



Building Skills with Brick Math

An 8-Day Program to Sharpen Basic Math Skills

Basic Measurement

Program Overview

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

The program is written in the following daily format:

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

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

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

Schedule

8 Days

1.5 – 2 Hours Per Day

Day 1	Stand Units and Comparing Measures of Length <ul style="list-style-type: none">• Compare measures using different units• Define stand unit of measure	Vocabulary <ul style="list-style-type: none">• Attribute• Unit of measure• Standard unit of measure• Nonstandard unit of measure
Day 2	Money <ul style="list-style-type: none">• Model coin values up to one dollar, using bricks• Add coin values (pennies, nickels, dimes and quarters) within one dollar	Vocabulary <ul style="list-style-type: none">• Penny• Nickel• Dime• Quarter• Dollar• Add• Cent sign• Dollar sign
Day 3	Introduction to Time <ul style="list-style-type: none">• Tell time to the nearest hour, half-hour and 5-minute intervals	Vocabulary <ul style="list-style-type: none">• Analog clock• Digital clock• Hour hand• Minute hand
Day 4	Elapsed Time <ul style="list-style-type: none">• Determine elapsed time (how much time has passed between events)	Vocabulary <ul style="list-style-type: none">• Analog clock• Digital clock• Elapsed time• Hour hand• Minute hand

Day 5	<p>Customary Liquid Measure</p> <ul style="list-style-type: none"> Determine the number of quarts, pints and cups in a gallon 	<p>Vocabulary</p> <ul style="list-style-type: none"> Customary measure Gallon Quart Pint Cup
Day 6	<p>Metric Measure</p> <ul style="list-style-type: none"> Identify the units in the metric system Discover how the metric system is related to the base ten system Learn how place value is related to reading decimal numbers Make basic conversions using the metric system 	<p>Vocabulary</p> <ul style="list-style-type: none"> Basic units of measure Convert Metric system of measurement Prefixes <ul style="list-style-type: none"> Kilo Hecto Deka Deci Centi Milli
Day 7	<p>Perimeter</p> <ul style="list-style-type: none"> Determine the perimeter of rectangular and square shapes Use the mathematical formula for perimeter 	<p>Vocabulary</p> <ul style="list-style-type: none"> Perimeter Area Rectangle Square Formula
Day 8	<p>Area</p> <ul style="list-style-type: none"> Determine the area of rectangular and square shapes Use the mathematical formula for area 	<p>Vocabulary</p> <ul style="list-style-type: none"> Area Perimeter Exponent Rectangle Square

Common Core Math Standards addressed:

Relate addition and subtraction to length.

CCSS.MATH.CONTENT.2.MD.B.5

Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units,

e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.

CCSS.MATH.CONTENT.2.MD.B.6

Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.

Work with time and money.

CCSS.MATH.CONTENT.2.MD.C.7

Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.

CCSS.MATH.CONTENT.2.MD.C.8

Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?

CCSS.MATH.CONTENT.3.MD.A.1

Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

CCSS.MATH.CONTENT.3.MD.B.4

Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.

Recognize area as an attribute of plane figures and understand concepts of area measurement.

CCSS.MATH.CONTENT.3.MD.C.5.A

A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.

CCSS.MATH.CONTENT.3.MD.C.5.B

A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.

CCSS.MATH.CONTENT.3.MD.C.6

Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).

CCSS.MATH.CONTENT.3.MD.C.7

Relate area to the operations of multiplication and addition.

CCSS.MATH.CONTENT.3.MD.C.7.A

Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.

CCSS.MATH.CONTENT.3.MD.C.7.B

Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.

CCSS.MATH.CONTENT.3.MD.C.7.C

Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.

CCSS.MATH.CONTENT.3.MD.C.7.D

Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.

Geometric measurement: recognize perimeter.

CCSS.MATH.CONTENT.3.MD.D.8

Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

Solve problems involving measurement and conversion of measurements.

CCSS.MATH.CONTENT.4.MD.A.1

Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit.

CCSS.MATH.CONTENT.4.MD.A.3

Apply the area and perimeter formulas for rectangles in real world and mathematical problems. *For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.*

Represent and interpret data.

CCSS.MATH.CONTENT.4.MD.B.4

Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots.

Convert like measurement units within a given measurement system.

CCSS.MATH.CONTENT.5.MD.A.1

Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

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

Materials Needed

- Brick Math Basic Measurement Teacher Edition book
- Brick Math Basic Measurement 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)
- Tape that can be placed on floor and removed
- Ruler or tape measures (one per group or one per student)
- Cardstock (one per student)
- Dice (one die 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 5-10 in the *Basic Measurement 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 Measurement 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.

Note: There are blank baseplate paper templates on pages 84 - 86 in the Basic Measurement Teacher Edition book. They may be helpful for the daily story problem activities. Make additional copies of blank baseplate paper as needed.

Day 1 – Standard Units and Comparing Measures of Length

Preparation:

- Read pages 11-12 in the Brick Math Basic Measurement Teacher Edition
- Find the video online: [Inches, Feet, and Yard by NumberRock](#), which helps students learn the terms for measuring length.
- Use tape to mark a distance of about a yard several places in the room where students can measure with their feet.
- Items you have collected for students to measure in Part 1: Show Them How section

Welcome

Tell the students something similar to the following:

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

Show the students a Brick Math brick set.

Say:

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

I will start.

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

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

Say:

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

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

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

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

Say:

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

Show students a 1x1 brick.

Say:

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

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

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

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

Basic Measurement – Standard and Non-Standard Units

Have students sit in a circle or a designated area where students can see each other.

