4 or 1/2 cup of flour]

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 how they determined the answer. Have students write the story problem they have created in their journals.

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 their journals to complete the self-assessment. Students need colored pencils or crayons to complete.

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

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

> *I need to work on being a better partner. I did not listen to and help my partner like I should have.*
> *If this describes you today, draw an orange brick after the word "partner."*
>
> *I was a good partner today. I helped my partner but sometimes I did their work for them or I let them do my work.*
> *If this describes you today, draw a green brick after the word "partner."*
>
> *I was a very good partner today. I helped my partner by checking their work and not by doing their work. If this describes you today, draw a blue brick after the word "partner."*

Ask students to write "I can subtract fractions with like denominators" in their journals.

Students should draw a specific color brick after the words “I can subtract fractions with like denominators” based on the following:

Say:

> *I need help subtracting fractions with like denominators. If this describes you today, draw an orange brick after the words “I can subtract fractions with like denominators.”*
>
> *I can subtract fractions with like denominators. If this describes you today, draw a green brick after the words “I can subtract fractions with like denominators.”*

I can help others subtract fractions with like denominators. If this describes you today, draw a blue brick after the words “I can subtract fractions with like denominators.”

Day 5 – Factors

Preparation:

- Read page 34 in the Brick Math Basic Fractions Teacher Edition
- Chart paper and markers for each group of 3 - 4 students

Welcome

Welcome students to Day 5.

Ask students if they remember what factors are [Factors are numbers that are multiplied together to get another number or product. For example, 2 and 3 are factors of 6.]

Have students work in small groups of 3 - 4 people. Give each group chart paper and markers. Have the groups write the number 8 at the top of their chart paper. Under that, they should write the factors for 8. [1,2,4,8] You may wish to show this on the board for the whole class to see.

Ask the groups to write the multiplication math sentences using the factors in their journals.
[1 x 8 = 8, 2 x 4 = 8, 4 x 2 = 8, 8 x 1 = 8]

Have students move to different groups. Each new group can have a maximum of 2 people who have worked together previously.

Ask the students to draw a line under the number sentences (if there is room, or use a new sheet of paper over if they need more room). Have students write the number 6 below the line.
Ask students to write the factors for 6. [1,2,3,6]
Ask students to write the multiplication math sentences using the factors.
[1 x 6 = 6, 2 x 3 = 6, 3 x 2 = 6, 6 x 1 = 6]

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 for Problem #1 on pages 35-36 in the Brick Math Basic Fractions Teacher Edition. Complete 1-7. Students complete pages 36-37, Part 1, #1 in the Brick Math Basic Fractions Student Edition.

Follow the instructions for Problem #2 on page 36 in the Brick Math Basic Fractions Teacher Edition. Complete Problem 2. Students complete pages 37-38, Part 2, #1 in the Brick Math Basic Fractions Student Edition.

Move to Factors

Have students stand in a circle around the room.
Students will create a slow pattern of *stomp, stomp, clap, clap, snap, snap*.
They will be speaking only during the *snap, snap*.

You will give a number – Example: You say 8. The person to your left will give a factor, 1, 2, 4, or 8. The person to their right gives a different factor. Example, Person 1 says 2, Person 2 says 4, Person 3 now has the choice of 1 or 8. Person 4 must choose the last factor that has not been given. Go slow and if a student doesn't answer in the first *snap, snap*, allow them to have the extra time and see if they can say a factor in the next *snap, snap*. If a student cannot think of a factor, the third time through they can say "help, please." The class can answer in unison on the next *snap, snap*.

Continue to give a number between 1-10 for students to determine factors until all students have had a turn.

Have students return to their desks/tables with their partners. Ask students to work in the small groups of two teams combined to add to the song, rap, or rhyme to help them with fractions. Today students write words to remember how to find the factors of a number. All students in the group write the words they create in their journals, adding to what they wrote previously.

Part 2: Show What You Know

Read aloud the instructions for #1 on page 37 in the Brick Math Basic Fractions Teacher Edition. Students complete page 38, #2 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for #2 on page 38 in the Brick Math Basic Fractions Teacher Edition. Students complete page 39, #3 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for #3 on page 39 in the Brick Math Basic Fractions Teacher Edition. Students complete page 39, #4 in the Brick Math Basic Fractions Student Edition.

Content Assessment

Students complete Assessment #1 on page 40 in the Brick Math Basic Fractions Student Edition. Discuss the answers with the class. Help students to improve their answers as needed.

Students complete Assessment #2 on page 40 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

Story Problem

Tell students a story problem like the following:

> Tonica and Gerri were working on some math homework. They were trying to find all the factors for 18. Can you help Tonica and Gerri with their homework? [1, 2, 3, 6, 9, 18]

Have students write the factors in their journals after building a model.

Have each pair work together to create a new story problem that they can model with bricks. Have students write the story problem they have created in their journals.

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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 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 their journals. Students need colored pencils or crayons to complete.

