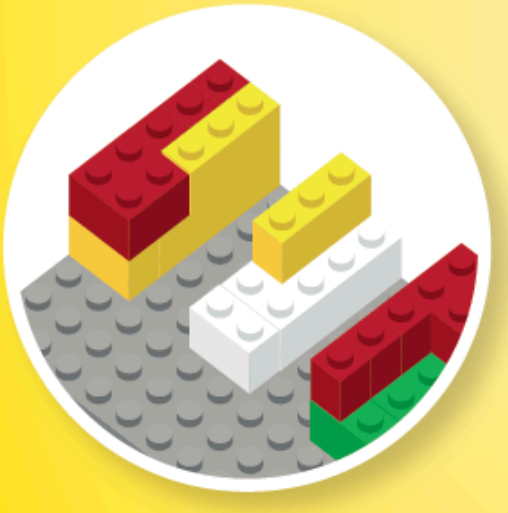
Brick Math Series

TEACHING SUBTRACTION USING LEGO® BRICKS



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Teaching Subtraction Using LEGO® Bricks

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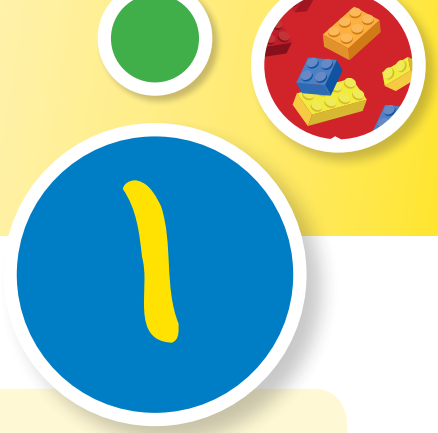


WHAT DOES IT MEAN TO SUBTRACT?

Students will learn/discover:

- How to subtract within 20
- The definition of *subtraction*
- What is means to subtract two numbers
- How to write mathematical equations for subtraction models

Why is this important?

Understanding the vocabulary of subtraction is important to put math number/word relationships together. Young learners must be able to demonstrate how subtraction works and what it means to have some "left over." One-to-one correspondence, visualization, and modeling are strategies student will continue to use as they mature in math understanding.

Vocabulary:

- Subtract: Move from the whole
- Minuend: Largest number (and usually the first number) in a subtraction problem; the number that the subtrahend is subtracting from
- Subtrahend: Smaller of two numbers (and usually the second number) in a subtraction problem; the number that is being subtracted from the minuend
- Minus: Symbol in a subtraction problem

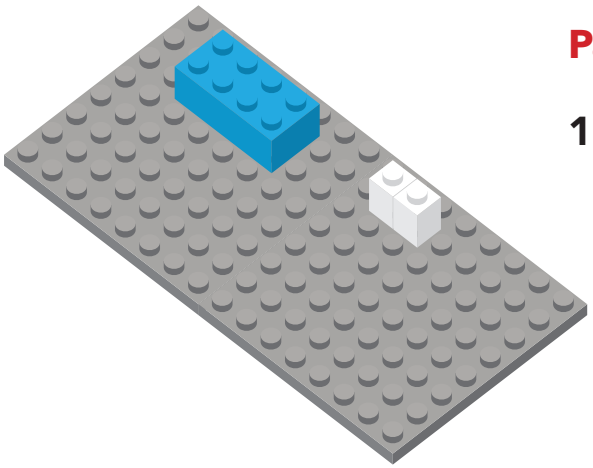
SUGGESTED BRICKS

Size	Number
1x1	10
1x2	10
1x3	8
1x4	8
1x6	4
1x10	2
2x2	4
2x3	6
2x4	4

Note: Using a baseplate will help keep the bricks in a uniform line. One baseplate is suggested for these activities.

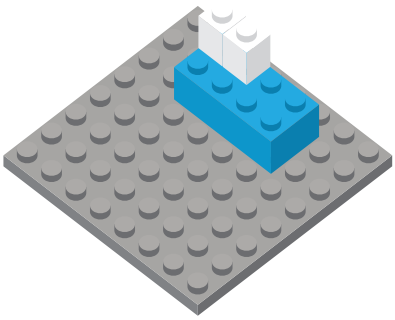
How to use the companion student book, *Learning Subtraction Using LEGO® Bricks*:

- After students build their models, have them draw the models and explain their thinking in the student book. Recording the models on paper after building them with bricks helps reinforce the concepts being taught.
- Discuss the vocabulary for each lesson with students as they work through the student book.
- Use the assessment in the student book to gauge student understanding of the content.