Ask students if anyone can name terms associated with measuring length – like how long something is. [inch, foot, yard, mile may be terms they say]

Ask students to use their own feet and measure one of the designated areas you have marked with tape. Ask students to count how many of their feet (shoes) cover the length. [Answers should vary.]

Ask students why the number of feet or shoes for the same distance vary or are not exactly the same.

Tell students they have just used a type of non-standard measurement. Everyone's foot is not exactly the same size, so there is no standard or uniform measurement. Ask students what problems could exist if people used different measuring units instead of the same units. [Examples may include: Some people might get more and some people might get less. You could not be sure if you would have enough of something, like rope, if you did not buy extra, or perhaps you would only shop with merchants that had big feet. Items like boxes or paper or tables would all be different lengths and heights.]

Now, ask students what tool(s) they could use to measure the distance so they would come up with the same or nearly the same answer. [Ruler, length of wood – unused pencil, a piece of paper]

If they wanted to be very accurate to measure the distance, what would be the best tool? [Ruler or tape measure] Ask students why. [Because the ruler and tape measure have markings that are set at precise distances apart so a unit can be divided into more equal parts.]

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 is the best way to work with a partner. Help students create answers like the following:

- Partners share the work, but neither person does the other one's work.
- Partners learn together and can help each other learn.

- Partners communicate (talk) kindly with each other.
- Partners care about each other.
- Partners do not give each other the answers, but help the other person understand how to find an answer.

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

Choose two students to be partners and assign them a place to sit at desks or tables. Students of the same ability level tend to work well together. Have each set of partners move to that location as you assign them. Give the pair of students their Brick Math materials (either one set for two people or one set per person.) Tell each group that they always get set #X when it is time to gather materials. Tell the class that each team is responsible for all the bricks being returned to the set every time the set is used.

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

Say:

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

Students take bricks from the divided box as needed.

Standard Units and Comparing Measures of Length

Part 1: Show Them How

Follow the instructions on pages 12-14 in the Brick Math Basic Measurement Teacher Edition. Complete Part 1, #1-8. Students complete pages 5-6, Part 1, #1-8 in the Brick Math Basic Measurement Student Edition.

Follow the instructions on page 14 in the Brick Math Basic Measurement Teacher Edition. Complete #9 with items you have collected. Students complete the work in their math journals.

Move with Measurement

Time for some movement! Have all students stand in groups of 3 or 4 side by side. You may need to do this in a hallway.

Have students take six steps by placing the heel of their shoe next to the toe of the other shoe. Have students recognize that a foot is not a standard measurement, but only an approximation.

Have students start at the beginning again. This time have them walk in normal steps 6 steps. Tell students that two normal steps are approximately one yard. Again, their steps are different, which is why standard measurement is necessary.

Return to the classroom. Have students work in groups of 4 to move around the room and find 10 items that are less than a foot in length and 10 items that are more than a foot in length. You may find it helpful to give each group or each student a ruler or tape measure. Each student should write a list in his or her journal.

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

Part 2: Show What You Know

Read aloud the instructions for Part 2, #1 on page 15 in the Brick Math Basic Measurement Teacher Edition. Students complete page 7, Part 2, #1 in the Brick Math Basic Measurement Student Edition.

Read aloud the instructions for #2 on page 16 in the Brick Math Basic Measurement Teacher Edition. Students complete pages 7-8, #2 in the Brick Math Basic Measurement 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 nor write anything on another person's paper. Partners discuss the differences they might have on an answer.

Students complete Assessment #1 on page 8 in the Brick Math Basic Measurement Student Edition.

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

Students complete Assessment #2 on page 8 in the Brick Math Basic Measurement Student Edition.

Ask partners to check the work but explain that they should not change their partner's 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 8 in the Brick Math Basic Measurement Student Edition. Ask partners to check the work. Walk around the room and check students' work.

Students complete Assessment #4 on page 8 in the Brick Math Basic Measurement 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 purchased a new ruler. His friend Antonio is helping Juan learn how to read the marks on the ruler. There are 7 smaller marks between the two tall lines that show 1 inch and 2 inches. That means that the inch is divided into eighths. Help Juan and Antonio by drawing the two long lines that represent one inch and two inches. Draw the seven smaller lines and label them. [$\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$]

Now that Juan can read the ruler, he wants to measure the window sill in his room. It measures $4\frac{1}{8}$ inches wide. Can you help Juan by drawing a line in your journals that is exactly $4\frac{1}{8}$ inches and labeling the inches and the $\frac{1}{8}$ inch beyond 4 inches?

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

Have each pair work together to create a new story problem using brick models. Have students write their 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 lines on a ruler" in their journals.

Students should draw a specific color brick after the words "I can the lines on a ruler" based on the following self-assessment.

Say:

I need help identifying the lines on a ruler. If this describes you today, draw an orange brick after the words "I can identify the lines on a ruler."

I can identify the lines on a ruler. If this describes you today, draw a green brick after the words "I can identify the lines on a ruler."

I can help others identify the lines on a ruler. If this describes you today, draw a blue brick after the words "I can identify the lines on a ruler."

Day 2 – Money

Preparation:

- Read page 17 and the top of page 18 in the Brick Math Basic Measurement Teacher Edition
- Find the video Numberock Coins at <https://numberock.com/lessons/us-coins/> and have it ready to show.
- Have two long lines representing 1 inch and 2 inches on chart paper or board, large enough for all students to see. Label marks for $\frac{1}{4}$, $\frac{1}{2}$, and $\frac{3}{4}$ on each of the lines.
- Have 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 lines on a ruler. Show them the lines drawn on chart paper or board and ask them to identify the lines. Next, draw new lines between the inch, $\frac{1}{4}$, $\frac{1}{2}$, and $\frac{3}{4}$ and inch lines. Ask students to identify them. [$\frac{1}{8}$, $\frac{3}{8}$, $\frac{5}{8}$, $\frac{7}{8}$]

Tell students that today they will create team names and draw some coins.

