

Lesson 4: Repeated Addition and Number Lines (2 Days)

Getting Started

? Questions to Explore

- What are some strategies we can use to multiply and divide?



Facts and Definitions

- A number line can be used to help solve a multiplication sentence — the first number tells the number of jumps from 0, and the second number tells how many spaces in each jump.

⦿ Skills

- Interpret products of whole numbers (for example, interpret 5×7 as the total number of objects in 5 groups of 7 objects each).
- Use repeated addition and number lines to model multiplication.

✂ Materials

- fine point dry-erase markers (kit)
- laminated multiplication strategies mat (kit)
- set of double-nine dominoes (kit)
- whiteboard (kit)

Introduction

Ask your child to share what she knows about using arrays and equal groups to multiply. If she chooses, allow her to draw on the whiteboard to explain her thinking. She should be able to describe an array and explain what it means for objects to be in equal groups.

Now, provide time for her to re-watch part of the video at the following web link, starting at 3:45 and going to the end. This section of the video discusses using repeated addition and number lines to multiply.



Learning to Multiply Using Multiplication Strategies

www.beyondthepage.com/link/6275/

Activities

Activity 1: Repeated Addition and Multiplication

Parent note: When relating multiplication to repeated addition, you can look at " 4×2 " as 4 groups of 2 or $2+2+2+2$ OR as 4 being added twice or $4+4$. Here, it's presented in the first way as this aligns with the idea of equal groups more closely. In the end, it doesn't really matter which way the sentence is interpreted because of the commutative property of multiplication ($4 \times 2 = 2 \times 4$), which is taught in an upcoming lesson.

Remind your child that multiplication is basically repeated addition or adding a number to itself more than once. Write $2+2+2+2$ and 4×2 on the whiteboard, and say, " $2+2+2+2$ is asking you to add 2 four times, so it's the same as 4 groups of 2 or 4×2 ."

Multiplication and Division I — 4: Repeated Addition... Lines

Now, write "2×6" on the whiteboard, and say, "This sentence has the factors 2 and 6. The first factor tells us how many times to add the second factor. So, this tells us to add 6 twice, or two times. Can you write the addition sentence?" She should write 6+6.

Repeat this process with the following multiplication sentences until it's clear that your child understands how to create repeated addition sentences out of multiplication sentences. Allow her to also find the products and sums using what she knows about addition and skip counting. For example, if she knows that 6+6 is equal to 12, she can use that to figure out 4×6 or 6+6+6+6.

- 4×6 (6+6+6+6)
- 7×3 (3+3+3+3+3+3+3)
- 5×1 (1+1+1+1+1)
- 1×8 (8)
- 3×10 (10+10+10)

Provide time for your child to answer the questions at the following web link.



Repeated Addition and Multiplication

www.beyondthepage.com/link/9055/

Activity 2: Basic Skills Review

Your child will complete the "Basic Skills Review #2" sheet. As needed, allow her to use scratch paper or refer to her Interactive Notebook.

"Basic Skills Review #2" Answer Key

1. a quarter after 7 2. eat dinner 3.  4. 73¢

5. \$2.50 6. 864, 764, 664, 564, 464, 364, 264, 164 7.
$$\begin{array}{r} 592 \\ + 368 \\ \hline 960 \end{array}$$
 8.
$$\begin{array}{r} 872 \\ - 465 \\ \hline 407 \end{array}$$

Day 2

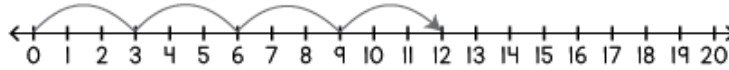
Activity 3: Number Lines and Multiplication

Give your child the "Number Lines and Multiplication" sheets. She should read the information provided to answer the questions. Note that answers will vary for #5.

"Number Lines and Multiplication" Answer Key

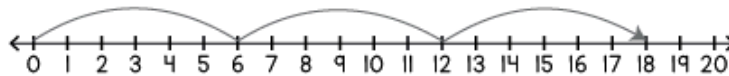
1) The multiplication sentence is 4×3 . How many jumps? 4 How many spaces in each jump? 3
Show 4×3 on the number line.

$$4 \times 3 = \underline{12}$$



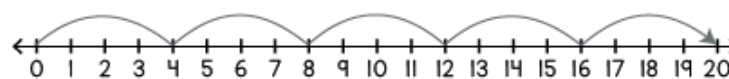
2) Show 3×6 on the number line.

$$3 \times 6 = \underline{18}$$



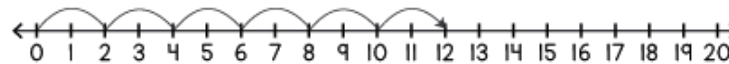
3) Show 5×4 on the number line.

$$5 \times 4 = \underline{20}$$



4) What's the multiplication sentence for this number line?

$$\underline{6} \times \underline{2} = \underline{12}$$



Activity 4: Using All of the Strategies!