Part 1: Show Them How

1. Build a model of the number 8 using one 2x4 brick. Have students make the same model. Build a model of the number 2 by placing two 1x1 bricks or one 1x2 brick to the right of the 2x4 brick, leaving space between the two models. Explain to students that these models represent the two parts of a subtraction problem: The 2x4 brick represents the *minuend* of 8 and the 1x2 brick represents the *subtrahend* of 2. Have students draw the two models and label the parts of the problem.



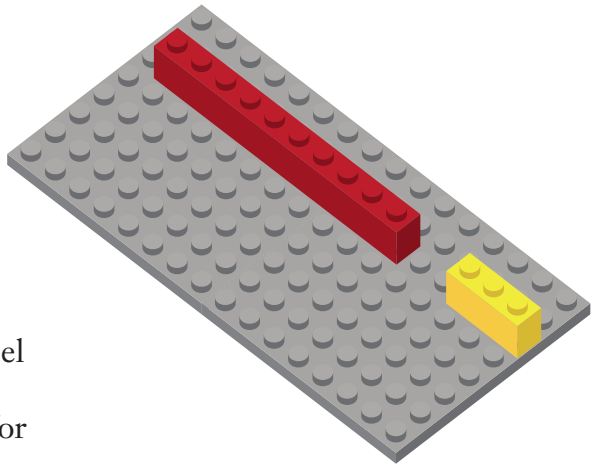
2. Show the subtraction of 8 studs – 2 studs by placing the 1x2 brick on top of the 2x4 brick. Ask students how many studs are not covered (6).

Explain that the uncovered studs are called the *difference*, which is how many are left after subtracting. Have students show this step on their models.

Have students draw the solution and label the numbers represented by the bricks.

Show students how to write a mathematical statement for the model: 8 studs – 2 studs = 6 studs.

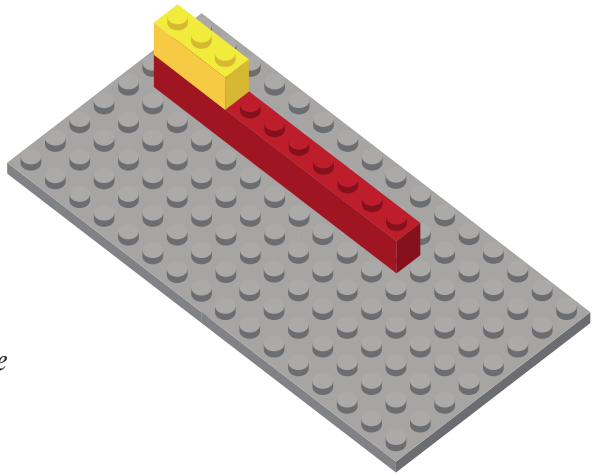
3. Build a model of the number 10 using a 1x10 brick. Have students build the same model and draw it.



Explain to students that this model represents the start of the subtraction problem. Ask students to give the name for that number (*minuend*).

4. Build a model of the number 3 to the right of the model for the number 10. Ask students to give the name for that number (*subtrahend*). Have students add a model for 3 to their models and draw it.

5. Have students model the *difference*. Ask students how they know how much the *difference* is in this problem. Have students write an explanation of their thinking.

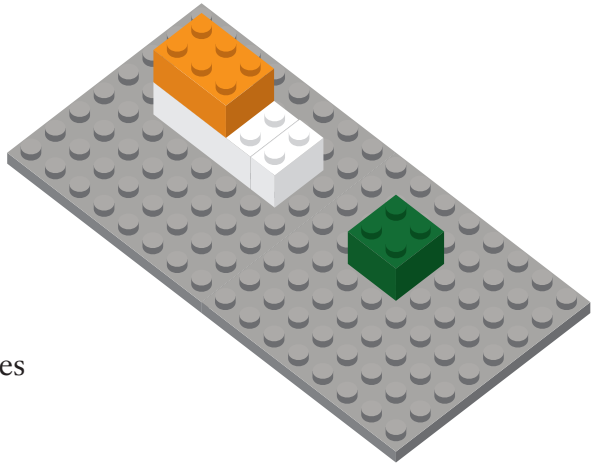


6. Have students write a mathematical sentence for this problem.

Have students draw the model that shows the *difference* and label it.