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 two dimes and two quarters

Partners work together to determine a team name and then write the name in the middle of the sheet. Partners should determine some coins they want to draw.

Have students color the edge of the sheet with the coins. In the example above, they could draw one dime and one quarter on each side of the sheet. Then, students should write the amount for the coins they drew. For example, two dimes and two quarters would be 70 cents.

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.

Money

Ask students what coin they see most often on the ground. Likely, it is a penny. Ask students if they pick up a coin when they find it on the ground.

Ask students how much a penny is worth. [1 cent, or $1/100$ of a dollar]

Ask students how many pennies it takes to make a nickel, which is worth 5 cents. [5 pennies = 1 nickel]

Tell students they will be working with money today.

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

Part 1: Show Them How

Follow the instructions on page 18 in the Brick Math Basic Measurement Teacher Edition. Complete Problem #1. Students complete page 9, Problem #1, in the Brick Math Basic Measurement Student Edition.

Follow the instructions on page 18 in the Brick Math Basic Measurement Teacher Edition. Complete Problem #2. Students complete page 9, Problem #2, in the Brick Math Basic Measurement Student Edition.

Follow the instructions on pages 18-19 in the Brick Math Basic Measurement Teacher Edition. Complete Problem #3. Students complete page 10, Problem #3, in the Brick Math Basic Measurement Student Edition.

Follow the instructions on page 19 in the Brick Math Basic Measurement Teacher Edition. Complete Problem #4. Students complete page 10, Problem #4, in the Brick Math Basic Measurement Student Edition.

Follow the instructions on page 19 in the Brick Math Basic Measurement Teacher Edition. Complete Problem #5. Students complete pages 10-11, Problem #5, in the Brick Math Basic Measurement Student Edition.

Follow the instructions on page 20 in the Brick Math Basic Measurement Teacher Edition. Complete Problem #6. Students complete page 11, Problem #6, in the Brick Math Basic Measurement Student Edition

Move with Money

Show students the Numberock video or another video about counting coins.

<https://numberock.com/lessons/us-coins/>

Encourage students to sing along as they learn the words.

Have students work in groups of 3 or 4 to create a rhyme or rap about the value of a penny, nickel, dime and quarter. Each student should write the rhyme or rap in his or her journal. Have each group share their rhyme or rap with the class.

Part 2: Show What You Know

Read aloud the instructions on page 21, #1 in the Brick Math Basic Measurement Teacher Edition. Students complete page 12, #1 in the Brick Math Basic Measurement Student Edition.

Read aloud the instructions on pages 21-22, #2 in the Brick Math Basic Measurement Teacher Edition. Students complete page 13, #2 in the Brick Math Basic Measurement Student Edition.

Read aloud the instructions on page 22, #3 in the Brick Math Basic Measurement Teacher Edition. Students complete page 14, #3 in the Brick Math Basic Measurement Student Edition.

Read aloud the instructions on page 23, #4 in the Brick Math Basic Measurement Teacher Edition. Students complete page 15, #4 in the Brick Math Basic Measurement 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 15 in the Brick Math Basic Measurement Student Edition.

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

Students complete Assessment #2 on page 16 in the Brick Math Basic Measurement Student Edition.

Ask partners to check the work but explain that they should not change their partner's 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 16 in the Brick Math Basic Measurement 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:

Julia broke open her piggy bank and found the following coins: 1 quarter, 3 nickels, 4 dimes, and 9 pennies. How much money does Julia have? [\$.89 or 89 cents]

Help students complete the story problem, build models, and explain how to count the coins.

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 count coins up to one dollar” in their journals.

Students should draw a specific color brick after the words “I can count coins up to one dollar” based on the following:

Say:

I need help counting coins up to one dollar. If this describes you today, draw an orange brick after the words “I can count coins up to one dollar.”

I can count coins up to one dollar. If this describes you today, draw a green brick after the words “I can count coins up to one dollar.”

I can help others count coins up to one dollar. If this describes you today, draw a blue brick after the words “I can count coins up to one dollar.”

Day 3 – Introduction to Time

Preparation:

- Read pages 24-25 in the Brick Math Basic Measurement Teacher Edition.
- You may wish to have the linear clock built before beginning the lesson.
- Have cardstock cut into four sections and on each section write one of the following times:

2:00	2:15	2:25
3:05	3:40	3:50
4:30	4:45	5:10
5:45	6:00	6:25
7:20	7:50	8:00
8:10	8:40	9:05
9:35	9:55	10:00
10:15	10:35	11:10
11:20	11:30	11:50

Welcome

Welcome students to the third day of Brick Math Basic Measurement. Ask them if they can remember how to count coins. Ask them the value of a quarter (25¢), nickel (5¢), penny (1¢), and dime (10¢).

Tell students today they are going to work with measuring time. Show them examples of analog and digital clocks. Have students guess which ones are analog and which are digital. Explain that digital clocks show only digits, or numbers.

Ask students how time is measured. [hours, minutes, seconds]

Tell students they are going to work with a linear clock, which means a clock that has the hours in a line instead of on a face going around.

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 pages 25-26, Part 1, Steps 1- 12 in the Brick Math Basic Measurement Teacher Edition.

