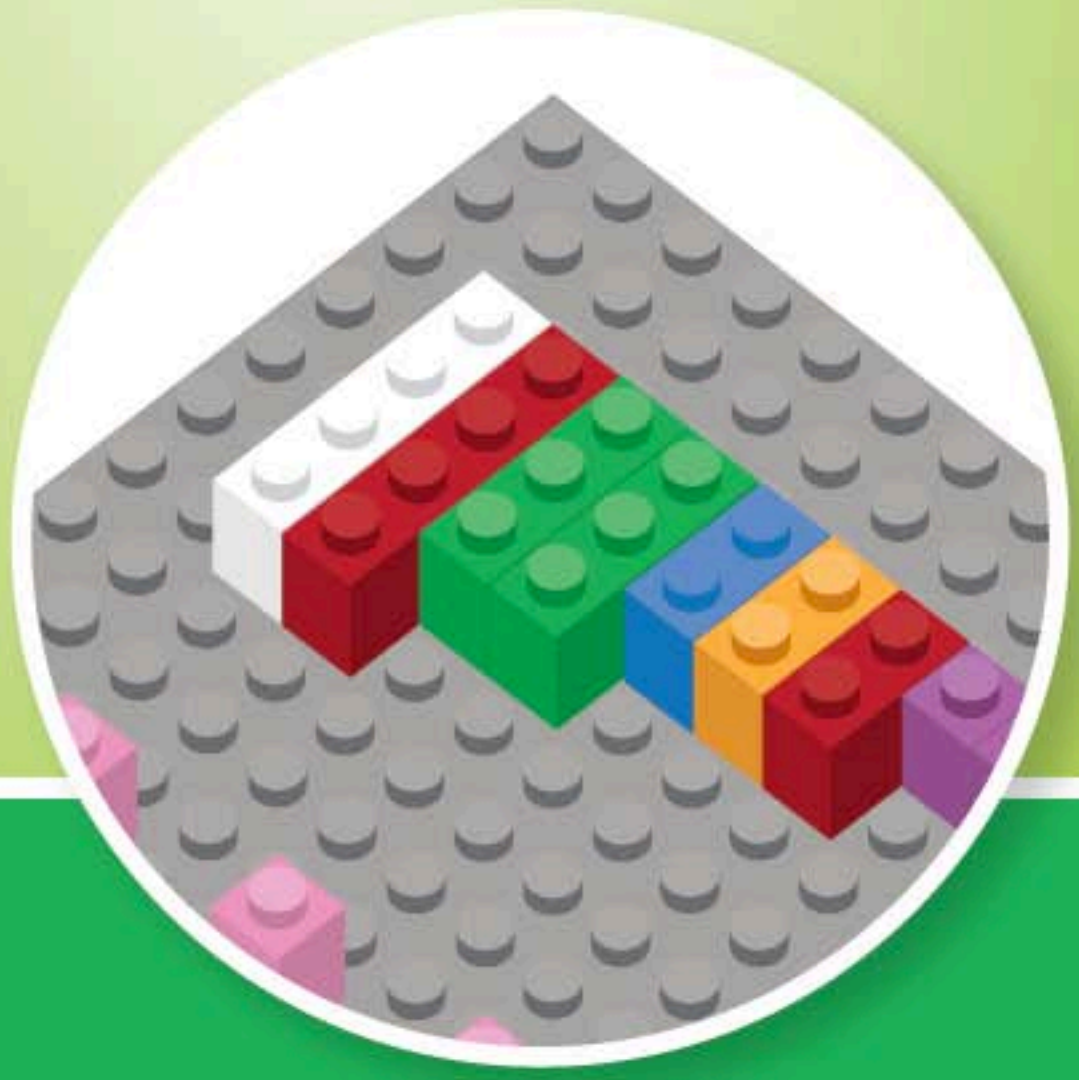
Brick Math Series

LEARNING MULTIPLICATION USING LEGO® BRICKS

STUDENT EDITION



Hands-on Math

Math is fun!

