

TOPIC 4

Use Multiplication to Divide

OVERVIEW

Topic 4 focuses on learning division facts by using the relationship between multiplication and division.

DIVISION FACTS

Relationship Between Multiplication and Division Your child will learn that, like addition and subtraction, multiplication and division have an inverse relationship. Inverse operations “undo” each other. For example, $3 \times 2 = 6$ and $6 \div 2 = 3$.

Here is how your child might use multiplication to solve the division problem “Dee wants to put 15 cups into 3 equal stacks on the table. How many cups will Dee put in each stack?” Find $15 \div 3$.

What You Think

3 times what
number is 15?

$$3 \times ? = 15$$

$$3 \times 5 = 15$$

What You Write

$$15 \div 3 = 5$$

Dee will put 5 cups
in each stack.

In this topic, your child will use the inverse relationship of multiplication and division to generate fact families and learn division facts.

Division by 1 The rules for dividing by 1 come from the Identity Property of Multiplication. If any number multiplied by 1 results in the same number, then any number divided by 1 also results in the same number. For example, $7 \times 1 = 7$. So, $7 \div 1 = 7$ and $7 \div 7 = 1$.

Here is how your child might solve the problem “Neil has 3 goldfish. He puts 1 goldfish in each bowl. How many bowls does Neil use?” Find $3 \div 1$.



Your child will think “What number times 1 is 3?”
 $3 \times 1 = 3$, so $3 \div 1 = 3$. Neil uses 3 bowls.

Division with 0 Your child will explore division with 0 in this topic. Division must be carefully considered when 0 is involved. Your child will learn that 0 divided by any number (except 0) is 0. Your child will also learn that it is not possible to divide a number by 0. For example, you cannot find $3 \div 0$ because you cannot answer “0 times what number is 3?” There is no such number.

Here is how your child might find $0 \div 3$.

Think “3 times what number is 0?”

$$3 \times 0 = 0$$

$$\text{So, } 0 \div 3 = 0.$$

Even and Odd Numbers Your child will use multiplication and division to explain patterns associated with even and odd numbers. Even numbers are whole numbers that can be divided by 2 with none left over. Odd numbers are whole numbers that have 1 left over when divided by 2. All whole numbers are either even or odd.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40

Multiples Your child will use patterns to determine when one number is a multiple of another. For example, your child will learn that multiples of 4 are numbers that are found by skip counting by 4s: 4, 8, 12, 16, 20, 24 ...

Your child will also use multiplication and division facts to determine if a number is a multiple of another. For example, to determine if 25 is a multiple of 4, think “What number times 4 is 25?”

Try:

$$6 \times 4 = 24$$

$$7 \times 4 = 28$$

There is no whole number that can be multiplied by 4 to result in 25. So, 25 is NOT a multiple of 4.

MULTIPLICATION AND DIVISION EQUATIONS

Write Division Problems In this topic, your child will solve and write division problems in two ways.

One Way

$$\begin{array}{ccc} 24 & \div & 4 = 6 \\ \uparrow & & \uparrow \\ \text{dividend} & & \text{divisor} \quad \text{quotient} \end{array}$$

Another Way

$$\begin{array}{r} \text{divisor} \longrightarrow 4 \overline{)24} \longleftarrow \begin{array}{l} \text{quotient} \\ \text{dividend} \end{array} \end{array}$$

Solve Equations Your child will use visual models and equations to solve a variety of real-world problems involving multiplication and division facts. Your child will practice finding the unknown number in any position in an equation.

CONNECT THE MATH

You can connect the math in this topic to everyday experiences. For example, you might say, "We have 8 eggs and each batch of pancakes uses 2 eggs. How many batches can we make?" To provide practice with multiples, look for examples of things arranged in arrays, such as cans of soup on a display shelf, and ask if they could be arranged in a different way. For example, if you see a shelf with 3 rows of 4 cans, you could ask, "Could these cans be arranged in 6 rows with no cans left over? In 5 rows?"

TOPIC 4 LESSONS

Lesson 4-1 [Use Multiplication to Divide with 2, 3, 4, and 5](#)

Lesson 4-2 [Use Multiplication to Divide with 6 and 7](#)

Lesson 4-3

	<u>Use Multiplication to Divide with 8 and 9</u>
Lesson 4-4	<u>Use Multiplication to Divide with 10, 11, and 12</u>
Lesson 4-5	<u>Division Involving 0 and 1</u>
Lesson 4-6	<u>Numerical Patterns: Even and Odd Numbers</u>
Lesson 4-7	<u>Multiplication Patterns: Multiples</u>
Lesson 4-8	<u>PROCEDURAL RELIABILITY PRACTICE</u>
	<u>Multiplication and Division Facts: Choose a Method</u>
Lesson 4-9	<u>Solve One-Step Real-World Problems</u>
Lesson 4-10	MATH THINKING AND REASONING
	Participate in Effortful Learning