Students complete pages 17-18, Part 1, #1 and #2 Steps 1-12 in the Brick Math Basic Measurement Student Edition

Follow the instructions on page 27, #1 in the Brick Math Basic Measurement Teacher Edition. Students complete page 19, #1, in the Brick Math Basic Measurement Student Edition

Follow the instructions on page 26 in the Brick Math Basic Measurement Teacher Edition. Complete Problem #1, steps 1 - 3. Students complete pages 21 - 22, Problem #1, steps 1 - 3 in the Brick Math Basic Measurement Student Edition.

Follow the instructions on page 28 in the Brick Math Basic Measurement Teacher Edition. Complete #2. Students complete pages 19-20, #2, in the Brick Math Basic Measurement Student Edition.

Follow the instructions on page 29 in the Brick Math Basic Measurement Teacher Edition. Complete #3. Students complete page 20, #3, in the Brick Math Basic Measurement Student Edition.

Follow the instructions on page 30 in the Brick Math Basic Measurement Teacher Edition. Complete #4. Students complete page 20, #4, in the Brick Math Basic Measurement Student Edition.

Move with Time

Give each student a card with a time on it. Have students move around the room with their card. They find a partner and write in their journals the time on their cards. Each student should move forward 15 minutes from both times and write the new time next to the original time.

Example: Original time is 3:45. Move forward 15 minutes. New time is 4:00

Students must agree on the new time and can use the brick math set to help determine the time correctly. Have students exchange cards with other students and find a new partner.

Repeat this activity until all students have completed 5 problems.

Problem 2: Move forward 25 minutes

Problem 3: Move forward 1 hour and 5 minutes
Problem 4: Move forward 45 minutes
Problem 5: Move forward 4 hours and 20 minutes.

Walk through the room, spot checking the students work.

Have students return the time cards to you. The cards will be used tomorrow.
Have students find their partners and go to their desks/table.

Part 2: Show What You Know

Read aloud the instructions for #1 on page 31 in the Brick Math Basic Measurement Teacher Edition. Students complete page 21, #1 in the Brick Math Basic Measurement Student Edition.

Read aloud the instructions for #2 on page 32 in the Brick Math Basic Measurement Teacher Edition. Students complete page 22, #2, in the Brick Math Basic Measurement Student Edition.

Read aloud the instructions for #3 on page 33 in the Brick Math Basic Measurement Teacher Edition. Students complete page 23, #3, in the Brick Math Basic Measurement Student Edition.

Read aloud the instructions for #4 on page 34 in the Brick Math Basic Measurement Teacher Edition. Students complete page 24, #4, in the Brick Math Basic Measurement 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 24 in the Brick Math Basic Measurement Student Edition. Discuss the answers with the class. Help students to improve their answers as needed.

Students complete Assessment #2 on page 24 in the Brick Math Basic Measurement 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 24 in the Brick Math Basic Measurement 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 #4 on page 24 in the Brick Math Basic Measurement 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 are planning their day. They have an Adventure Club meeting after school that lasts 45 minutes. If the meeting starts at 3:30 p.m., what time should the meeting end? [4:15 p.m.]

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

Have students work with their partners to solve the story problem and write the 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 determine a new time moving forward” in their journals. Students should draw a specific color brick after the words “I can determine a new time moving forward” based on the following:

Say:

I need help determining a new time moving forward. If this describes you today, draw an orange brick after the words “I can determine a new time moving forward.”

I can determine a new time moving forward. If this describes you today, draw a green brick after the words “I can determine a new time moving forward.”

I can help others determine a new time moving forward. If this describes you today, draw a blue brick after the words “I can determine a new time moving forward.”

Day 4 – Elapsed Time

Preparation:

- Read pages 35-36 in the Brick Math Basic Measurement Teacher Edition.
- (Used in Day 3.) Have cardstock cut into four sections and on each section write one of the following times:

2:00	2:15	2:25
3:05	3:40	3:50
4:30	4:45	5:10
5:45	6:00	6:25
7:20	7:50	8:00
8:10	8:40	9:05
9:35	9:55	10:00
10:15	10:35	11:10
11:20	11:30	11:50

Welcome

Welcome students to Day 4. Ask students if they remember how determine the time moving forward. Ask students to tell you the time it will be 15 minutes from now. [Look at the clock in the room or tell students the original time and have them determine 15 minutes from now.]

Tell students they will be working with elapsed time – or the time in hours, minutes, and seconds between a starting and stopping point. For example, the time in a race is determined from when the starter’s pistol is fired to the time the runner crossed the finish line.

Ask students to think of other examples of elapsed time.

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.

Part 1: Show Them How

Follow the instructions for Part 1 on page 36 in the Brick Math Basic Measurement Teacher Edition. Students complete pages 25-26, Part 1, Steps 1-12 in the Brick Math Basic Measurement Student Edition.

Follow the instructions for Problem #1, Steps 1-5 on page 37 in the Brick Math Basic Measurement Teacher Edition. Students complete page 27, Problem #1, Steps 1-5 in the Brick Math Basic Measurement Student Edition.

Follow the instructions for Problem #2, Steps 1-5 on pages 37-38 in the Brick Math Basic Measurement Teacher Edition. Students complete page 28, Problem #2, Steps 1-5 in the Brick Math Basic Measurement Student Edition.

Follow the instructions for Problem #3, Steps 1-5 on page 39 in the Brick Math Basic Measurement Teacher Edition. Students complete page 29, Problem #3, Steps 1-5 in the Brick Math Basic Measurement Student Edition.

Follow the instructions for Problem #4, Steps 1-5 on pages 40-41 in the Brick Math Basic Measurement Teacher Edition. Students complete page 30, Problem #3, Steps 1-5 in the Brick Math Basic Measurement Student Edition.

Move with Elapsed Time

Give each student a card with a time on it. Have students move around the room with their card. They find a partner and write in their journals the time on both their cards. Each student determines the elapsed time between the two times shown on the cards.