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

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

> *I need to work on being a better partner. I did not listen to and help my partner like I should have.*
> *If this describes you today, draw an orange brick after the word "partner."*
>
> *I was a good partner today. I helped my partner but sometimes I did their work for them, or I let them do my work.*
> *If this describes you today, draw a green brick after the word "partner."*
>
> *I was a very good partner today. I helped my partner by checking their work and not by doing their work. If this describes you today, draw a blue brick after the word "partner."*

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

> *I need help finding the factors of a number. If this describes you today, draw an orange brick after the words "I can find the factors of a number."*
>
> *I can find the factors of a number. If this describes you today, draw a green brick after the words "I find the factors of a number."*
>
> *I can help others find the factors of a number. If this describes you today, draw a blue brick after the words "I find the factors of a number."*

Day 6 – Equivalent Fractions

Preparation:

- Read page 40 in the Brick Math Basic Fractions Teacher Edition
- One paper plate and scissors per student
- A timer or way to monitor the time elapsed in seconds
- Write each of the following fractions on tagboard or index cards. These will be used by the pitcher in the baseball game. You'll use these again on Day 9.

½	1/3	¼	1/5	1/6	1/7	1/8
2/2	2/3	2/4	2/5	2/6	2/7	2/8
	3/3	¾	3/5	3/6	3/7	3/8
		4/4	4/5	4/6	4/7	4/8
			5/5	5/6	5/7	5/8
				6/6	6/7	6/8
					7/7	7/8
						8/8

Welcome

Welcome students to Day 6. Ask students to give all the factors for 12. [1, 2, 3, 4, 6, 12] Tell them they are doing a great job and they are ready to learn something new.
Tell them today they are going to work with equivalent fractions, which are fractions that all represent the same number.

Ask them if they cut a pizza in two parts, what would be the fraction for each part? [1/2]
Give students a paper plate and scissors and ask them to cut it in half. Each side is 1/2.
Have students cut each of the halves into two equal pieces. Now the pizza (paper plate) has four parts. Ask students how many of the fourths are equal to one half. [2/4]
Ask students to cut each of the fourths into two equal pieces. How many pieces of pizza (paper plate) are there? [8]
Ask students how many of the eights are equal to one half. [4/8]
Ask students if they see any patterns. [The denominator is twice as much as the numerator – the numerator is half of the denominator]

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

Working with a Partner

Remind students of the partner rules created on Day 1. Have students write in their journals one way the two partners 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 for Problem #1 on pages 41-42 in the Brick Math Basic Fractions Teacher Edition. Complete Problem #1, 1-4. Students complete pages 41-42, Problem #1 in the Brick Math Basic Fractions Student Edition.

Follow the instructions for Problem #2 on pages 42-43 in the Brick Math Basic Fractions Teacher Edition. Complete Problem #2. Students complete page 42, Problem #2 in the Brick Math Basic Fractions Student Edition.

Move with Equivalent Fractions

Set up a “baseball game” in the classroom with areas for first, second, and third base, and home plate.
Divide students into two teams. Choose one team to be at bat first and let the students choose the batting order.
You can be the pitcher or you can give that role to someone on the other team. Shuffle the fraction cards. Without looking, the pitcher chooses a card and reads the fraction. The batter has 7 seconds to give an equivalent fraction. If the batter answers correctly in the time allowed, they move to first base. If the batter does not answer in 7 seconds or gives an incorrect answer, the batter is out. One inning ends when a team either gets three outs or everyone on the team has batted.
Switch sides and let the other team have a turn at bat. Play complete innings until all students have batted at least once.

Have students return to their desks/tables with their partners. Ask students to work in the small groups of two teams combined. Today they add to the song, rap, or rhyme to help them with fractions, writing words to remember how to create equivalent fractions. All students should write the words they create in their journals adding to what they wrote previously.

Part 2: Show What You Know

Read aloud the instructions for #1 on page 43 in the Brick Math Basic Fractions Teacher Edition. Students complete page 43, #1 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for #2 on pages 43-44 in the Brick Math Basic Fractions Teacher Edition. Students complete page 44, #2 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for #3 on page 44 in the Brick Math Basic Fractions Teacher Edition. Students complete page 45, #3 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions on page 45 in the Brick Math Basic Fractions Teacher Edition. Students complete page 46, #4 in the Brick Math Basic Fractions Student Edition.

Content Assessment

Remind students that they will complete the Content Assessment on their own. However, they will ask their partners to check the work *after* they have completed the assessment. Partners check the work, but they should not change their partner's models nor write anything on another person's paper. Partners discuss the differences they might have on an answer.

Students complete Assessment #1 on page 47 in the Brick Math Basic Fractions Student Edition. Discuss the answers with the class. Help students to improve their answers as needed.

Students complete Assessment #2 on page 47 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

Students complete Assessment #3 on page 48 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work. Walk around the room and check students' work.

Story Problem

Tell students a story problem like the following:

> Samantha had a pie she wanted to share. First, she cut the pie into two equal parts.
>
> - What fraction of a pie is one of parts? [1/2]

Then, she decided that one person should not eat that much pie. She cut each of the parts evenly into three pieces.

- How many pieces of pie did Samantha have? [6]
- What fractional part of the whole pie is each piece? [1/6]
- How many pieces of pie would be equal to one-half of the pie? [3 pieces or 3/6 is equal to one half]

Help students complete the story problem and write the answers in their journals.

Have each pair work together to create a new story problem that they can model with bricks that shows equivalent fractions. Have students write the story problem they have created in their journals.

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 48 in the Brick Math Basic Fractions Student Edition. Students need colored pencils or crayons to complete.

Ask students to write the word “partner” in the blank space at the bottom of page 48. Read aloud the statements to the students and have them draw the correct color brick.

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

I need to work on being a better partner. I did not listen to and help my partner like I should have.
If this describes you today, draw an orange brick after the word “partner.”

I was a good partner today. I helped my partner but sometimes I did their work for them, or I let them do my work.
If this describes you today, draw a green brick after the word "partner."

