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Lesson 1

UNDERSTAND MULTIPLICATION 3.OA.A.1

INTRODUCTION

Real-World Connection

Carrie is having a picnic at the park. She sees 5 bicycles parked against a tree. Each bicycle has 2 wheels. How many wheels does she see in all?

Carrie can use multiplication to find how many wheels she sees in all. Let's practice the skills in the **Guided Instruction** and **Independent Practice** and, at the end of the lesson, help Carrie solve her problem!

What I Am Going to Learn

- How to use multiplication to combine equal groups
- How to identify the factors and the product in a multiplication sentence
- How to draw a picture to see the total number of objects in combined equal groups

What I May Already Know

- I know how to use addition to find the number of objects arranged in equal rows.
- I know how to add numbers.

Vocabulary in Action

To **multiply** means to combine **equal groups** using addition.

- The symbol “ \times ” means multiply.

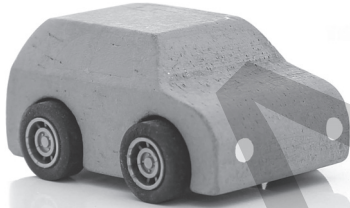
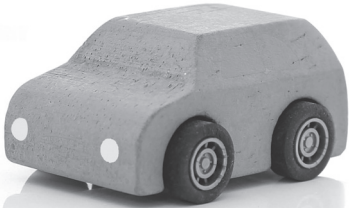
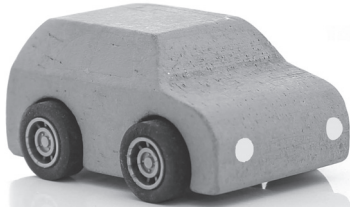
WORDS TO KNOW

multiply
equal groups
factor
product



$$3 \times 5 = 15$$

↑ ↑ ↑
factor factor product



To multiply 3 and 5, write 3×5 , which means add 3 groups of 5:
 $5 + 5 + 5$.

- Each number is a **factor**, and the total is the **product**.
- $5 + 5 + 5 = 15$, so the product of 3×5 is 15.

EXAMPLE

Cars have 4 tires. How many tires are there for 3 cars?



There are 3 groups of 4 tires, or 12 tires in all: $4 + 4 + 4 = 12$

To use multiplication, write:

$$3 \times 4 = 12$$

Three groups of four equals twelve.

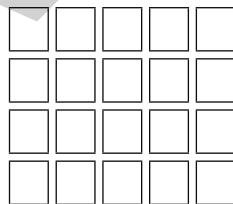
3 and 4 are the factors and 12 is the product.

You can use repeated addition to solve multiplication problems, and you can make a drawing.

EXAMPLE

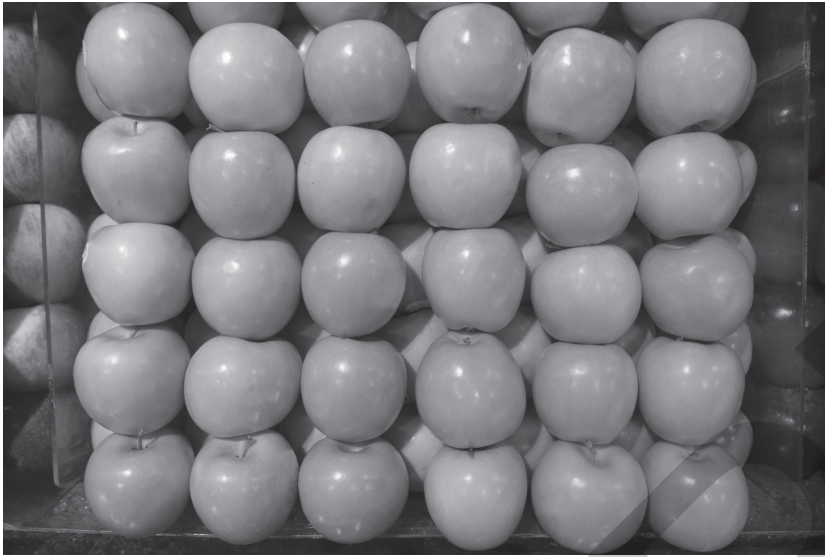
What is the product of 4×5 ?