Dr. Shirley Disseler
Math Curriculum Expert

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Dr. Shirley Disseler

Learning Multiplication Using LEGO® Bricks — Student Edition

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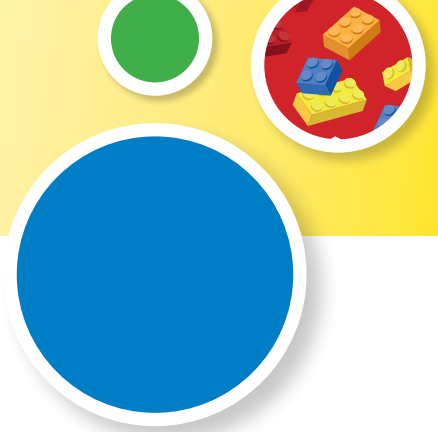


CONTENTS

FINDING FACTORS

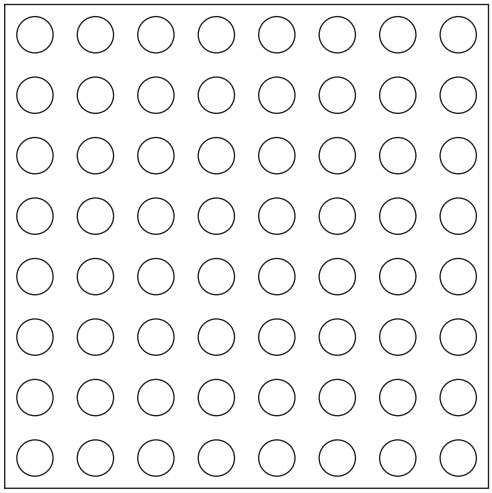
1. Place a 2x8 LEGO® brick on your base plate. Draw it on the base plate diagram below. How many studs are in your model? _____

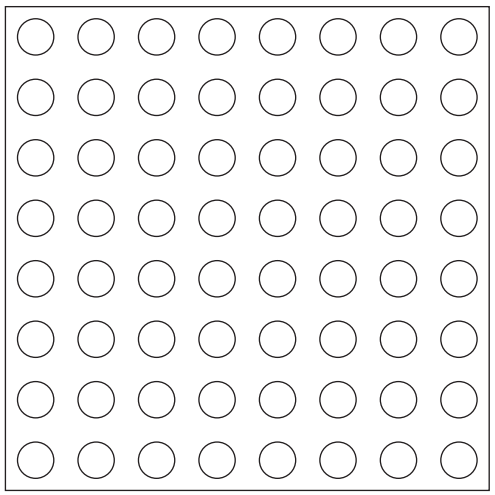
2. Next to the 2x8 brick, add two bricks of the same size that are each ½ of the 2x8 brick. Which bricks did you add? _____ Draw those bricks below.

3. Find the next set of bricks that you can add to the model that are the same size and are equal in length and width. Which bricks did you choose, and how many did you add? _____ Draw those bricks below.

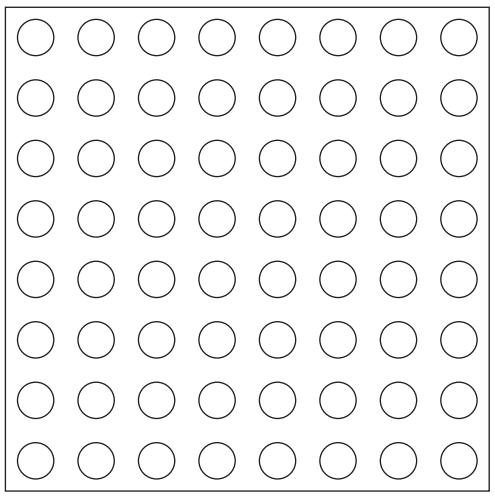
4. Can you add another set of bricks that are equal in length and width to this model to show another factor? What bricks did you find? _____ Draw those bricks below.