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

Ask students to write "I can create equivalent fractions" in the blank space at the bottom of page 48.
Students should draw a specific color brick after the words "I can create equivalent fractions" based on the following:
Say:

I need help creating equivalent fractions. If this describes you today, draw an orange brick after the words "I can create equivalent fractions."

I can create equivalent fractions. If this describes you today, draw a green brick after the words "I can create equivalent fractions."

I can help others create equivalent fractions. If this describes you today, draw a blue brick after the words "I can create equivalent fractions."

Day 7 – Comparing and Ordering Fractions

Preparation:

- Read pages 46-47 in the Brick Math Basic Fractions Teacher Edition
- Six tagboard cards with one each of the following numbers on them: 6, 8, 12, 14, 16

Welcome

Welcome students to Day 7.
Ask students to give more than one equivalent fraction for 2/4.
Ask students to give more than one equivalent fraction for 0/2. (This may be the first time that students have encountered 0 in the numerator.)

Tell students that today they will be comparing fractions and then placing fractions in a given order.
Ask students if they have ever heard of least common denominator. Go through the term slowly: *least*, meaning the *smallest* multiple that is common, or part of two or more fractions, in the denominator of the fraction. The least common denominator is often referred to as LCD.
Ask students what LCD stands for. [Least common denominator]

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

Working with a Partner

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

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

Part 1: Show Them How

Follow the instructions on pages 47-50 in the Brick Math Basic Fractions Teacher Edition. Complete Problem #1, 1-7. Students complete pages 49-54, Problem #1, 1-7 in the Brick Math Basic Fractions Student Edition.

Follow the instructions on pages 50-53 in the Brick Math Basic Fractions Teacher Edition. Complete Problem #2, 1-8. Students complete pages 54-56, Problem #2, 1-8 in the Brick Math Basic Fractions Student Edition.

Move to an LCD

Have cards with the numbers 6, 8, 12, 14, and 16 positioned around the room.
Tell students they are going to find the least common denominator for two fractions.
Ask students to walk to the card with the number they believe is the LCD for 1/2 and 3/8. [8]
Ask students to explain how they arrived at the number.

Ask students walk to the card with the number they believe is the LCD for 2/3 and 1/2. [6]
Ask students to explain how they arrived at the number.

Ask students walk to the card with the number they believe is the LCD for 2/3 and 1/4. [12]
Ask students to explain how they arrived at the number.

Have students return to their desks/tables with their partners. Ask students to work in the small groups of two teams combined. Today they add to the song, rap, or rhyme to help them with fractions, writing words to remember how to determine the least common denominator (LCD). All students should write the words they create in their journals adding to what they wrote previously.

Part 2: Show What You Know

Read aloud the instructions for #1 on page 53 in the Brick Math Basic Fractions Teacher Edition.
Students complete page 57, #1 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for #2 on page 54 in the Brick Math Basic Fractions Teacher Edition.
Students complete page 58, #2 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for #3 on page 55 in the Brick Math Basic Fractions Teacher Edition.
Students complete page 59, #3 in the Brick Math Basic Fractions Student Edition.

Content Assessment

Remind students that they will complete the Content Assessment on their own. However, they will ask their partners to check the work *after* they have completed the assessment. Partners check the work but they should not change their partner's models nor write anything on another person's paper. Partners discuss the differences they might have on an answer.

Students complete Assessment #1 on page 60 in the Brick Math Basic Fractions Student Edition.
Discuss the answers with the class. Help students to improve their answers as needed.

Students complete Assessment #2 on page 60 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

Students complete Assessment #3 on page 61 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work. Walk around the room and check students' work.

Students complete Assessment #4 on page 62 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work. Walk around the room and check students' work.

Story Problem

Tell students a story problem like the following:

> Jasmine and Jason found some fraction tiles and decided to have some math fun. The tiles they found were: 1/2, 8/9, 5/6, 2/9, and 1/3. They placed the tiles in descending order, from greatest to least.
> What order did they place the fraction tiles? [8/9, 5/6, 1/2, 1/3, 2/9]

Help students to complete the story problem by using models and explaining their process. Have students write the fractions in descending order in their journals.

Have each pair work together to create a new story problem that they can model with bricks. Have students write the story problem they have created in their journals.

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 their journals to complete the self-assessment. Students need colored pencils or crayons to complete.

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

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

> *I need to work on being a better partner. I did not listen to and help my partner like I should have.*
> *If this describes you today, draw an orange brick after the word "partner."*
>
> *I was a good partner today. I helped my partner but sometimes I did their work for them or I let them do my work.*
> *If this describes you today, draw a green brick after the word "partner."*
>
> *I was a very good partner today. I helped my partner by checking their work and not by doing their work. If this describes you today, draw a blue brick after the word "partner."*

Ask students to write "I can find the least common denominator" in their journals. Students should draw a specific color brick after the words "I can find the least common denominator" based on the following:
Say:

> *I need help finding the least common denominator. If this describes you today, draw an orange brick after the words "I can find the least common denominator."*
>
> *I can find the least common denominator. If this describes you today, draw a green brick after the words "I can find the least common denominator."*
>
> *I can help others find the least common denominator. If this describes you today, draw a blue brick after the words "I can find the least common denominator."*

Day 8 – Adding Fractions with Unlike Denominators

Preparation:

- Read page 56 and the top of page 57 in the Brick Math Basic Fractions Teacher Edition

Welcome

Welcome students to Day 8. Tell them how proud you are of the work they have done and what they have accomplished.