4×5 is 4 groups of 5:



$$5 + 5 + 5 + 5 = 20$$

Many things are arranged in rows: seats in a theater, apples at a fruit stand.



You can multiply to find how many apples there are.

THINK ABOUT IT

You can skip count to add again and again. Can you skip count by 2s, 5s, and 10s?

GUIDED INSTRUCTION

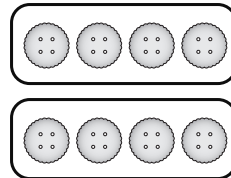
Many things can be counted in equal groups. If you have several of the same item, you can use multiplication.

1. Dante has 2 shirts. Each shirt has 4 buttons. How many buttons are there?

Step One Draw a picture.

Show 2 groups.

Show 4 buttons in each group.



Step Two There are 2 groups of 4.

$$4 + 4 = 8$$

Write an addition sentence.

Step Three Write a multiplication sentence. $2 \times 4 = 8$

Step Four Solve the problem.

There are
8 buttons in all.

THINK ABOUT IT

Since there are 2 shirts, and each shirt has the same number of buttons, think of 2 equal groups of 4.

TURN AND TALK

How is this problem similar to the one before? How is it different?

2. Dante has 4 pairs of socks. How many socks are there?

Step One Draw a picture.

Show 4 groups.

Show 2 socks in each group.



Step Two There are 4 groups of 2.

Write an addition sentence.

$$2 + 2 + 2 + 2 = \boxed{}$$

Step Three Write a multiplication sentence.

$$4 \times 2 = \boxed{}$$

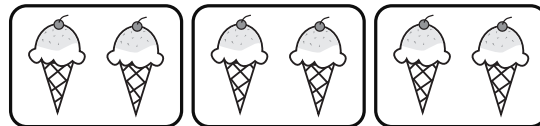
Step Four Solve the problem.

There are $\boxed{}$ socks in all.

TIPS AND HINTS

Think of the number of groups and how many are in each group.

3. Which number sentences describe the picture? Select the **three** correct answers.



- (A) 2 groups of 3
- (B) $2 + 2 + 2$
- (C) 3×3
- (D) 3 groups of 2
- (E) 3×2
- (F) $3 + 3 + 3$

How Am I Doing?

What questions do you have?

Write a number sentence to show multiplication.

Horses have 4 legs; people have 2 eyes. What are some other things that have equal groups?

◀ SKETCH IT

In the space below, make a drawing to show multiplication.

Color in the traffic signal that shows how you are doing with the skill.



WORK SPACE

INDEPENDENT PRACTICE

Answer the questions.

1. Which is another way to show $5 + 5 + 5$?

(A) 1×5

(B) 5×2

(C) 3×5

(D) 5×5

2. Use the numbers in the box to make a multiplication sentence that matches the picture. The numbers can only be used once. Write each number in the appropriate box.



2 4 6 8 10 12 16

\times =

3. What does 4×5 mean?

Write your answers in the boxes.

groups of

4. Find the product.

$4 \times 5 =$

5. Which number sentences show 4 groups of 3? Select the **two** correct answers.

(A) $4 + 3$

(B) $3 + 3 + 3 + 3$

(C) 4×4

(D) $4 + 4 + 4$

(E) 4×3

6. Circle the correct answer from the drop-down menu to complete the multiplication sentence.

$$7 \times 2 = \begin{array}{|l} 15 \\ 14 \\ 12 \\ 9 \\ 5 \end{array}$$

★ 7. Part A

Draw a picture that shows 5 groups of 3.

◀ TIPS AND HINTS

There are 7 groups and 2 objects in each group. How many objects are there in all?

◀ THINK ABOUT IT

The first number tells you how many groups. What does the second number tell you?

Part B

Write an addition sentence and a multiplication sentence to match your picture. Explain your answer.

WORK SPACE

★ 8. Part A

Write a word problem that can be solved using 5×7 .

★ Part B

Solve your word problem. Explain your answer.

EXIT TICKET

3.OA.A.1

Now that you have learned what multiplication means and how to write a multiplication sentence, let's help Carrie solve the problem in the **Real-World Connection**.

Carrie is having a picnic at the park. She sees 5 bicycles parked against a tree. Each bicycle has 2 wheels. How many wheels does she see in all?



How can Carrie use multiplication to find how many wheels she sees? How could she use addition to check her answer?