5. List all the factors for the 2x8 brick. _____



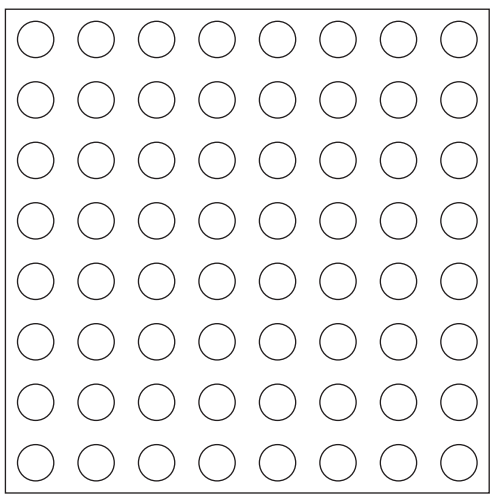


6. Build a model to show all the factors of 6. Draw your model and explain your thinking.



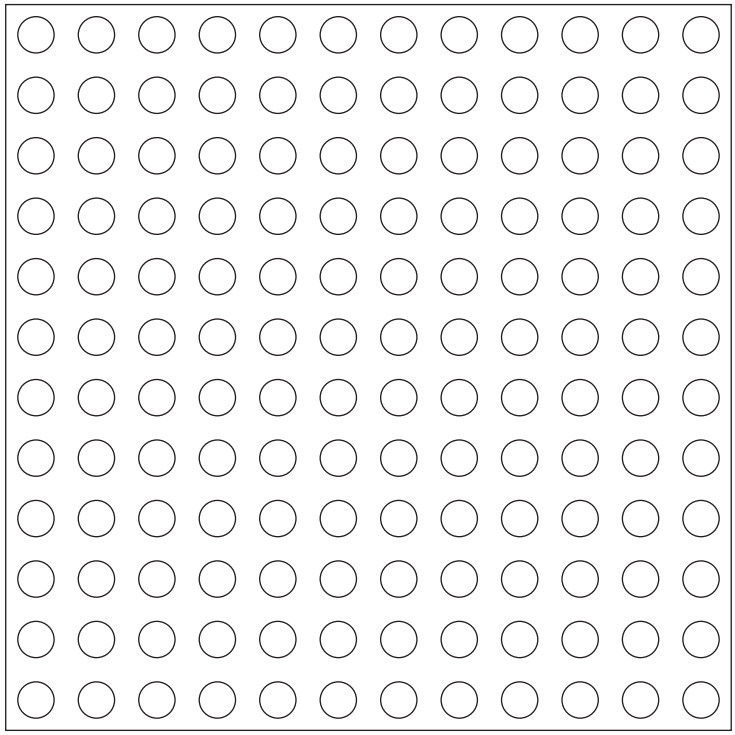
7. Build a model to show all the factors of 8. Draw your model and explain your thinking.

More problems to practice:



8. Build a model to show all the factors for 12. Draw your model and explain your thinking.

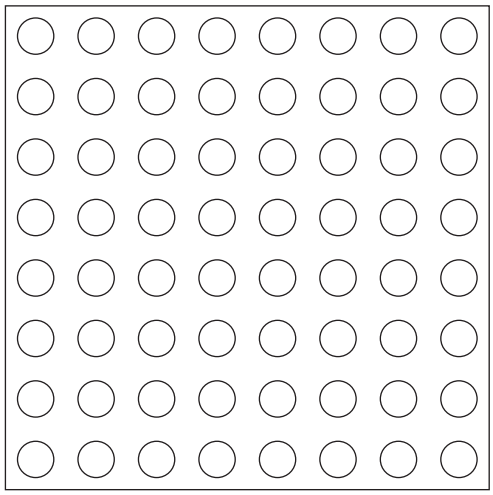
9. Build a model to show all the factors of 24. Draw your model and explain your thinking.



Assessment:

1. What is a factor?

2. What word means "the answer to a multiplication problem"? _____



3. Choose a number you have not used in this lesson. Build a model with bricks to show all the factors of this number. Note: you do not have 5, 7, or 9-stud bricks. Draw your model and explain your thinking.

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 "oooh, 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