7. Have students build a different model of the number 10 using bricks other than a 1x10 brick. Have students build a model to show: 10 studs – 6 studs = ☐ studs

Possible solution:



Have students share their models with a partner. Each student should draw his/her model and explain each part of his/her problem.

Five 1x2 bricks represent the minuend of 10. One 2x3 brick represents the subtrahend of 6. Six studs on top of 10 studs leaves 4 studs showing. The 2x2 brick proves that 4 are left.

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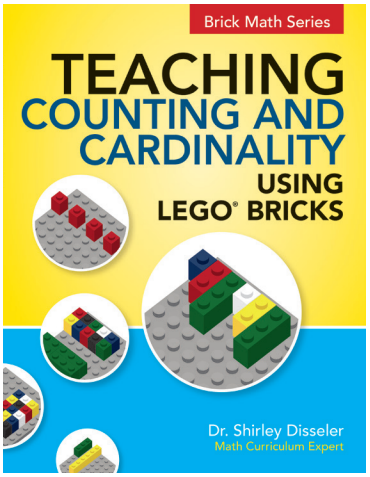

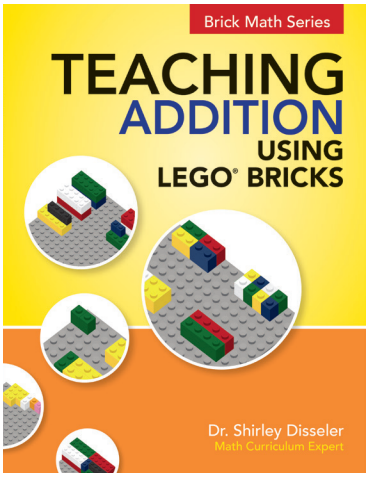

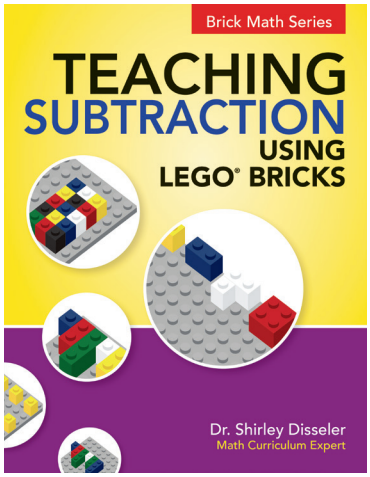

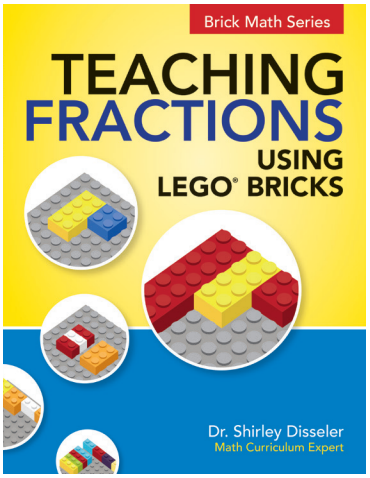

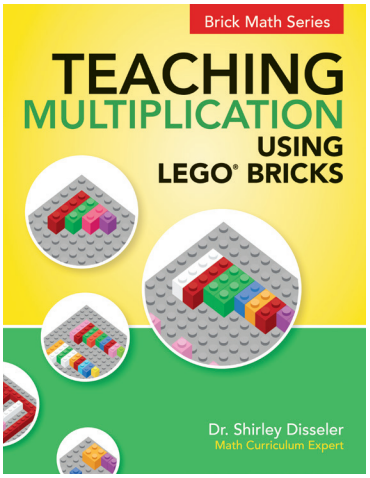

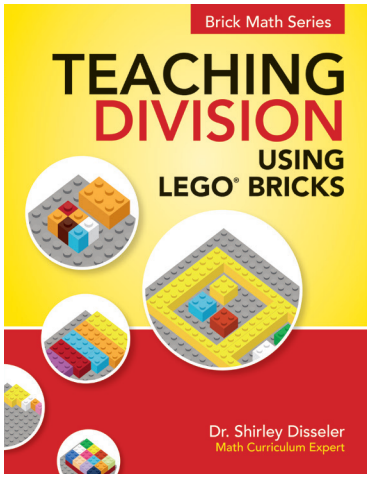

Companion Student Editions

Individual student books that follow the teaching curriculum, complete with additional activities for practice and assessments.