Tell students that today they will be adding fractions with unlike denominators. Ask them what they think the term "unlike denominators" means. [The denominators for the two or more fractions are not the same]

Ask students to identify the denominators in the fractions 1/2 and 3/5. [2 and 5]
Ask students to identify the least common denominator (LCD) for the fractions. [10]
Ask students to make an equivalent fraction for 1/2 with a denominator of 10. [5/10]
Ask students to make an equivalent fraction for 3/5 with a denominator of 10. [6/10]
Ask students to add 5/10 + 6/10 = ? [11/10 or 1-1/10]

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

Working with a Partner

Remind students of the partner rules created on Day 1. Have students tell their partners one thing they appreciate about having a partner.

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 57-59 in the Brick Math Basic Fractions Teacher Edition. Complete Problem #1, #1-9. Students complete pages 63-65, Problem 1, 1-9 in the Brick Math Basic Fractions Student Edition.

Follow the instructions on pages 59-61 in the Brick Math Basic Fractions Teacher Edition. Complete Problem #2, 1-7. Students complete pages 66-67, Problem #2, 1-7 in the Brick Math Basic Fractions Student Edition.

Move to Add Fractions with Unlike Denominators

Have students make groups of 5. Have each student choose to be A, B, C, D, or E. Each group needs a student with each letter. If a group has 4 students, one student should have two roles.
Give each group two fractions: 2/3 and 4/5.
Have the students do the following:
A – Determine the LCD for the two fractions
B – Determine the equivalent fraction for 2/3
C – Determine the equivalent fraction for 4/5
D – Add the two fractions together
E – Verify the answer and determine another way to write the answer.

Have groups compare their answers.

Give each group two fractions: 4/5 and 3/4.
C – Determine the LCD for the two fractions
D – Determine the equivalent fraction for 4/5
E – Determine the equivalent fraction for 3/4
A – Add the two fractions together
B – Verify the answer and determine another way to write the answer.

Have groups compare their answers.

Have students return to their desks/tables with their partners. Ask students to work in the small groups of two teams combined. Today they add to the song, rap, or rhyme to help them with fractions, writing words to remember how to add fractions with unlike denominators. All students should write the words they create in their journals adding to what they wrote previously.

Part 2: Show What You Know

Read aloud the instructions for #1 on pages 61-62 in the Brick Math Basic Fractions Teacher Edition. Students complete page 68, #1 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for #2 on page 62 in the Brick Math Basic Fractions Teacher Edition. Students complete page 69, #2 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for #3 on page 63 in the Brick Math Basic Fractions Teacher Edition. Students complete page 70, #3 in the Brick Math Basic Fractions Student Edition.

Content Assessment

Remind students that they will complete the Content Assessment on their own. However, they will ask their partners to check the work *after* they have completed the assessment. Partners check the work but they should not change their partner's models nor write anything on another person's paper. Partners discuss the differences they might have for an answer.

Students complete Assessment #1 on page 71 in the Brick Math Basic Fractions Student Edition. Discuss the answers with the class. Help students to improve their answers as needed.

Students complete Assessment #2 on page 71 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

Students complete Assessment #3 on pages 71-72 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work. Walk around the room and check students' work.

Students complete Assessment #4 on page 73 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work. Walk around the room and check students' work.

Story Problem

Tell students a story problem like the following:

> Jasmine earned 2/5 of a point and Jason earned 3/4 of a point. If they have at least 1 point, they can get a prize from the classroom prize box. Can Jasmine and Jason get a prize? [2/5 + 3/4 = 23/20 or 1-3/20; yes, they can get a prize]

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

Have each pair work together to create a new story problem that they can model with bricks. Have students write the story problem they have created in their journals, and also write how to solve the story problem.

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

Inventory Check

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

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

Self-Assessment

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

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

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

> *I need to work on being a better partner. I did not listen to and help my partner like I should have.*
> *If this describes you today, draw an orange brick after the word "partner."*
>
> *I was a good partner today. I helped my partner but sometimes I did their work for them, or I let them do my work.*
> *If this describes you today, draw a green brick after the word "partner."*
>
> *I was a very good partner today. I helped my partner by checking their work and not by doing their work. If this describes you today, draw a blue brick after the word "partner."*

Ask students to write "I can add fractions with unlike denominators" in their journals. Students should draw a specific color brick after the words "I can add fractions with unlike denominators" based on the following:
Say:

> *I need help adding fractions with unlike denominators. If this describes you today, draw an orange brick after the words "I can add fractions with unlike denominators."*

I can add fractions with unlike denominators. If this describes you today, draw a green brick after the words "I can add fractions with unlike denominators."

I can help others add fractions with unlike denominators. If this describes you today, draw a blue brick after the words "I can add fractions with unlike denominators."

Day 9 – Subtracting Fractions with Unlike Denominators

Preparation:

- Read page 64 and top of 65 in the Brick Math Basic Fractions Teacher Edition
- The fraction cards used in Day 6 for the baseball game
- Chart paper set up so whole class can see it

Welcome

Welcome students to Day 9.
Tell students they did a great job yesterday adding fractions with unlike denominators. Ask students what unlike denominators are. [The denominators of two or more fractions are not the same]
Ask students what they had to do to add fractions with unlike denominators. [Determine the least common denominator, the make equivalent fractions with the same denominator and add numerators]

Ask students what steps they think they would need to do to subtract fractions with unlike denominators. [Determine LCD, make equivalent fractions with the same denominator, and subtract numerators] Tell them they already know how to subtract fractions with unlike denominators!