Example: First original time is 3:45. Second original time is 5:30. Elapsed time is 1 hour and 45 minutes.

Students must agree on the elapsed time and can use the brick math set to help determine the time correctly. Have students exchange cards with other students and find a new partner.

Repeat this activity until all students have completed 5 problems to determine elapsed time.

Walk through the room, spot checking the students work.

Have students return the time cards to you.

Have students find their partners and go to their desks/table.

Part 2: Show What You Know

Read aloud the instructions for #1, on page 42 in the Brick Math Basic Measurement Teacher Edition. Students complete page 31, #1 in the Brick Math Basic Measurement Student Edition.

Read aloud the instructions for #2, on page 43 in the Brick Math Basic Measurement Teacher Edition. Students complete page 32, #2 in the Brick Math Basic Measurement Student Edition.

Read aloud the instructions for #3, on page 44 in the Brick Math Basic Measurement Teacher Edition. Students complete page 33, #3 in the Brick Math Basic Measurement Student Edition.

Read aloud the instructions for #4, on page 45 in the Brick Math Basic Measurement Teacher Edition. Students complete page 34, #4 in the Brick Math Basic Measurement 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 Measurement Student Edition.

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

Students complete Assessment #2 on page 35 in the Brick Math Basic Measurement 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 Measurement Student Edition.

Ask partners to check the work. Walk around the room and check students' work.

Students complete Assessment #4 on page 35 in the Brick Math Basic Measurement Student Edition.

Ask partners to check the work. Walk around the room and check students' work.

Students complete Assessment #5 on page 35 in the Brick Math Basic Measurement 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:

Dave and Howie were planning a 5K walk to raise money for charity. They want to give the walkers plenty of time. They start the event at 9:00 a.m. and plan to finish the event at 11:30 a.m. How much time did Dave and Howie allow for the walk? [2 hours and 30 minutes or 2-1/2 hours]

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 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 determine elapsed time" in their journals.

Students should draw a specific color brick after the words "I can determine elapsed time" based on the following:

Say:

I need help determining elapsed time. If this describes you today, draw an orange brick after the words "I can determine elapsed time."

I can determine elapsed time. If this describes you today, draw a green brick after the words "I can determine elapsed time."

I can help others determine elapsed time. If this describes you today, draw a blue brick after the words "I can determine elapsed time."

Day 5 – Customary Liquid Measures

Preparation:

- Read page 46 in the Brick Math Basic Measurement Teacher Edition
- Students need dice.
- You may find it helpful to bring in some empty containers from milk, soda, water, and so forth.

Welcome

Welcome students to Day 5. Ask students if they remember how to determine elapsed time. Ask students to tell you how much time has elapsed between 9:00 a.m. and 1:30 p.m. [4 hours and 30 minutes or 4-1/2 hours]

Ask the students if they can think of ways that people measure liquids in the real world. [Examples may include cooking, chemistry, making candles, selling milk, soda, or juices, buying gasoline]

Ask students to name some of the units that are used when buying liquids. [milk, gasoline are examples of gallon; milk, juices, tea are examples of quart; water and soda are examples of liter]

Tell students that today they will be learning and using customary liquid measures – cup, pint, quart, and gallon.

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 Part 1 on page 47 in the Brick Math Basic Measurement Teacher Edition. Students complete page 36, #1 in the Brick Math Basic Measurement Student Edition.

Follow the instructions for #2, on page 48 in the Brick Math Basic Measurement Teacher Edition. Students complete page 37, #2 in the Brick Math Basic Measurement Student Edition.

Follow the instructions for #3, on page 48 in the Brick Math Basic Measurement Teacher Edition. Students complete page 37, #3 in the Brick Math Basic Measurement Student Edition.

Follow the instructions for #4, on page 49 in the Brick Math Basic Measurement Teacher Edition. Students complete page 37, #4 in the Brick Math Basic Measurement Student Edition.

Follow the instructions for #5, a-c, on page 49 in the Brick Math Basic Measurement Teacher Edition. Students complete pages 37-38, #5, a-c in the Brick Math Basic Measurement Student Edition.

Move with Liquid Measure

Give each student a die. Students work with a partner. Partners determine who is Partner A and who is Partner B.

Have a chart on the board with the following:

Roll 1 – cups

Roll 2 – pints

Roll 3 – quarts

Roll 4 – gallons

Roll 5 – choice of Partner A

Roll 6 – choice of Partner B

Each student rolls a die. Partner A determines the first liquid measure and Partner B determines the second liquid measure. If both partners roll the same measure, they both roll again until they have two measures. Both partners determine how many of the smaller liquid measures are required to make a complete larger unit. Students write all labeled equations in their journals.

Students change partners and repeat the activity twice.

Students change partners again. Partner B rolls the die twice. The first roll is for the unit of measure. When the team has two different units of measure, then Partner B rolls to determine how many of the larger unit.

For example, Partner A rolls a 2 – pints, and Partner B rolls a 4 – gallons and then rolls a 6. They will determine how many pints are in 6 gallons.

Students write all labeled equations in their journals.

Students change partners and repeat the activity three times.

Students must agree on the unit measurement and can use the brick math set to help determine the time correctly. Walk through the room, spot checking the students work.

Have students return the dice to you.

Have students find their partners and go to their desks/table.

Part 2: Show What You Know

Read aloud the instructions for #1, on page 50 in the Brick Math Basic Measurement Teacher Edition. Students complete page 39, #1 in the Brick Math Basic Measurement Student Edition.

Read aloud the instructions for #2, on page 50 in the Brick Math Basic Measurement Teacher Edition. Students complete page 39, #2 in the Brick Math Basic Measurement Student Edition.

