North Penn School District

Elementary Math Parent Letter

Grade 3

Unit 3 – Chapter 4: Multiplication Facts and Strategies
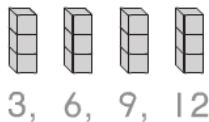
Examples for each lesson:

Lesson 4.1

Multiply with 2 and 4

You can skip count to help you find a product.

Find the product. 4×3

Step 1 Use cubes to model 4 groups of 3.

Step 2 Skip count by 3s four times to find how many in all.

3, 6, 9, 12

4 groups of 3 is equal to 12.

So, $4 \times 3 = 12$.

More information on this strategy is available on Animated Math Model #14.

Lesson 4.2

Multiply with 5 and 10

You can use an array to multiply with 5.

Find the product. 5×4

Step 1 Make an array to show 5×4.
Show 5 rows of 4 tiles.

Step 2 Count the tiles.
5 rows of 4 tiles = 20 tiles

So, $5 \times 4 = 20$.

You can use doubles to multiply with 10.

Find the product. 6×10

Think: $5 + 5 = 10$

Multiply with 5. $6 \times 5 = 30$

Then double the product. $30 + 30 = 60$

So, $6 \times 10 = 60$.

More information on this strategy is available on Animated Math Models #15, 16.
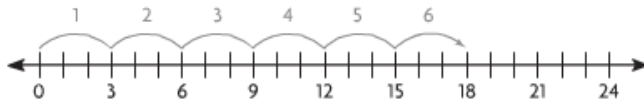
Lesson 4.3

Multiply with 3 and 6

You can use a number line to multiply with 3 or 6.

Find the product. 6×3

The factor 6 tells you to make **6 jumps**.

The factor 3 tells you each jump should be **3 spaces**.

Step 1 Start at 0.
Make 6 jumps of 3 spaces.

Step 2 The number you land on is the product.

So, $6 \times 3 = 18$.

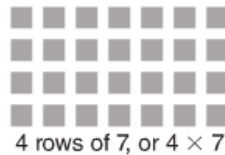More information on this strategy is available on Animated Math Model #16.

Lesson 4.4

Algebra • Distributive Property

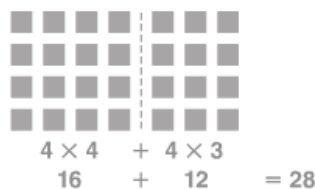A garden has 4 rows of 7 corn stalks. How many corn stalks in all are in the garden?

You can use the **Distributive Property** to break an array into smaller arrays to help you find the answer.

Find 4×7.

Step 1 Make an array to show 4 rows of 7.

4 rows of 7, or 4×7

Step 2 Break apart the array to make two smaller arrays for facts you know.

Step 3 Write the multiplication for the new arrays. Multiply and then add the products to find the answer.

$4 \times 4 \quad + \quad 4 \times 3$
$16 \quad + \quad 12 \quad = 28$

$4 \times 7 = (4 \times 4) + (4 \times 3)$
$4 \times 7 = \quad 16 \quad + \quad 12$
$4 \times 7 = \quad\quad 28$

So, there are 28 corn stalks in all in the garden.

More information on this strategy is available on Animated Math Model #17.

Lesson 4.5

Multiply with 7

Pablo is making gift bags for his party. He puts 7 pencils in each bag. How many pencils will he need for 3 gift bags?

Find 3 × 7.

You can use a number line to find the product.

Step 1 Draw a number line.

Step 2 Start at 0. Draw 3 jumps of 7.

$3 \times 7 = 21$

So, Pablo will need __21__ pencils for 3 gift bags.

More information on this strategy is available on Animated Math Model #18.

Lesson 4.6

Algebra • Associative Property of Multiplication

You can use the **Associative Property of Multiplication** to multiply 3 factors. If you change the grouping of factors, the product remains the same.
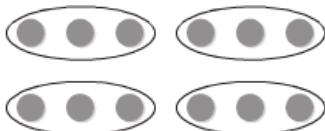
Find 4 × (3 × 1).

Step 1 Start inside the parentheses. Make 3 groups of 1 counter.

(3 × 1) ● ● ●

Step 2 Multiply by 4, the number outside the parentheses. Make 4 groups of the counters in Step 1.