Have students find their partner and move to their tables/desks.

Working with a Partner

Remind students of the partner rules created on Day 1. Place students in groups of 6-8. Have each student tell the group one of the great qualities about his or her partner.

Have students find their partner and move to their tables/desks.
Have students get the correct Brick Math set(s) and two baseplates for their team.

Part 1: Show Them How

Follow the instructions for #1 on pages 65-68 in the Brick Math Basic Fractions Teacher Edition. Complete Problem #1, 1-8. Students complete pages 74-77, Problem #1, 1-8 in the Brick Math Basic Fractions Student Edition.

Follow the instructions for #2 on pages 68-69 in the Brick Math Basic Fractions Teacher Edition. Complete Problem #2, 1-3. Students complete pages 78-79, Problem #2, 1-3 in the Brick Math Basic Fractions Student Edition.

Move with Equivalent Fractions

Set up a baseball game with home plate and first, second, and third base in the classroom. Divide students into two teams. Choose one team to be at bat first and let the students choose the batting order.

You can be the pitcher or you can give that role to someone on the other team. Shuffle the fraction cards. Without looking, the pitcher chooses two cards and reads the fractions and writes them on chart paper. The batter has 7 seconds to give an LCD. If the batter answers correctly in the time allowed, they move to first base. If the batter does not answer in 7 seconds or gives an incorrect answer, the batter is out.
Once the LCD has been correctly given, it is written on the chart paper.
The next batter needs to determine the equivalent fraction using the LCD for the first fraction. The fraction is written on the chart paper.
Once the equivalent fraction for the first fraction has been correctly given, the next batter is asked to do the same for the second fraction. The fraction is written on the chart paper.
When both fractions have the same denominator, the next batter subtracts the fractions and gives the difference. The difference is written on the chart paper.
One inning ends when a team either gets three outs or everyone on the team has batted.

Switch sides and let the other team have a turn at bat. Play complete innings until all students have batted at least once.

Have students return to their desks/tables with their partners. Ask students to work in the small groups of two teams combined. Today they add to the song, rap, or rhyme to help them with fractions, writing words to remember how to subtract fractions with unlike denominators. All students should write the words they create in their journals, adding to what they wrote previously.

Part 2: Show What You Know

Read aloud the instructions on pages 69-70 in the Brick Math Basic Fractions Teacher Edition. Students complete pages 79-80, #1 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions on page 71 in the Brick Math Basic Fractions Teacher Edition. Students complete page 81, #2 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions on page 72 in the Brick Math Basic Fractions Teacher Edition. Students complete page 82, #3 in the Brick Math Basic Fractions Student Edition.

Content Assessment

Remind students that they will complete the Content Assessment on their own. However, they will ask their partners to check the work *after* they have completed the assessment. Partners check the work but they should not change their partner's models nor write anything on another person's paper. Partners discuss the differences they might have for an answer.

Students complete Assessment #1 on page 83 in the Brick Math Basic Fractions Student Edition. Discuss the answers with the class. Help students to improve their answers as needed.

Students complete Assessment #2 on page 83 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

Students complete Assessment #3 on page 83 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work. Walk around the room and check students' work.

Students complete Assessment #4 on page 84 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work. Walk around the room and check students' work.

Students complete Assessment #5 on page 84 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work. Walk around the room and check students' work.

Students complete Assessment #6 on page 84 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work. Walk around the room and check students' work.

Story Problem

Tell students a story problem like the following:

> Samantha had a pie she wanted to share. She cut the pie into two equal parts. Then, she decided that one person should not have that much pie.

She cut each of the two parts so all the new pie slices contained 1/6 of a pie. Samantha wondered how much smaller is the 1/6 of a pie slice than 1/2 of a pie? [1/2 – 1/6 = 3/6 – 1/6 = 2/6 or 1/3 of the 1/2 slice]

Help students to complete the story problem and write the answer in their journals.

Have each pair work together to create a new story problem that they can model with bricks that shows the difference between two fractions with unlike denominators. Have students write the story problem and the answer they have created in their journals.

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 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 their journals to complete the self-assessment. Students need colored pencils or crayons to complete.

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

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

I need to work on being a better partner. I did not listen to and help my partner like I should have.
If this describes you today, draw an orange brick after the word “partner.”

I was a good partner today. I helped my partner but sometimes I did their work for them or I let them do my work.
If this describes you today, draw a green brick after the word “partner.”

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

Ask students to write "I can subtract fractions with unlike denominators" in their journals. Students should draw a specific color brick after the words "I can subtract fractions with unlike denominators" based on the following:

Say:

I need help subtracting fractions with unlike denominators. If this describes you today, draw an orange brick after the words "I can subtract fractions with unlike denominators."

I can subtract fractions with unlike denominators. If this describes you today, draw a green brick after the words "I can subtract fractions with unlike denominators."

I can help others subtract fractions with unlike denominators. If this describes you today, draw a blue brick after the words "I can subtract fractions with unlike denominators."

Day 10 – Mixed Numbers

Preparation:

- Read page 73 in the Brick Math Basic Fractions Teacher Edition
- Tagboard sheets, each with one number, 1 through 20

Welcome

Welcome students to Day 10.
Ask students to give the LCD (least common denominator) for 2/3 and 3/7. [21]
Tell students that today they will be working with mixed numbers. A mixed number or mixed fraction has whole numbers and fractions. For example, 3-1/2. The word "and" is said between the whole number and the fractional part. [Three and one-half]

Show students the following mixed numbers and have them say the name aloud.