Read aloud the instructions for #3, on page 51 in the Brick Math Basic Measurement Teacher Edition. Students complete page 40, #3 in the Brick Math Basic Measurement Student Edition.

Read aloud the instructions for #4, on page 51 in the Brick Math Basic Measurement Teacher Edition. Students complete page 40, #4 in the Brick Math Basic Measurement 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 41 in the Brick Math Basic Measurement Student Edition.

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

Students complete Assessment #2 on page 41 in the Brick Math Basic Measurement 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 42 in the Brick Math Basic Measurement Student Edition.

Ask partners to check the work. Walk around the room and check students' work.

Students complete Assessment #4 on page 42 in the Brick Math Basic Measurement Student Edition.

Ask partners to check the work. Walk around the room and check students' work.

Students complete Assessment #5 on page 42 in the Brick Math Basic Measurement 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:

Tonica and Gerri were working in the kitchen with a new soup recipe. They had a one cup measure. The recipe called for a quart of water. How many cups of water do Tonica and Gerri need to add?

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 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 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 use customary liquid measurement” in their journals. Students should draw a specific color brick after the words “I can use customary liquid measurement” based on the following:

Say:

I need help using customary liquid measurement. If this describes you today, draw an orange brick after the words “I can use customary liquid measurement.”

I can use customary liquid measurement. If this describes you today, draw a green brick after the words “I can use customary liquid measurement.”

I can help others use customary liquid measurement. If this describes you today, draw a blue brick after the words “I can use customary liquid measurement.”

Day 6 – Metric Measures

Preparation:

- Read pages 52-53 in the Brick Math Basic Measurement Teacher Edition
- Write the following on chart paper or the board so all students can easily see and refer to as needed:
 - Kilo (1000)
 - Hecto (100)
 - Deka (10)
 - Deci (1/10)
 - Centi (1/100)
 - Milli (1/1000)
- Have cards for Measurement Baseball prepared.

3x5 cards or cardstock cut into smaller cards with the following:

- Build a model to show 23 kilograms.
- Build a model to show 18 kilograms.
- Build a model to show .274
- Build a model to show .38
- Build a model to show .429
- Build a model to show .020
- Build a model to show .089
- Build a model to show .35
- Build a model to show .01
- Build a model to show .002
- How many decimeters are in 48 centimeters? [4.8]
- How many meters are in 37 centimeters? [.37]
- How many decimeters are in 6 meters? [60]
- How many grams are in 1 kilogram? [1000]
- How many kilograms are in 111 grams? [.111]
- How many meters are in 5 kilometers? [5000]
- How many centimeters are in 3 meters? [300]
- How many deciliters are in one liter? [10]
- How many millimeters are in 2 meters? [2000]
- How many dekaliters are in 4 liters? [.4]

Welcome

Welcome students to Day 6. Ask students if they remember the units of customary liquid measure. [cups, pints, quarts, gallons]

Tell students that customary units are typically only used in the United States. The majority of the world that used customary units moved to metric measurement in the 1970s. All scientists use metric measurement.

Tell students metric measurement is based on units of 10 and the decimal system. That means people do not have to remember different amounts, like 2 cups in a pint and 4 quarts in a gallon.

Metric measurement uses prefixes to help with using measurement.

Kilo (1000) Kilo is derived from a Greek word meaning 1000 (a kilogram is 1000 grams)

Hecto (100) Hecto is derived from a French word meaning 100 (a hectare is 100 acres)

Deka (10) Deka (English) Deca (other languages) is derived from a Greek word meaning 10 (a dekameter = 10 meters)

Deci (1/10) Deci comes from the Latin decimus which means a tenth (Decimals are based on tenths)

Centi (1/100) Centi comes from the Latin centum which means a hundred (100 cents = 1 dollar)

Milli (1/1000) Milli is derived from the Latin mille which means thousand (1000 millimeters = 1 meter)

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.

Metric Measures

Part 1: Show Them How

Follow the instructions on page 53 in the Brick Math Basic Measurement Teacher Edition. Students complete page 43 in the Brick Math Basic Measurement Student Edition.

Follow the instructions on page 54 in the Brick Math Basic Measurement Teacher Edition, Using Multiplication to Convert Metric Measures. Complete Problem #1, Steps 1-4. Students complete page 44, Problem #1, Steps 1-4 in the Brick Math Basic Measurement Student Edition.

Follow the instructions on pages 55-56 in the Brick Math Basic Measurement Teacher Edition. Complete Problem #2, Steps 1-6. Students complete pages 45-46, Problem #2, Steps 1-6 in the Brick Math Basic Measurement Student Edition.

Follow the instructions on pages 57-58 in the Brick Math Basic Measurement Teacher Edition, Decimal Place Value Modeling, Steps 1-3. Students complete page 47-48 in the Brick Math Basic Measurement Student Edition.

Follow the instructions on pages 59-60 in the Brick Math Basic Measurement Teacher Edition. Complete Problem #1, Steps 1-5. Students complete pages 49-50, Problem #1, Steps 1-5 in the Brick Math Basic Measurement Student Edition.

Move with Measurement Baseball

Set up a baseball game of 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. Without looking, the pitcher chooses a card and reads it aloud. The batter has 15 (you determine the time required) seconds to build and give an answer. If the batter answers correctly in the time allowed, they move to first base. If the batter does not answer in 15 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.

Part 2: Show What You Know

Follow the instructions on page 61 in the Brick Math Basic Measurement Teacher Edition. Complete #1. Students complete page 50, #1 in the Brick Math Basic Measurement Student Edition.

