

MULTIPLICATION

Unit

4th Grade



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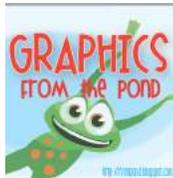


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TO The Teacher

Thank you for purchasing this resource! Within it you will find a complete unit for teaching the fourth grade standards for multiplication including pre-assessment, content vocabulary, daily warm-ups and exit tickets, daily lessons with student activities, and a post assessment.

While this unit is laid out over a fifteen day time span do not feel that you must rigidly stick to the timeline. As a teacher you know what is best for your students, and should follow your gut, as some classes may require more time to reach understanding of a concept.

To save on ink and decrease prep time, every page of this unit is created in black and white. To create a more colorful unit print or copy on color paper.

Standards

TEKS

- 4.4B** determine products of a number and 10 or 100 using properties of operations and place value understandings
- 4.4C** represent the product of 2 two-digit numbers using arrays, area models, or equations, including perfect squares through 15 by 15
- 4.4D** use strategies and algorithms, including the standard algorithm, to multiply up to a four-digit number by a one-digit number and to multiply a two-digit number by a two-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties

CCSS

- 4.NBT.B.5** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
- 4.OA.A.1** Interpret a multiplication equation as a comparison, e.g., interpret $35=5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
- 4.OA.B.4** Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.

ALL ABOUT This Unit

This unit is made up of unique elements that can be used independently or together to provide a complete unit of math instruction.

Content Vocabulary

Vocabulary for this multiplication unit is included in a few forms.

- Word wall cards make it easy to add your content vocabulary to your word wall
- The word and definition list make a great reference for student math notebooks and teachers alike
 - This list is included completed as well as with blank areas for definitions and examples
- Double-sided word and definition cards are great for review and small group remediation

Pre-Assessment and Student Standard Checklist

To be used as an informal assessment to check students' prior knowledge as well as determine any misconceptions. The data that you gather from this pre-assessment can be recorded on the Student Standards Checklists and used to set student learning goals, form small groups, or partner students based on ability. Checklists fit 11 students per page.

ALL ABOUT This Unit

DAILY WARM-UPS

Fifteen days of half-page daily warm-ups are provided along with answer keys. Each day has four standards-based questions for students to think through their learning. A student tracking sheet is also included for students to record their own grow and glow areas. To save paper you may choose to project the warm up each day and have students complete their work in math notebooks.

EXIT TICKETS

Fifteen days worth of exit tickets and answer keys, with one question each, are included two to a page for easy copying. Each of the questions is based on how that standard is tested, providing a test bridge and exposing students to test style language. This serves to build familiarity with standardized testing without overwhelming students.

Exit tickets can be checked as a class, or by the teacher. A checklist of questions is included to track how students are doing on their exit tickets.

ASSESSMENT

An end of unit assessment is included to check for student mastery on the multiplication standards included. This assessment is meant to be used informally. While students should do their best work, it is best to not place too much importance on the test.

Daily Lessons

Fifteen daily lessons are included in this unit.

Each lesson includes:

- Guiding question(s)
- Objectives
- List of necessary materials
- Overview of the lesson
- Student activity sheets when applicable
- Suggestions for small group activity

Day 1	Pre-assessment & Properties of Multiplication
Day 2	Multiplication Facts & Families
Day 3	Arrays and Perfect Squares with Multiplication Facts
Day 4	Factors
Day 5	Factors of Numbers 1-100
Day 6	Multiplying by 10 or 100
Day 7	Estimating Products Using Place Value
Day 8	Multiplication with Area Models
Day 9	Multiplication with Partial Products
Day 10	Multiplication with the Standard Algorithm
Day 11	Selecting a Method for Two-Digit Multiplication
Day 12	Multi-Digit Multiplication
Day 13	Multi-Digit Multiplication
Day 14	Problem Solving with Multiplication
Day 15	Assessment

Content Vocabulary

Vocabulary for this multiplication unit is included in a few forms.

