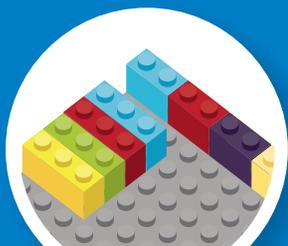
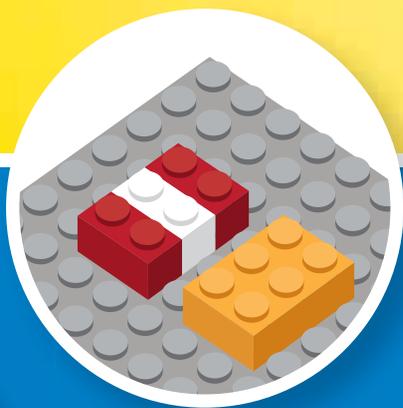


Brick Math Series

TEACHING FRACTIONS

USING LEGO® BRICKS



Dr. Shirley Disseler
Math Curriculum Expert

Brick Math Series

TEACHING FRACTIONS USING LEGO® BRICKS

Dr. Shirley Disseler





SUGGESTED BRICKS

Size	Number
1x1	10
1x2	8
1x3	4-8
2x2	5-8
2x3	8
2x4	6-8
2x6	6-8

Note: Using a base plate will help keep the bricks in a uniform line. Two base plates are suggested for these activities.

SUBTRACTING FRACTIONS WITH LIKE DENOMINATORS

Students will learn/discover:

- How to subtract two fractions whose denominators are the same

Why is this important?

Students who can recognize parts of a whole are ready to learn how to subtract parts of the same whole.

Note: Students should not subtract with unlike denominators in this activity.

This activity can follow learning to add fractions with like denominators or be done at the same time.

Brick Math journal:

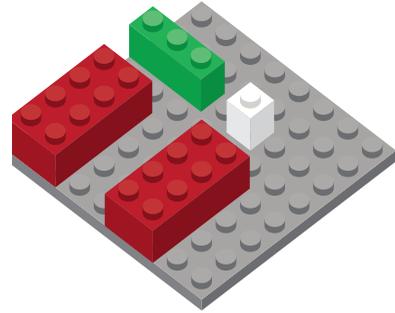
After students build their models, have them draw the models on base plate paper and keep them in their Brick Math journals (see page 7 for instructions). Recording the models on paper after building with the LEGO® bricks helps to reinforce the concepts.



Part 1: Show Them How Model subtracting two fractions: $\frac{3}{8} - \frac{1}{8}$

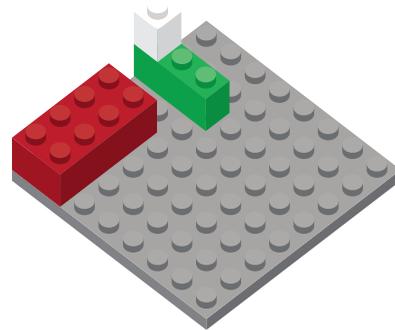
1. Place two 2x4 bricks on the base plate. Use the same color and shape 2x4 bricks to help students understand the idea of *like denominators*.

2. Above one 2x4 brick, place one 1x3 brick. Place it horizontally, rather than vertically as when modeling addition. Above the other 2x4 brick, place one 1x1 brick. Use different color 1x3 and 1x1 bricks to demonstrate that these numerators are not the same.

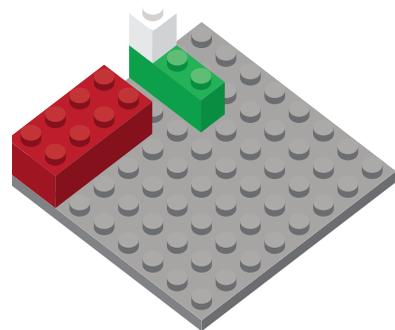


3. To model the solution to the problem, use another base plate and use more bricks to model. Place one 2x4 brick at the bottom of the base plate. Place a 1x3 brick above the 2x4 brick, aligning it horizontally. This is the numerator of the minuend.

Stack the 1x1 brick on top of the 1x3 brick. This is the numerator of the subtrahend.



