Family Support Materials

Relating Multiplication to Division

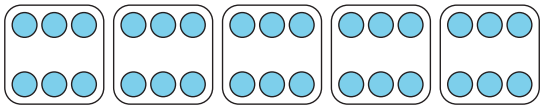
In this unit, students make sense of division and learn to multiply and divide whole numbers within 100. They also use the four operations to represent and solve two-step word problems. Students work toward these end-of-year goals:

- fluently multiply and divide within 100
- know from memory all products of two one-digit numbers

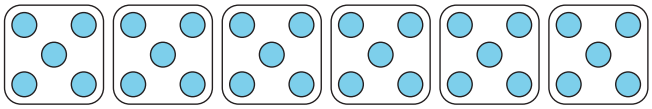
Section A: What is Division?

In this section, students think about division in terms of equal-size groups, just as they have done with multiplication. For instance, the expression $30 \div 5$ can represent putting 30 objects into 5 equal groups, or putting 30 objects into groups of 5. Students see that, in general, dividing can mean answering the question "how much is in one group?" or "how many equal groups can be made?"

30 objects put into 5 equal groups



30 objects put into groups of 5

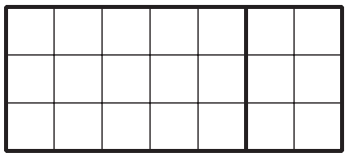


Section B: Relating Multiplication and Division

In this section, students make connections between the result of division and the missing factor in a multiplication equation.

For example, the value of $30 \div 6$ is the missing factor in $\_\_\_\_\_ \times 6 = 30$. This understanding helps students recognize division facts based on the multiplication facts they know.

Students also learn to use properties of operations to multiply. For example, if they know 3×7, they also know 7×3.



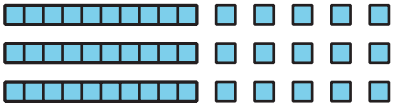
They can also decompose (or break apart) the 7 in 7×3 into 5 and 2, and then find $(5 \times 3) + (2 \times 3)$. An area diagram can show this strategy for multiplying.

Section C: Multiplying Larger Numbers

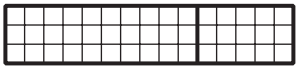
In this section, students use different strategies to multiply larger numbers. First, they multiply a single-digit number by a multiple of 10, relying on what they know about place value. For instance, 2×40 means 2 groups of 4 tens, or $2 \times 4 \times 10$. Then, they multiply a single-digit number by other two-digit numbers.

Students see that it is helpful to break apart the two-digit numbers by place value, into tens and ones. For example, 3×15 can be calculated by finding 3×10 and 3×5. They use base-ten blocks or diagrams and area diagrams (with and without a grid) to help them find such products.

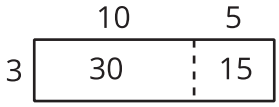
base-ten blocks or diagrams



gridded area diagram



ungridded area diagram



Section D: Dividing Larger Numbers

In this section, students divide larger numbers. They continue to use the relationship between multiplication and division and their understanding of place value to find quotients. For example, to find the value of $78 \div 3$, they may think about putting 78 in 3 equal groups and use multiplication to find what is in each group.

$$3 \times 10 = 30$$
$$3 \times 10 = 30$$
$$3 \times 6 = 18$$
$$10 + 10 + 6 = 26$$

$$3 \times 20 = 60$$
$$3 \times 6 = 18$$
$$20 + 6 = 26$$

Try it at home!

Near the end of the unit, ask your student to find answers to the following problems:

- 6×16
- $98 \div 7$

Questions that may be helpful as they work:

- How did you break up the problem to make it easier for you to solve?
- Can you rewrite the division problem as a multiplication problem?