2-1/8 [two and one-eighth]
4-3/5 [four and three-fifths]
6-1/4 [six and one-fourth]
7-5/9 [seven and five-ninths]

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

Working with a Partner

Remind students of the partner rules created on Day 1. Have students share how they hope to help their partner today.

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 74-75 in the Brick Math Basic Fractions Teacher Edition. Complete Problem #1, 1-4. Students complete pages 85-86, Problem #1, 1-4 in the Brick Math Basic Fractions Student Edition.

Follow the instructions on pages 75-76 in the Brick Math Basic Fractions Teacher Edition. Complete Problem #2, 1-3. Students complete page 87, Problem #2, 1-4 in the Brick Math Basic Fractions Student Edition.

Move with a Mixed Number

Give each student a tagboard sheet with a number from 0-20. Have students stand around the room.

Write the mixed number 4-1/3 on chart paper placed where all students can see.

Choose one student and ask the student move around the room to collect the correct number for how many thirds are in 4-1/3. [13 thirds] (Students can collect the card with the number 13 or the cards with the numbers 10 and 3, etc.)

Choose another student and repeat the activity. Continue until all students have chosen the correct numerator for the mixed number.

Use these numbers:

1-5/9	3-4/5	2-5/7	2-3/8
2-4/7	5-1/4	1-4/9	3-2/5
3-5/8	7-1/3	2-3/7	5-3/4
1-1/2	4-2/5	3-7/8	7-2/3
2-7/8	1-7/9	1-2/3	3-1/5

Have students return to their desks/tables with their partners. Ask students to work in the small groups of two teams combined. Today they add to the song, rap, or rhyme to help them with fractions, writing words to remember how to make a mixed number into a fraction. All students should write the words they create in their journals, adding to what they wrote previously.

Part 2: Show What You Know

Read aloud the instructions for #1 on page 77 in the Brick Math Basic Fractions Teacher Edition. Students complete page 88, #1 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for #2 on page 77 in the Brick Math Basic Fractions Teacher Edition. Students complete page 89, #2 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for #3 on page 78 in the Brick Math Basic Fractions Teacher Edition. Students complete page 90, #3 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for #4 on page 78 in the Brick Math Basic Fractions Teacher Edition. Students complete page 90, #4 in the Brick Math Basic Fractions Student Edition.

Content Assessment

Remind students that they will complete the Content Assessment on their own. However, they will ask their partners to check the work *after* they have completed the assessment. Partners check the work but they should not change their partner's models nor write anything on another person's paper. Partners discuss the differences they might have for an answer.

Students complete Assessment #1 on page 91 in the Brick Math Basic Fractions Student Edition. Discuss the answers with the class. Help students to improve their answers as needed.

Students complete Assessment #2 on page 91 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

Students complete Assessment #3 on page 91 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work. Walk around the room and check students' work.

Students complete Assessment #4 on page 92 in the Brick Math Basic Fractions Student Edition. Ask partners to check the work. Walk around the room and check students' work.

Story Problem

Tell students a story problem like the following:

> Jasmine and Jason were really hungry. They decided to eat together. They ate 4-2/3 small pizzas. How many thirds did they eat? [4-2/3 = 14/3]

Help students to complete the story problem by using models and explaining their process. Have students write the mixed number and how many thirds are in the mixed number.

Have each pair work together to create a new story problem that they can model with bricks. Have students write the mixed number and fractions in their journals.

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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 1x4 bricks from the box and count them. After the students have verified the number (21), they replace those bricks into the compartment and give you a thumbs-up. The brick set is ready for collection and storage.

Self-Assessment

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

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

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

> *I need to work on being a better partner. I did not listen to and help my partner like I should have.*
> *If this describes you today, draw an orange brick after the word "partner."*
>
> *I was a good partner today. I helped my partner but sometimes I did their work for them or I let them do my work.*
> *If this describes you today, draw a green brick after the word "partner."*
>
> *I was a very good partner today. I helped my partner by checking their work and not by doing their work. If this describes you today, draw a blue brick after the word "partner."*

Ask students to write "I can find the number of total parts in a mixed number" in their journals. Students should draw a specific color brick after the words "I can find the number of total parts in a mixed number" based on the following:
Say:

> *I need help finding the number of total parts in a mixed number. If this describes you today, draw an orange brick after the words "I can find the number of total parts in a mixed number."*

I can find the number of total parts in a mixed number. If this describes you today, draw a green brick after the words "I can find the number of total parts in a mixed number."

I can help others find the number of total parts in a mixed number. If this describes you today, draw a blue brick after the words "I can find the number of total parts in a mixed number."

Day 11 – Adding and Subtracting Mixed Numbers

Preparation:

- Read page 79 and top of page 80 in the Brick Math Basic Fractions Teacher Edition

Welcome

Welcome students to Day 11 of the program. Tell them how proud you are of the work they have done and what they have accomplished.

Ask students if they remember how to change a mixed number into a total number of parts or an improper fraction.
Ask students how many thirds are in 4-2/3? [14]
Ask students how many fourths are in 5-3/4? [23]

Tell students today they will be adding and subtracting mixed numbers.

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

Working with a Partner

Remind students of the partner rules created on Day 1. Have students tell their partners one thing they like about working with a partner.

