

Lesson 5: Multiplication and the Abacus (2 Days)

Getting Started

? Questions to Explore

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

⦿ Skills

- Determine the unknown whole number in a multiplication or division equation relating three whole numbers
- Use the language of multiplication

✂ Materials

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

Introduction

Write "5×6" in the space provided on the laminated multiplication strategies mat. Give your child a dry-erase marker, and ask him to fill in the rest of the mat to model the sentence and find the product.

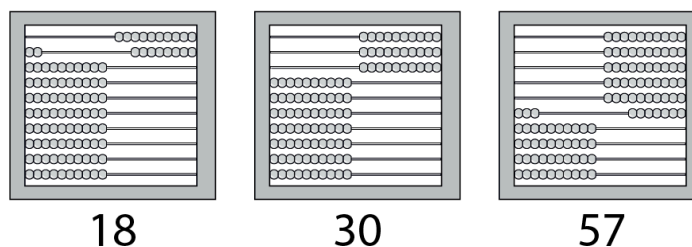
Ask, "For this particular multiplication sentence, which strategy do you prefer using and why?" Allow your child to explain his thinking. He may note that he liked using an array or equal groups because he could then count by 5. He might also observe the same when using a number line.

Repeat this process using 7×4 .

Activities

Activity 1: Multiplication on the Abacus

Ask your child to use the beads on the first side of the abacus (has an A in the top right corner) to show the following numbers: 18, 30, and 57. He should move beads from the left to the right to show the numbers (for example, to show 18, he should move 10 beads to the right on the top wire and 8 beads to the right on the second wire). Now, ask him to find the following sums using the abacus: $10+40$ (50, 5 rows of beads moved to the right), $22+9$ (31, 3 rows of beads moved to the right plus 1 more bead on the fourth wire). Be sure that your child can trade beads on the abacus correctly by moving the same number of beads from the right and from the left at the same time.



Now, tell your child to use the abacus to show a 4 by 5 array. He can move 4 rows of 5 beads or 5 rows of 4 beads to the right. Ask, "What's the product of 4 times 5?" and, if needed, "How many beads are in your array?" (20)

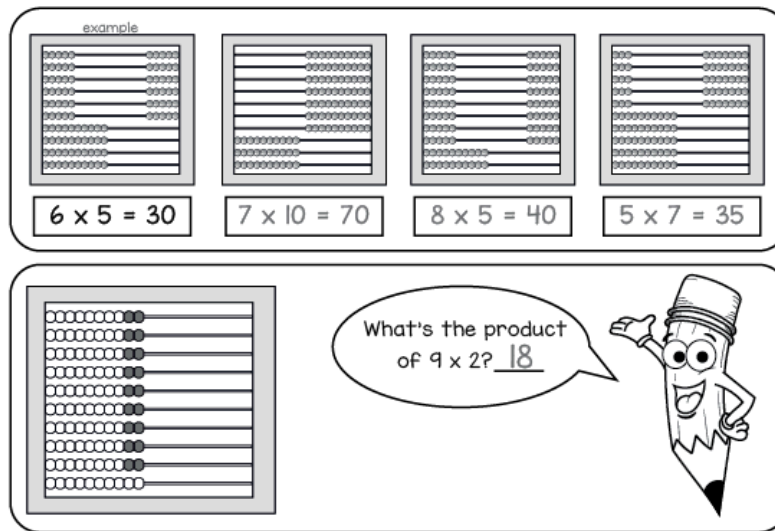
Ask your child to show 5 on the abacus. Next, ask him to show two more groups of 5 on the next two wires. He should now have 3 rows of 5 beads each. Say, "Now, you have created an array that shows 3 groups of 5 which we know is the same as 3 times 5. What's the product?" and "What can you count by to find the product?" He should count by 5 to 15.

Now, ask your child to show 10 groups of 4 on the abacus. He should show 10 rows of 4 beads each. Ask, "What multiplication sentence does this show?" (10 times 4, 10×4) "How might you figure out the product of this sentence?" Show him that he can count by 10 by counting the beads in columns rather than rows and that there are 4 columns of 10 beads. Ask, "What's the product?" (40)

Write 7×2 on the whiteboard, and tell your child to show it on the abacus and find the product. He should show 7 rows of 2 beads each for a product of 14. Repeat this process with 10×6 (60) and 5×8 (40).