Write 4×3 in the space provided on the laminated multiplication strategies mat. Give your child a dry-erase marker, and tell her to fill in each space on the mat to model the given multiplication sentence. She should show the following:

- 4 by 3 or 3 by 4 array
- 4 groups with 3 in each one
- $3+3+3+3$
- a number line showing 4 jumps with 3 spaces each
- a product of 12 in the multiplication sentence at the top

Now, give your child a set of double-nine dominoes with all of the dominoes showing a blank (zero) removed as well as dominoes showing 7, 8, or 9 on either side. Tell her to place the dominoes face down and shuffle them. She will draw one domino at a time and use the numbers showing to create a multiplication sentence to be solved. She will then write it on the laminated multiplication strategies mat. For example, if she draws a domino showing 2 and 5, she can either write 2×5 or 5×2 in the space on the mat. She will model the sentence in each of the ways shown on the mat: drawing an array, showing equal groups, writing a repeated addition sentence, and using the number line.

Check her work as she goes, and ask her to repeat this process five more times.

Wrapping Up

Ask your child to name the four strategies for multiplication that she's worked with thus far: arrays, equal groups, repeated addition, and number lines. Remind her also that skip counting is a useful strategy that combines well with the others. For example, she can skip count when creating an array and when using equal groups.

Learning Gates

Have your child take the [Learning Gates quiz](#) for this lesson.

Basic Skills Review #2

1. Circle the correct time in words.



a quarter after 7

eight fifteen

2. Circle the activity that happens in the PM.

eat breakfast

eat dinner

3. Draw hands to show 9:25 on the clock.



4. How much?



5. How much?



6. Count back by 100s.

864, _____, _____, _____,
_____, _____, _____, _____

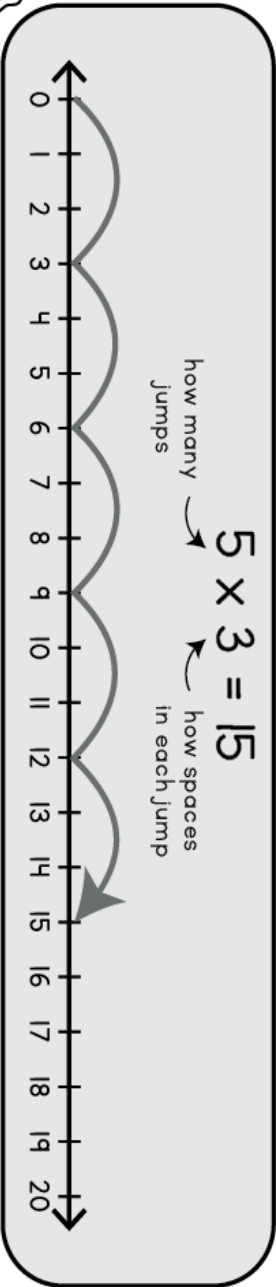
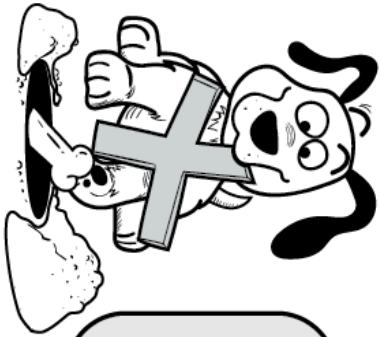
7.

$$\begin{array}{r} 592 \\ + 368 \\ \hline \end{array}$$

8.

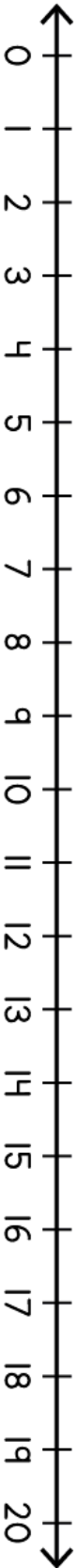
$$\begin{array}{r} 872 \\ - 465 \\ \hline \end{array}$$

Number Lines and Multiplication



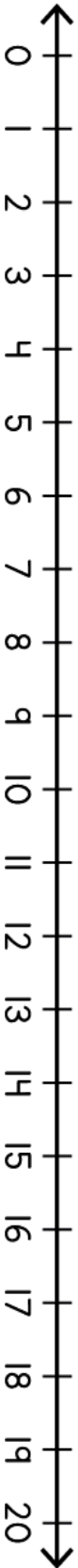
1) The multiplication sentence is 4×3 . How many jumps? _____ How many spaces in each jump? _____
Show 4×3 on the number line.

$$4 \times 3 = \underline{\hspace{2cm}}$$



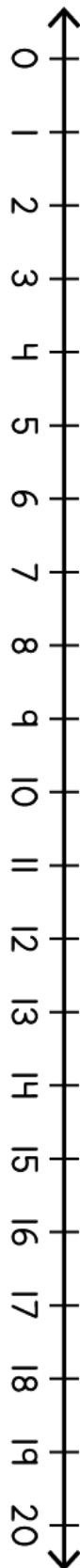
2) Show 3×6 on the number line.

$$3 \times 6 = \underline{\hspace{2cm}}$$



3) Show 5×4 on the number line.

$$5 \times 4 = \underline{\hspace{2cm}}$$



4) What's the multiplication sentence for this number line?

$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$



5) Create your own number line, and write a multiplication sentence to go with it!

$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