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

Part 1: Show Them How

Follow the instructions for #1 on pages 80-82 in the Brick Math Basic Fractions Teacher Edition. Complete Problem #1, 1-6. Students complete pages 93-95, Problem #1, 1-6 in the Brick Math Basic Fractions Student Edition.

Follow the instructions for #2 on pages 82-83 in the Brick Math Basic Fractions Teacher Edition. Complete Problem #2, 1-2. Students complete pages 95-97, Problem #2, 1-2 in the Brick Math Basic Fractions Student Edition.

Follow the instructions for #3 on pages 83-85 in the Brick Math Basic Fractions Teacher Edition. Complete Problem #3, 1-6. Students complete pages 97-99, Problem #2, 1-5 in the Brick Math Basic Fractions Student Edition.

Move to Add Mixed Numbers

Have students make groups of 5. Separate the partners so they are in two different groups. Have each student choose to be A, B, C, D, or E. Each group needs a student with each letter. If a group has 4 students, one student should have two roles.
Give each group two fractions: 1-2/3 and 3-4/7.
Have the students do the following:
A – Determine the LCD for the two fractions
B – Determine the equivalent fraction for 1-2/3
C – Determine the equivalent fraction for 3-4/7
D – Add the two fractions together
E – Verify the answer and determine another way to write the answer

Have groups compare their answers.

Give each group two fractions: 3-4/5 and 5-3/4.
C – Determine the LCD for the two fractions
D – Determine the equivalent fraction for 3-4/5
E – Determine the equivalent fraction for 5-3/4
A – Add the two fractions together
B – Verify the answer and determine another way to write the answer

Have groups compare their answers.

Have students return to their desks/tables with their partners. Ask students to work in the small groups of two teams combined. Today they add to the song, rap, or rhyme to help them with fractions, writing words to remember how to add mixed numbers. All students should write the words they create in their journals, adding to what they wrote previously.

Part 2: Show What You Know

Read aloud the instructions for Problem #1 on pages 85-86 in the Brick Math Basic Fractions Teacher Edition. Students complete pages 99-100, Problem #1, 1-2 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for Problem #2 on pages 86-87 in the Brick Math Basic Fractions Teacher Edition. Students complete pages 101-102, Problem #2, 1-2 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for Problem #3 on pages 87-89 in the Brick Math Basic Fractions Teacher Edition. Students complete pages 102-103, Problem #3, 1-4 in the Brick Math Basic Fractions Student Edition.

Read aloud the instructions for Problem #4 on pages 89-91 in the Brick Math Basic Fractions Teacher Edition. Students complete pages 104-105, Problem #4, #1-3 in the Brick Math Basic Fractions Student Edition.

Content Assessment

Remind students that they will complete the Content Assessment on their own. However, they will ask their partners to check the work *after* they have completed the assessment. Partners check the work but they should not change their partner's models nor write anything on another person's paper. Partners discuss the differences they might have for an answer.

Students complete Assessment #1 on page 105 in the Brick Math Basic Fractions Student Edition.
Discuss the answers with the class. Help students to improve their answers as needed.

Students complete Assessment #2 on page 105 in the Brick Math Basic Fractions Student Edition.
Ask partners to check the work but explain that they should not touch the brick model or write anything on another person's paper. They should only discuss with their partners. Walk around the room and check students' work.

Students complete Assessment #3 on page 106 in the Brick Math Basic Fractions Student Edition.
Ask partners to check the work. Walk around the room and check students' work.

Students complete Assessment #4 on page 107 in the Brick Math Basic Fractions Student Edition.
Ask partners to check the work. Walk around the room and check students' work.

Students complete Assessment #5 on page 107 in the Brick Math Basic Fractions Student Edition.
Ask partners to check the work. Walk around the room and check students' work.

Story Problem

Tell students a story problem like the following:

> Jasmine's pizza was cut into 8 slices, and she has eaten one, so now she has 7 slices left. Jason's pizza is the same size as Jasmine's and was also cut into 8 slices. But Jason hasn't eaten any of his pizza yet. What is the mixed number that describes how much pizza they have? [1-7/8]
>
> Carlos and Terra have 1-1/2 of their pizzas. What mixed number represents the combined pizzas of all four students: Jasmine, Jason, Carlos, and Terra?
> [1-7/8 + 1-1/2 = 1-7/8 + 1-4/8 = 2-11/8 or 3-3/8]

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

Have each pair work together to create a new story problem that they can model with bricks. Have students write their story problem and how they complete the story problem in their journals.

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 1x8 bricks from the box and count them. After the students have verified the number (6), they replace those bricks into the compartment and give you a thumbs-up. The brick set is ready for collection and storage.

Self-Assessment

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

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

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

> *I need to work on being a better partner. I did not listen to and help my partner like I should have.*
> *If this describes you today, draw an orange brick after the word "partner."*
>
> *I was a good partner today. I helped my partner but sometimes I did their work for them or I let them do my work.*
> *If this describes you today, draw a green brick after the word "partner."*
>
> *I was a very good partner today. I helped my partner by checking their work and not by doing their work. If this describes you today, draw a blue brick after the word "partner."*

Ask students to write "I can add and subtract mixed numbers" in their journals.
Students should draw a specific color brick after the words "I can add and subtract mixed numbers" based on the following:
Say:

> *I need help adding and subtracting mixed numbers. If this describes you today, draw an orange brick after the words "I can add and subtract mixed numbers."*
>
> *I can add and subtract mixed numbers. If this describes you today, draw a green brick after the words "I can add and subtract mixed numbers."*
>
> *I can help others add and subtract mixed numbers. If this describes you today, draw a blue brick after the words "I can add and subtract mixed 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 12 – Reviewing Basic Fractions

Preparation:

- Complete the Student Assessment Charts which are given to students/parents at the end of the day
- Index cards (20 per group of 4 students)
- Markers (one per pair of students)

Welcome

Welcome students to the final day of the program. Tell them they are going to do a review of all they have learned, and you know they have learned a lot.

