North Penn School District

Elementary Math Parent Letter

Grade 3

Unit 3 – Chapter 3: Understand Multiplication

Examples for each lesson:

Lesson 3.1

Count Equal Groups

Equal groups have the same number in each group.

There are 3 tulips in each of 4 vases. How many tulips are there in all?

Step 1 Think: there are 4 vases, so draw 4 circles to show 4 equal groups.

Step 2 Think: there are 3 tulips in each vase, so draw 3 dots in each group.

Step 3 Skip count by 3s to find how many in all: 3, 6, 9, 12

There are 4 equal groups with 3 tulips in each group.

So, there are 12 tulips in all.

Lesson 3.2

Algebra • Relate Addition and Multiplication

You can add to find how many in all.

You can also multiply to find how many in all when you have equal groups.

2 + 2 + 2

$3 \times 2 = 6$

The **factors** are 3 and 2.
The **product** is 6.

So, $2 + 2 + 2 = 6$ and $3 \times 2 = 6$.

More information on this strategy is available on Animated Math Model #10.

Lesson 3.3

Skip Count on a Number Line

When you have **equal groups**, you can skip count on a number line to find how many in all.

How many jumps are there? 6

How long is each jump? 4 spaces

Think: 6 jumps of 4 shows 6 groups of 4.

Multiply. 6 × 4

6 × 4 = 24

More information on this strategy is available on Animated Math Model #11.

Lesson 3.4

Problem Solving • Model Multiplication

There are 2 rows of flute players in a marching band. Each row has 7 students. How many flute players are there in all?

Read the Problem	Solve the Problem
What do I need to find? I need to find how many __flute players__ are in the marching band.	Complete the bar model to show the flute players. Write 7 in each box to show the 7 students in each of the 2 groups.
What information do I need to use? I know there are _2_ rows. There are _7_ students in each row.	[bar model: 7 | 7] __14__ students Since there are equal groups, I can multiply to find the number of flute
How will I use the information? I will draw a __bar model__ to help me see what __operation__ I need to use to solve the problem.	players in the band. _2_ × _7_ = _14_ So, there are __14__ flute players in all.

Lesson 3.5

Model with Arrays

An **array** is a set of objects arranged in rows and columns.

Write a multiplication sentence for each array.
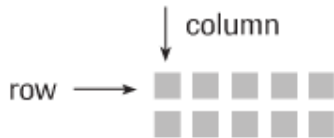
This array has **2** rows and **5** columns.	This array has **5** rows and **2** columns.
Count by fives.	Count by twos.
2 rows of 5 are 10.	5 rows of 2 are 10.
The multiplication sentence is $2 \times 5 = 10.$	The multiplication sentence is $5 \times 2 = 10.$

More information on this strategy is available on Animated Math Model #12.

Lesson 3.6

Algebra • Commutative Property of Multiplication

The **Commutative Property of Multiplication** states that you can change the order of the factors and the product stays the same.

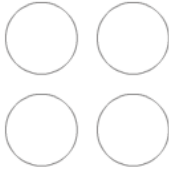| There are **4** rows of **5** tiles.	There are **5** rows of **4** tiles.
Think: 4 equal groups of 5	**Think:** 5 equal groups of 4
$5 + 5 + 5 + 5 = 20$	$4 + 4 + 4 + 4 + 4 = 20$
Multiply. $4 \times 5 = 20$	Multiply. $5 \times 4 = 20$

The factors are 4 and 5. The product is 20.

Lesson 3.7

Algebra • Multiply with 1 and 0

Find the product.

$4 \times 0 = \blacksquare$

Model 4×0.
Each circle contains 0 counters.

4 circles $\times$ 0 counters $= 0$ counters

Zero Property of Multiplication
The product of zero and any number is zero.

So, $4 \times 0 = 0$ and $0 \times 4 = 0$.

Find the product.

$6 \times 1 = \blacksquare$

Model 6×1.
Each circle contains 1 star.

6 circles $\times$ 1 star $= 6$ stars

Identity Property of Multiplication
The product of any number and 1 is that number.

So, $6 \times 1 = 6$ and $1 \times 6 = 6$.

More information on this strategy is available on Animated Math Model #13.

Vocabulary

Array – a set of objects arranged in rows and columns

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

Equal groups – groups that have the same number of objects; for example, 5 x 6 = 30. There are 5 equal groups of 6 in 30.

Factor – a number that is multiplied by another number to find a product

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

Multiply – when you combine equal groups, you can multiply to find how many in all; the opposite operation of division

Product – the answer in a multiplication problem

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