4 × (3 × 1)

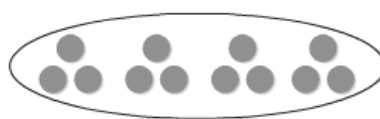**Step 3** Count the total number of counters. 12 counters

Find (4 × 3) × 1.

Step 1 Start inside the parentheses. Make 4 groups of 3 counters.

(4 × 3)

Step 2 Multiply by 1, the number outside the parentheses. Make 1 group of the counters in Step 1.

(4 × 3) × 1

Step 3 Count the total number of counters. 12 counters

So, $4 \times (3 \times 1) = 12$ and $(4 \times 3) \times 1 = 12$.

Lesson 4.7

Algebra • Patterns on the Multiplication Table

You can use a multiplication table to explore number patterns.

Step 1 Shade the columns for 5 and 10 on the multiplication table.

Step 2 Look for patterns in the shaded numbers.

- The products in the 5s column end in 0 or 5.
- The products in the 5s column repeat—even, odd.
- All the products in the 10s column are even.

×	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

Lesson 4.8

Multiply with 8

You can break apart arrays to multiply with 8.

Candace works at a candle shop.
She places candles in a box for display.
The box has 7 rows of 8 candles.
How many candles are in the box in all?

You can break apart an array to find 7 × 8.

Step 1 Draw 7 rows of 8 squares.

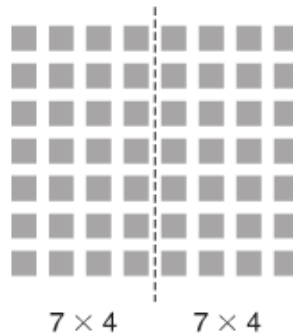**Step 2** Draw a dashed line to break apart the array into two smaller arrays to show facts you know.

7 × 8 = (7 × 4) + (7 × 4)

7 × 8 = 28 + 28

7 × 8 = 56

7 × 4   7 × 4

So, there are 56 candles in the box.

More information on this strategy is available on Animated Math Model #18.

Lesson 4.9

Multiply with 9

Ana goes to the pet store to buy a fish. The store has 3 fish tanks. Each tank has 9 fish. How many fish in all are in the tanks?

You can use counters to find the product.

Find 3 × 9.

Step 1 Make 3 groups of 9 counters.

Step 2 Skip count by 9s to find the total number of counters.

9, 18, 27 counters

3 × 9 = 27

So, there are 27 fish in all in the tanks.

More information on this strategy is available on Animated Math Model #18.

Lesson 4.10

Problem Solving • Multiplication

Lucy's mother is making punch for the students. For each pitcher, she uses 1 can of fruit juice, 1 bottle of ginger ale, and 6 scoops of sherbet. How much of each ingredient will she need to make 5 pitchers of punch?

Read the Problem	Solve the Problem
What do I need to find?	First, make a table with the information.
I need to find how much of each ingredient Lucy's mother needs to make 5 pitchers of punch.	
What information do I need to use?	
Lucy's mother uses ___1___ can of fruit juice, ___1___ bottle of ginger ale, and ___6___ scoops of sherbet for each pitcher.	Next, look for information in the table that will help you solve the problem.
How will I use the information?	Look for a pattern. The cans of fruit juice and the bottles of ginger ale increase by 1. The scoops of sherbet increase by 6. Complete the table.
I will make a __table__ to show the total amounts of each ingredient Lucy's mother needs.	So, Lucy's mother will need 5 cans of fruit juice, 5 bottles of ginger ale, and 30 scoops of sherbet.

Number of Pitchers	1	2	3	4	5
Cans of Fruit Juice	1	2	3	4	5
Bottles of Ginger Ale	1	2	3	4	5
Scoops of Sherbet	6	12	18	24	30

Vocabulary

Associative Property of Multiplication – the property that states that when the grouping of factors is changed, the product remains the same

Distributive Property of Multiplication – the property that states that multiplying a sum by a number is the same as multiplying each addend by the number and then adding the products

Multiple – the product of two counting numbers is called a multiple of each of those numbers

Commutative Property of Multiplication – the property that states that you can multiply two factors in any order and get the same product

Counting number – a whole number that can be used to count a set of objects (1, 2, 3, 4, …)

Identity Property of Multiplication – the property that states that the product of any number and 1 is that number

Zero Property of Multiplication – the property that states that the product of zero and any number is zero