Ask students to tell you the parts of a fraction. [Numerator and denominator] Tell them they are going to work with their partners and in small groups today.

Working with a Partner

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

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

Equivalent Fractions

Have students join their partner teams with another pair, making groups of four.
Give each group twenty index cards. Have students in each group write the numbers 0-20 on the index cards, one number to a card. Have students turn the cards face down and mix them.
Have each group determine who will be person A, B, C, and D.
Person A turns over one card. The card becomes the numerator.
Person B turns over one card. The card becomes the denominator unless it is a 0. If the card is a 0, turn it back over and shuffle around the cards. Choose another card.
Person C determines a new denominator to make an equivalent fraction.
Person D determines the correct equivalent fraction. This person can use the bricks as needed.
All students write the fractions and their equivalents in their journals.

Example:
A: Chooses card 4 [numerator]

B: Chooses card 3 [denominator]
C: Determines that the denominator of the equivalent fraction is 6
D: Determines that 8/6 is the equivalent fraction for 4/3

Have groups play four rounds, with person B starting the second round, person C starting the third round and person D starting the fourth round. All players will have completed all roles.

Collect the index cards for use in the next activity.
Have students return to their partner locations.

Comparing and Ordering Fractions

Choose new groupings of the teams to create new 3 or 4-person groups. The same groups should not work together for each activity. Give each group a set of 20 index cards created during the previous activity. Have students turn the cards face down and mix them.
Each person in the group chooses two cards and creates a fraction. The first card is the numerator and the next card is the denominator. Some fractions will have a larger number in the numerator. A 0 cannot be used in the denominator position. (If a 0 is chosen, return the 0, shuffle the cards around, and choose another card.) Students should not use denominators greater than 10 unless they can be reduced because there is a limit on the number of studs available on the baseplate.
The group works together to order the four fractions from **least** to **greatest**. Students may use bricks as needed. All students write the fractions in order in their journals.

Example: (The example does contain denominators greater than 10)
3/5, 5/2, 7/11, 4/12 are the fractions created by four students choosing two index cards each.
Ordered from least to greatest: 4/12, 3/5, 7/11, 5/2

Check each group or have another group verify the work.

Next, the group turns over the cards and mixes them. Again, each student chooses cards for the numerator and denominator and the group creates four fractions.
Now the group works together to order the fractions from **greatest** to **least**. Students may use bricks as needed. All students write the fractions in order in their journals.

Check each group or have another group verify the work.
Collect the index cards and have all students return with their partners to their desks or table.

Music for Fractions

Have the partners practice their songs, raps, or rhymes for learning fractions that they have created throughout the program.

Have each group present their songs, raps, or rhymes to the class. Have everyone cheer and clap for each group.

Adding and Subtracting Fractions with Unlike Denominators

Have partner teams get into groups of four with another team they have not worked together with yet. Give each group a set of 20 index cards.

Each student will create a fraction, choosing a card for the numerator and then the denominator, as in the previous activities.
Partners work together to add the four fractions. The other set of partners verifies the work.
All students write the fractions and their equivalents in their journals.

Next, the cards are turned over and mixed. Again, the students choose cards for numerator and denominator, and each makes a fraction. This time, they switch roles, with the partners who verified the work last time now working together to add the fractions, and the other partners verifying the work. All students write the fractions and their sums in their journals.

Each student will create a fraction, choosing a card for the numerator and then the denominator.
Both sets of partners work together to subtract the smaller fraction from the larger fraction.
The other set of partners verifies the work.
All students write both fraction equations and the differences in their journals.

Mixed Numbers

Have students get into groups with two teams that have not worked together yet, if possible. Give each group a set of 20 index cards.

Each student will create a mixed number, choosing a card for the whole number, the numerator, and the denominator.

Partners work together to create an improper fraction. Then, the other set of partners verify the work.
All students write the mixed numbers and the equivalent fractions in their journals.

Both partners turn over the cards and mix them. Each student chooses two cards for the numerator, and one card for the denominator. Partners work together to create mixed numbers from the fractions. Then, the other set of partners verify the work. All students write the mixed numbers and fractions in their journals.

Optional Parent Activity and Materials Check-In

Allow parents to come to the classroom the last 20 minutes of the day.
Each parent will work with their child. The child will be the teacher for these activities and will help their parents learn how to use the bricks.

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

Ask students to show their parents how to build a model for two different mixed numbers. Then, have students ask their parents to model how you would add the two mixed numbers together. Students can show them how to build equivalent fractions and how to add the numbers.

Have a cheer for the parents and students!

Have students ask their parents how to build a model for two new mixed numbers. Then, have students ask their parents to model how you would subtract the smaller of the mixed numbers from the larger mixed number. Students can show them how to build equivalent fractions and how to subtract the numbers.

Have a cheer for the parents and students!

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.

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

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

Tell everyone thanks for coming!