- Word wall cards make it easy to add your content vocabulary to your word wall
- The word and definition list make a great reference for student math notebooks and teachers alike
 - This list is included completed as well as with blank areas for definitions and examples
 - TIP: print/copy definition list at 80% to fit perfectly in math notebooks
- Double-sided word and definition cards are great for review and small group remediation
 - To complete these cards print, fold along the dotted line with the word and definition on the outside, then tape or glue to secure the card.

multiply

to find the product of two or more factors

factor

a number multiplied by another number to find a product

product

the total when two or more factors are multiplied
the answer to a multiplication equation

equation

a mathematical statement, also known as a number sentence

MULTIPLICATION VOCABULARY

MULTIPLY	to find the product of two or more factors
equation	a mathematical statement, also known as a number sentence
commutative property	if the order of the factors is changed, the product stays the same
distributive property	if multiplying a number by the sum of numbers, the product will be the same as multiplying by each of the addends
associative property	if three or more factors are multiplied the order does not change the product
algorithm	process used to solve a mathematical problem
factor	a number multiplied by another number to find a product
product	the total when two or more factors are multiplied the answer to a multiplication equation

MULTIPLY

to find the product of two or more factors

FACTOR

to separate into parts or groups

PRODUCT

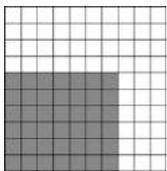
the total when two or more factors are multiplied
the answer to a multiplication equation

Answer Key

1 A box of marbles contains 100 marbles. How many marbles are there in 17 boxes?

1,700 marbles

2 What equation is represented by the array shown?



$6 \times 7 = 42$

$7 \times 6 = 42$

3 Identify the first twelve multiples of 4.

(0), 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48

4 Name the factor pairs of 42.

42 and 1, 21 and 2, 14 and 3, 6 and 7

5 $14 \times 29 = P$

406

$12 \times 25 = ?$

300

7 $3,284 \times 6 = R$

19,704

8 $52 \times 10 = K$

520

9 Dario read four books that each had 1,793 pages in them. How many pages did he read in all?

7,172 pages

10 Luna rode her bike for fifteen minutes every day for two weeks. After the fourteen days, how many total minutes had she ridden?

210 minutes

DAILY WARM-UPS

Fifteen days of half-page daily warm-ups are provided along with answer keys.

Each day has four standards-based questions for students to think through their learning.

A student tracking sheet is also included for students to record their own grow and glow areas.

To save paper you may choose to project the warm up each day and have students complete their work in math notebooks.

Name _____

MULTIPLYING BY 10S & 100S

$12 \times 10 =$

FACTORS & FACT FAMILIES

Identify the factor pairs for 24.

TWO-DIGIT BY TWO-DIGIT

$87 \times 16 =$

MULTI-DIGIT MULTIPLICATION

$129 \times 3 =$

Name _____

MULTIPLYING BY 10S & 100S

$12 \times 10 =$

FACTORS & FACT FAMILIES

Identify the factor pairs for 24.

TWO-DIGIT BY TWO-DIGIT

$87 \times 16 =$

MULTI-DIGIT MULTIPLICATION

$129 \times 3 =$

Daily Warm-up Answer Key

Multiplication
Day 1

Name _____

Multiplying by 10s & 100s

$12 \times 10 =$

120

Factors & Fact Families

Identify the factor pairs for 24.

