Bridges in Mathematics
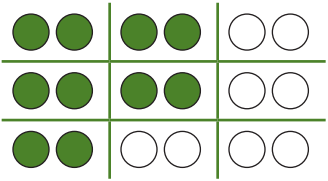## Grade 3 Unit 7

Extending Multiplication & Fractions

In this unit your child will:

- ▪ Develop and use strategies for multiplying by 11 and 12
- ▪ Multiply single-digit numbers by multiples of 10
- ▪ Multiply single-digit numbers by two-digit numbers
- ▪ Solve problems involving fractions

Your child will learn and practice these skills by solving problems like those shown below. Use the free Math Vocabulary Cards app for additional support: mathlearningcenter.org/apps

PROBLEM	COMMENTS
Label the dimensions of the array, and write at least two equations to show how many units there are. 12 6 $(6 \times 10) + (6 \times 2) = 72$ $60 + 12 = 72$ $6 \times 12 = 72$	In the array at left, each group of 12 is shown as one row of 10 and two more individual squares. This helps students see 6 groups of 10 and 6 groups of 2, which helps them understand a general strategy for multiplying by 12: first multiply by 10, then multiply by 2, and finally add the two numbers. The strategy for multiplying any number by 11 is closely related: multiply by 10 and then add the number.
Mr. Garza got some free carpet squares for his classroom at a carpet store. He got enough blue squares to cover 3 feet by 6 feet and enough red squares to cover 5 feet by 12 feet. How many total square feet can be covered if Mr. Garza puts all of the carpet squares together? Blue: $3 \times 6 = 18$ sq. ft Red: $5 \times 12 = 50 + 10 = 60$ sq. ft. $18 + 60 = 78$ sq. ft	The multiplication involved in solving this problem is straightforward, but students need to apply their understanding of area to solve it.

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PROBLEM	COMMENTS
Shade in $\frac{5}{9}$ of the circles. ⬤⬤ ⬤⬤ ◯◯ ⬤⬤ ⬤⬤ ◯◯ ⬤⬤ ◯◯ ◯◯	Dividing a single shape into equal parts and coloring some of them is a familiar way to represent fractions. Problems like this one ask students to divide a set of objects or shapes into equal groups and then count or color a certain number of them to show a fraction. This reinforces the connection between fractions and division. In this example, there are 2 circles in each ninth, because 18 total circles divided into 9 equal groups produces groups of 2. After dividing the set into equal groups, students color in 5 sets, or 10 circles total. Eventually, this work leads to equivalent fractions. In this case, for example, students can use the model to see that $\frac{5}{9} = \frac{10}{18}$.
Susie's friends were coming over, and she wanted to give each friend a bag of treats. She had 4 bags. She put the same number of stickers in each bag. Then her dad gave her some more stickers and she put 3 more stickers in each bag. When she was done, the bags had 28 stickers in all. How many stickers did Susie put in each bag before her dad gave her more? *She put 4 stickers in each bag before her dad gave her more.* $28 \div 4 = 7$ $7 \div 3 = 4$ Write an equation that shows one way to solve the problem. $28 \div 4 - 3 = 4$	The computation involved in solving this problem is far less challenging than is the process of making sense of the problem. Students cannot apply simple rules to find the solution: they really must think carefully about the problem situation. Writing an equation to represent the problem and its solution is also challenging. It's best for students to solve the problem first and then figure out a way to express what they did with a single equation.

FREQUENTLY ASKED QUESTIONS ABOUT UNIT 7

Q: In some assignments my child is asked to write an equation or choose an equation to represent a story problem. This is challenging. How can I help?

A: It is important for students to connect the words in the problem, as well as their strategies for solving the problem, to equations. Invite your child to solve real-world problems and then talk about what they did; help them write what they did using numbers and symbols. Then put the numbers and symbols together into a single equation (see the problem about Susie in the table above for an example).