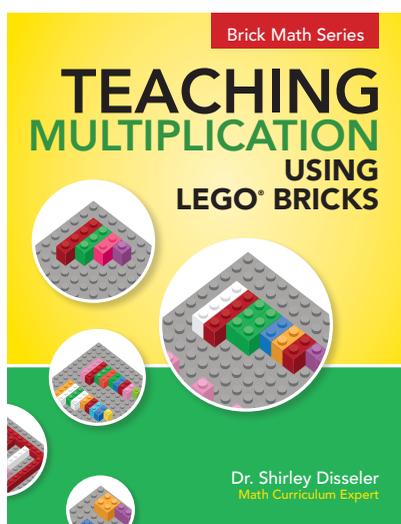
4. Count the studs not covered to show that two studs are left after subtracting the 1x1 brick from the 1x3 brick. This demonstrates the solution to $\frac{3}{8} - \frac{1}{8} = \frac{2}{8}$.



Also in the Brick Math Series:

TEACHING MULTIPLICATION USING LEGO® BRICKS

Dr. Shirley Disseler



Teaching and learning multiplication is easy using LEGO® bricks!

Teachers as well as parents can follow the step-by-step instructions to guide students as they learn multiplication facts, one-digit multiplication, and two-digit and larger multiplication. Students model hands-on math problems with LEGO® bricks using a variety of techniques—sets, arrays, and place values—to develop true understanding of the concepts of multiplication.

Math is fun when you're using LEGO® bricks to learn!

Author Dr. Shirley Disseler is Associate Professor at High Point University and Chair of the Department of Elementary and Middle Grades Education. She serves on the LEGO® Education Ambassadors Panel.

Companion student edition:

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Quantity pricing and classroom packs available at 802-751-8802 or neil@compasspublishing.org.



PRAISE FOR THE BRICK MATH SERIES: TEACHING MATH USING LEGO® BRICKS

“I finally know what a fraction is. I can *see* it!”

—Student

“Why doesn’t everyone learn math this way?”

—Student

“As an elementary teacher, exploring varying methods of learning is always necessary. From the very first activity in *Teaching Multiplication Using LEGO® Bricks*, it is clear that this book is extremely useful for any student learning (or struggling with) multiplication. For example, when learning/discussing fact families, I have witnessed many students blindly memorizing the facts without truly understanding *why* there is a relationship between the facts. By using different sizes of LEGO® bricks in one of the activities in this book, students are able to build and then observe a visual representation of the fact families. The students are able to see that one 1x6 brick contains the same number of studs as two 1x3 bricks.

In my experience as an educator, students tend to deeply grasp a concept whenever they are fully immersed in the learning process. The activities in this book require students to think critically about the process of multiplication that so often becomes robotic. *Teaching Multiplication Using LEGO® Bricks* covers multiplication processes such as: bundling, repeated addition, using place value, using array models, one-to-one correspondence, and more. Rather than blindly following a set of steps, students are able to build and think critically about what is happening as the problem evolves.

This book is a must-have for any educators exploring multiplication!”

—Elementary Teacher

“As an instructional coach at an elementary school, I have been searching for a teacher-friendly text that emphasizes the educational aspects of LEGO® bricks. *Teaching Multiplication Using LEGO® Bricks* helps breathe life back into mathematics, particularly multiplication instruction. The progression from basic multiplication principles to two- and three-digit multiplication problems is seamless. The students’ understanding of these concepts is reinforced when using the LEGO® bricks, and the text encourages students to explain their findings. I recommend *Teaching Multiplication Using LEGO® Bricks* to everyone in education who wants to take the next step in hands-on learning.”

— Kelli Coons, Instructional Coach

“*Teaching Fractions Using LEGO® Bricks* is a great resource for children to learn about fractions with conceptual understanding and modeling. It’s hands-on, engaging, and overall an exciting way to learn about fractions. When you bring LEGO® bricks into the classroom the students automatically react with “ooh, cool!” and they are hooked on the activity. There is nothing better as a teacher than seeing your students enjoy learning, and using this resource, I see that. Another great feature about this resource is that it utilizes various learning modalities. Students learn physically by manipulating the LEGO® bricks, they draw the models for a visual reference, they write and describe concepts for a verbal understanding, and they are able to reason about the models and concepts to have a comprehensive understanding of fractions. Overall, this resource is phenomenal, and students are sure to be excited about math and fractions!”

—Tina Lupton, Teacher

“The visual models in *Teaching Fractions Using LEGO® Bricks* helped my students see and understand how equivalent fractions really work. The activities are super easy to follow and make learning operations with fractions fun for both the students and the teacher!”

— Jamie Piatt, Fifth Grade Teacher

Teaching Fractions Using LEGO® Bricks

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