Your child will complete the "Arrays on the Abacus" sheet by first writing multiplication sentences for the given arrays and then by coloring beads on the abacus to show a given multiplication sentence. He can use one color when he colors the beads.

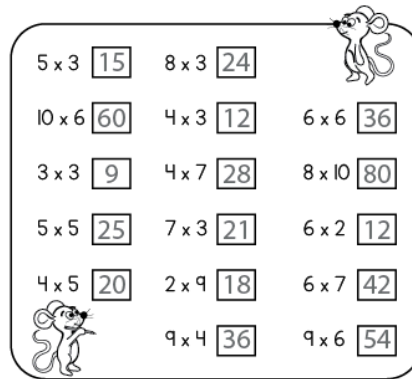
"Arrays on the Abacus" Answer Key



Activity 2: Finding Products on the Abacus

Your child will complete the "Finding Products on the Abacus" sheet by using the abacus to figure out the products for the given multiplication sentences. Remind him to look for chances to count by 2, 5, and 10 and for places where he can make 10 by trading beads to figure out the products.

"Finding Products on the Abacus" Answer Key



Day 2

Activity 3: More Practice With the Abacus

Once again, give your child the laminated multiplication strategies mat, a dry-erase marker, and the double-nine dominoes (remove any dominoes with blanks or a side showing 7, 8, or 9). Tell him that he's going to repeat the activity from the previous lesson but that this time he's going to check the products using the abacus. For example, if he draws a domino that shows a 6 and a 3, he will fill in the spaces on the mat to model either 6×3 or 3×6 , determine the product and write in the space provided, and then check his answer using the abacus. Tell him to repeat this process six times.

Activity 4: Basic Skills Review

Your child will complete the "Basic Skills Review #3" sheet. As needed, allow him to use scratch paper or refer to his Interactive Notebook.

"Basic Skills Review #3" Answer Key

1. a quarter to 3 2. watch the sun set 3.  4. 92¢

5. \$2.18 6. 645, 635, 625, 615, 605, 595, 585, 575 7.
$$\begin{array}{r} 378 \\ +500 \\ \hline 878 \end{array}$$
 8.
$$\begin{array}{r} 515 \\ -400 \\ \hline 115 \end{array}$$

Wrapping Up

Provide time for your child to show two to three different arrays on the abacus, write the multiplication sentences that the arrays show on the whiteboard, and find the products.

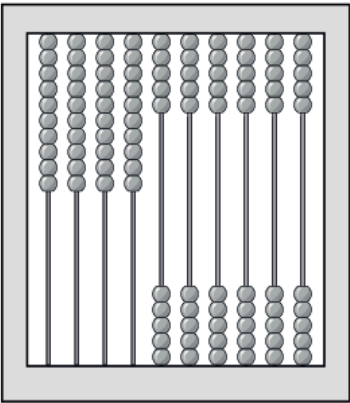
Learning Gates

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

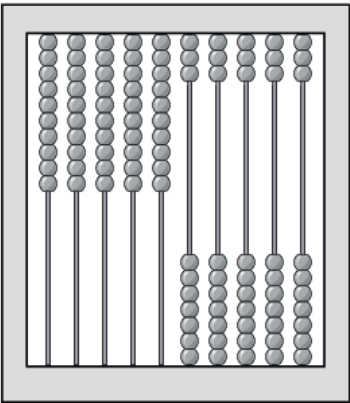
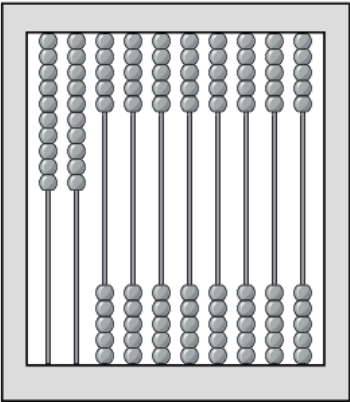
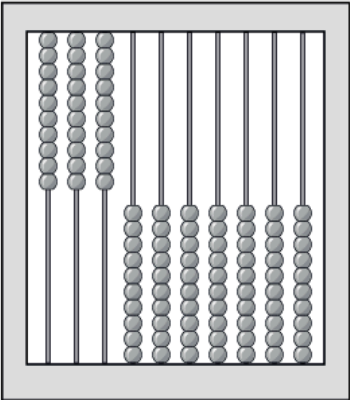
Arrays on the Abacus

Instructions: Write the multiplication sentence that goes with each abacus. Find the product.