Follow the instructions on page 61 in the Brick Math Basic Measurement Teacher Edition. Complete #2. Students complete page 51, #2 in the Brick Math Basic Measurement Student Edition.

Follow the instructions on page 62 in the Brick Math Basic Measurement Teacher Edition. Complete #3. Students complete page 51, #3 in the Brick Math Basic Measurement Student Edition.

Follow the instructions on page 63 in the Brick Math Basic Measurement Teacher Edition. Complete #4. Students complete page 52, #4 in the Brick Math Basic Measurement 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 52 in the Brick Math Basic Measurement Student Edition.

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

Students complete Assessment #2 on page 53 in the Brick Math Basic Measurement Student Edition. Walk around the room and check students' work.

Students complete Assessment #3 on page 53 in the Brick Math Basic Measurement Student Edition. Walk around the room and check students' work.

Students complete Assessment #4 on page 54 in the Brick Math Basic Measurement Student Edition. Walk around the room and check students' work.

Story Problem

Tell students a story problem like the following:

Samantha is measuring some chemicals for an experiment. She needs to ensure her measurements are accurate. She is measuring using milliliters for the greatest accuracy. She needs to convert the following measures to milliliters.

3 deciliters [300 ml]

2 centiliters [20 ml]

18 milliliters [18 ml]

1 kiloliter [1,000,000 ml]

Can you help Samantha measure accurately?

Help students to complete the story problem.

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

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 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 determine metric measurement” in their journals.

Students should draw a specific color brick after the words “I can determine metric measurement” based on the following:

Say:

I need help determining metric measurement. If this describes you today, draw an orange brick after the words "I can determine metric measurement."

I can determine metric measurement. If this describes you today, draw a green brick after the words "I can determine metric measurement."

I can help others determine metric measurement. If this describes you today, draw a blue brick after the words "I can determine metric measurement."

Day 7 – Perimeter

Preparation:

- Read pages 64-65 in the Brick Math Basic Measurement Teacher Edition.
- Prepare the Student Assessment Charts, on page 83 of the Brick Math Basic Measurement Teacher Edition or the Brick Math Basic Measurement Student Edition, which will be given to students tomorrow.
- Create cards with Width or Length on one side and the number on the other side. When you place them around the room, show only the length or width side. (There are two sets of width and length cards with 6 and 12.)

Width 12	Width 6	Width 4
Width 5	Width 6	Width 7
Width 8	Width 9	Width 10
Width 11	Width 12	Width 16
Length 12	Length 6	Length 4
Length 5	Length 6	Length 7
Length 8	Length 9	Length 10
Length 11	Length 12	Length 16

Welcome

Welcome students to Day 7.

Ask students to name the prefixes for metric measurement. [kilo, hector, deka, deci, centi, and milli]

Tell students today they are going to measure the perimeter, or the outside edge of rectangles and squares.

Have students locate square and rectangles in the room. Ask students what would make sense to use as a measurement – inches, feet, or yards. Then, ask students if millimeters, centimeters, or meters would make sense. Help students to make connections between appropriate measures.

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 65-66 in the Brick Math Basic Measurement Teacher Edition. Complete Part 1. Students complete pages 55-57, Part 1 in the Brick Math Basic Measurement Student Edition.

Follow the instructions on page 67 in the Brick Math Basic Measurement Teacher Edition. Complete Problem #1. Students complete pages 57-58, Problem #1 in the Brick Math Basic Measurement Student Edition.

Follow the instructions on pages 68-69 in the Brick Math Basic Measurement Teacher Edition. Complete Problem #2. Students complete pages 59-60, Problem #2 in the Brick Math Basic Measurement Student Edition.

Follow the instructions on page 70 in the Brick Math Basic Measurement Teacher Edition. Complete Problem #3. Students complete page 61, Problem #3, in the Brick Math Basic Measurement Student Edition.

Move to Find Perimeter

Have cards containing either length or width positioned around the room showing only width or length.

Tell students they are to work together to create a team with a length and a width measurement. Then, they work together to determine the perimeter. Students write the equation and the solution in their journals. They can use the brick sets as needed.

Have students exchange cards and find new partners. Repeat the activity 3 more times so each person has worked with four different partners and has used four different lengths and widths.

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

Part 2: Show What You Know

Follow the instructions on page 71 in the Brick Math Basic Measurement Teacher Edition. Complete #1. Students complete page 62, #1 in the Brick Math Basic Measurement Student Edition.

Follow the instructions on page 72 in the Brick Math Basic Measurement Teacher Edition. Complete #2. Students complete page 63, #2 in the Brick Math Basic Measurement Student Edition.

Follow the instructions on pages 72-73 in the Brick Math Basic Measurement Teacher Edition. Complete #3. Students complete page 64, #3 in the Brick Math Basic Measurement Student Edition.

Follow the instructions on page 73 in the Brick Math Basic Measurement Teacher Edition. Complete #4. Students complete page 65, #4 in the Brick Math Basic Measurement 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 66 in the Brick Math Basic Measurement Student Edition.

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

Students complete Assessment #2 on page 66 in the Brick Math Basic Measurement Student Edition. Walk around the room and check students' work.

Students complete Assessment #3 on page 67 in the Brick Math Basic Measurement Student Edition. Walk around the room and check students' work.

Students complete Assessment #4 on page 68 in the Brick Math Basic Measurement Student Edition. Walk around the room and check students' work.