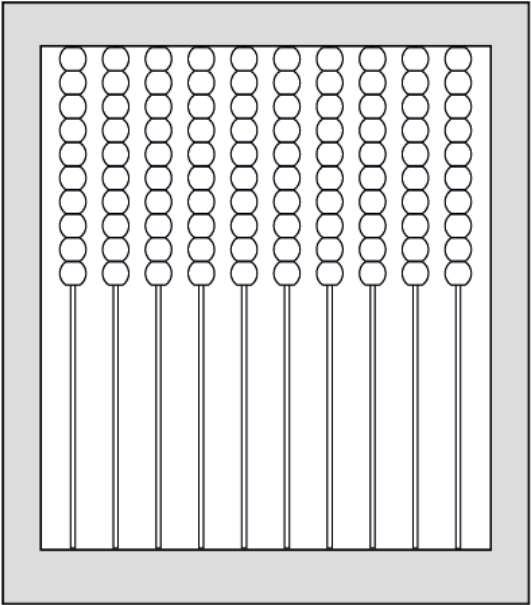
example



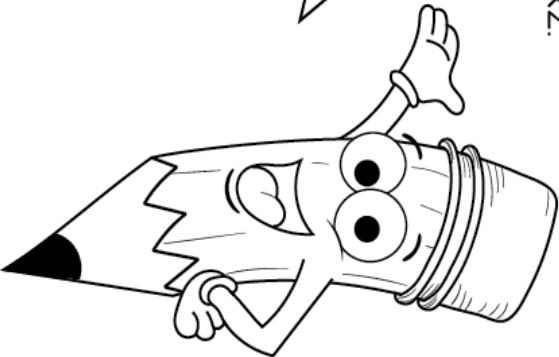
$6 \times 5 = 30$



Instructions: Now, color beads on the abacus to show 9×2 .

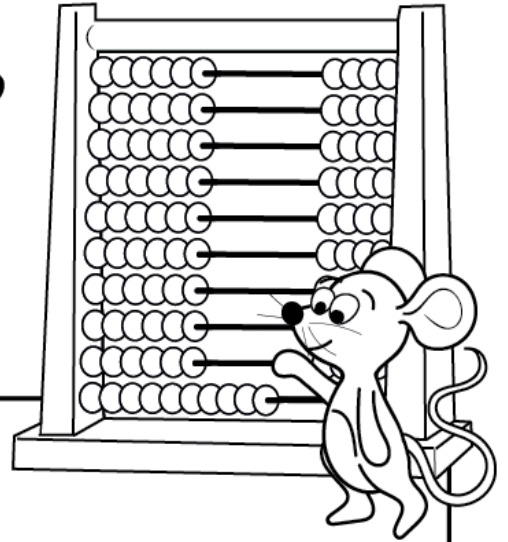


What's the product
of 9×2 ? _____



Finding Products

on the Abacus



5×3

8×3

10×6

4×3

6×6

3×3

4×7

8×10

5×5

7×3

6×2

4×5

2×9

6×7

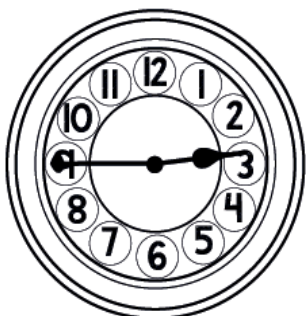
9×4

9×6



Basic Skills Review #3

1. Circle the correct time in words.



a quarter
after 2

a quarter to 3

2. Circle the activity that happens in the PM.

watch the sun rise

watch the sun set

3. Draw hands to show 4:55 on the clock.



4. How much?



5. How much?



6. Count back by 10s.

645, _____, _____, _____,
_____, _____, _____, _____

7.

$$\begin{array}{r} 378 \\ + 500 \\ \hline \end{array}$$

8.

$$\begin{array}{r} 515 \\ - 400 \\ \hline \end{array}$$