Story Problem

Tell students a story problem like the following:

Jasmine and Jason are building a fort. The outside edge of the fort has a width of 8 feet and a length of 9 feet. What is the perimeter of the fort? [8 + 8 + 9 + 9 = 34 feet]

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

Have each pair work together to create a new story problem that they can model with bricks.
Have students write the equations 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 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 compute the perimeter of a rectangle” in their journals. Students should draw a specific color brick after the words “I can compute the perimeter of a rectangle” based on the following:

Say:

I need help computing the perimeter of a rectangle. If this describes you today, draw an orange brick after the words “I can compute the perimeter of a rectangle.”

I can compute the perimeter of a rectangle. If this describes you today, draw a green brick after the words “I can compute the perimeter of a rectangle.”

I can help others compute the perimeter of a rectangle. If this describes you today, draw a blue brick after the words “I can compute the perimeter of a rectangle.”

Day 8 – Area

Preparation:

- Read pages 74-75 in the Brick Math Basic Measurement Teacher Edition
- Complete the Student Assessment Charts which are given to students/parents at the end of the day

Welcome

Welcome students to the final day of the program. Ask students how to compute the perimeter of a rectangle. [Add the length of the four sides – two widths and two lengths]

Tell them they are going work with area today. Show students a rectangle. Ask students what the perimeter is. [the measure of the outside edge]

Ask students if they know what the area of the rectangle represents. [the space inside the edges]

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.

Part 1: Show Them How

Follow the instructions for #1 on page 75 in the Brick Math Basic Measurement Teacher Edition. Students complete page 69, #1, in the Brick Math Basic Measurement Student Edition.

Follow the instructions for #2, on page 75 in the Brick Math Basic Measurement Teacher Edition. Students complete page 69, #2, in the Brick Math Basic Measurement Student Edition.

Follow the instructions for #3, on page 75 in the Brick Math Basic Measurement Teacher Edition. Students complete pages 69-70, #3, in the Brick Math Basic Measurement Student Edition.

Follow the instructions for #4, on page 76 in the Brick Math Basic Measurement Teacher Edition. Students complete page 70, #4, in the Brick Math Basic Measurement Student Edition.

Follow the instructions for #5, on page 76 in the Brick Math Basic Measurement Teacher Edition. Students complete page 70, #5, in the Brick Math Basic Measurement Student Edition.

Follow the instructions for #6, on pages 76-77 in the Brick Math Basic Measurement Teacher Edition. Students complete page 71, #6, in the Brick Math Basic Measurement Student Edition.

Follow the instructions for Problem #1, on page 77 in the Brick Math Basic Measurement Teacher Edition. Students complete page 72, Problem #1, in the Brick Math Basic Measurement Student Edition.

Follow the instructions for Problem #2, on page 78 in the Brick Math Basic Measurement Teacher Edition. Students complete pages 73-74, Problem #2, in the Brick Math Basic Measurement Student Edition.

Follow the instructions for Problem #3, on page 78 in the Brick Math Basic Measurement Teacher Edition. Students complete page 75, Problem #3, in the Brick Math Basic Measurement Student Edition.

Move with Area

Ask students to form groups of 4 and give each group 4 dice. Have each group determine which two students will be length and which two students will be width. Each student rolls a die. The two students who are length add their rolls together to determine the length of the rectangle. Students determine the measure – inches, feet, yards, centimeters, meters, and so forth. The two students who are width add their rolls together to determine the width of the rectangle. All students write the equation to determine the area and the solution. Students must label their answers and should ensure they are using square measurement, as in square inches, square meters, etc. [Example, Width rolls 2 & 5, so width is 7. Length rolls 3 & 6, so length is 9. Area is 7×9 or 63 square units.]

When all groups have agreed on the solution, all students find new partners. No groups can contain two people who worked together previously. Repeat the activity twice.

Part 2: Show What You Know

Read aloud the instructions for Problem #1 on page 79 in the Brick Math Basic Measurement Teacher Edition. Students complete page 76, Problem #1 in the Brick Math Basic Measurement Student Edition.

Read aloud the instructions for Problem #2 on page 79 in the Brick Math Basic Measurement Teacher Edition. Students complete page 77, Problem #2 in the Brick Math Basic Measurement Student Edition.

Read aloud the instructions for Problem #3 on page 80 in the Brick Math Basic Measurement Teacher Edition. Students complete page 78, Problem #3 in the Brick Math Basic Measurement Student Edition.

Read aloud the instructions for Problem #4 on page 80 in the Brick Math Basic Measurement Teacher Edition. Students complete page 79, Problem #4 in the Brick Math Basic Measurement 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 80 in the Brick Math Basic Measurement Student Edition.

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

Students complete Assessment #2 on page 80 in the Brick Math Basic Measurement Student Edition. Walk around the room and check students' work.

Students complete Assessment #3 on page 81 in the Brick Math Basic Measurement Student Edition. Walk around the room and check students' work.

Students complete Assessment #4 on page 82 in the Brick Math Basic Measurement Student Edition. Walk around the room and check students' work.

Students complete Assessment #5 on page 82 in the Brick Math Basic Measurement Student Edition. Walk around the room and check students' work.

Story Problem

Tell students a story problem like the following:

Tonica and Gerri are excited about the new swimming pool complex being built. It has a small area for little kids that is very shallow. This kiddie pool is 12 feet long and 14 feet wide. What is the perimeter and the area of the kiddie pool? [Perimeter is $24 + 28 = 52$ feet; Area is $12 \times 14 = 168$ square feet]

Have students write the equation 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.

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

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 to show a rectangle with a perimeter of 32 feet.

Have students ask their parents to build a model to show a rectangle with a perimeter of 24 feet.

Ask students to show their parents how to build a model with length of 12 and width of 3. Have students determine the area.

Have students ask their parents to build a model with length of 10 and width of 5. Have parents determine the area.

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 Measurement.

Tell everyone thanks for coming!