**1 and 24, 2 and 12,
3 and 8, 4 and 6**

Two-Digit by Two-Digit

$87 \times 12 =$

1,044

Multi-Digit Multiplication

$129 \times 3 =$

387

Multiplication
Day 2

Name _____

Multiplying by 10s & 100s

$100 \times 27 =$

2,700

Factors & Fact Families

Identify the fact family for 7, 35, & 5

$7 \times 5 = 35$

$5 \times 7 = 35$

$35 \div 7 = 5$

$35 \div 5 = 7$

Two-Digit by Two-Digit

$24 \times 65 =$

1,560

Multi-Digit Multiplication

$937 \times 4 =$

3,748

Name _____

PERSONAL DAILY WARM-UP TRACKING SHEET

	MULTIPLYING by 10S & 100S	FACTORS & FACT FAMILIES	TWO DIGIT by TWO DIGIT MULTIPLICATION	MULTI-DIGIT MULTIPLICATION
DAY 1				
DAY 2				
DAY 3				
DAY 4				
DAY 5				
DAY 6				
DAY 7				
DAY 8				
DAY 9				
DAY 10				
DAY 11				
DAY 12				
DAY 13				
DAY 14				
DAY 15				

Exit Tickets

Fifteen days worth of exit tickets and answer keys, with one question each, are included two to a page for easy copying.

Each of the questions is based on how that standard is tested, providing a test bridge and exposing students to test style language. This serves to build familiarity with standardized testing without overwhelming students.

Exit tickets can be checked as a class, or by the teacher. A checklist of questions is including to track how students are doing on their exit tickets.

Exit Ticket
Day 1**Name** _____

There are 9 soccer teams in a league. Each team has twelve players. How many soccer players are there in the league?

- a. 99 soccer players
- b. 108 soccer players
- c. 120 soccer players
- d. 109 soccer players

MULTIPLICATION**Exit Ticket**
Day 1**Name** _____

There are 9 soccer teams in a league. Each team has twelve players. How many soccer players are there in the league?

- a. 99 soccer players
- b. 108 soccer players
- c. 120 soccer players
- d. 109 soccer players

MULTIPLICATION

Exit Ticket Answer Key

Day 1	B
Day 2	A
Day 3	C
Day 4	D
Day 5	A
Day 6	B
Day 7	C
Day 8	D
Day 9	B
Day 10	A
Day 11	C
Day 12	D
Day 13	A
Day 14	A
Day 15	C

DAILY LESSONS

Fifteen daily lessons are included in this unit.

Each lesson includes:

- Guiding question(s)
- Objectives
- List of necessary materials
- Overview of the lesson
- Student activity sheets when applicable
- Suggestions for small group activity

DAY 1	Pre-assessment & Properties of Multiplication
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DAY 13	Multi-Digit Multiplication
DAY 14	Problem Solving with Multiplication
DAY 15	Assessment

Pre-assessment & PROPERTIES OF MULTIPLICATION

Guiding Question

How can I show my prior knowledge of multiplication?

Materials

- Pre-assessment
- Anchor chart paper

Learning Objective

We will explore the properties of multiplication.

- L** Begin by giving students the pre-assessment as a check for prior understanding.
- E** As a class talk about what they already know about multiplication and make a list of anything that students mention.
- S** If students do not mention each of the properties of multiplication then be sure to list those and define them as part of the chart and give examples for each.
- S** Commutative Property-if the order of the factors is changed, the product remains the same
- O** Distributive Property-if multiplying a number by the sum of numbers, the product will be the same as multiplying by each of the addends
- n** Associative Property- if three or more factors are multiplied the order does not change the product

Small Group Ideas

Using student whiteboards or math journals, have students practice identifying fact families. A fun way to achieve this is by having students roll two dice and recording the fact family. Students love to "race" to see who can record more fact families in a given time.

Anchor Chart EXAMPLE

Properties of Multiplication

Commutative Property
if the order of factors changes, the product stays the same

$$2 \times 3 = 6 \quad 3 \times 2 = 6$$

Distributive Property
if multiplying a number by the sum of numbers, the product will be the same as multiplying by each addend

$$6 \times 4 = (6 \times 2) + (6 \times 2)$$

Associative Property
if three or more factors are multiplied the order does NOT change the product

$$2 \times 3 \times 4 = 24 \quad 4 \times 2 \times 3 = 24$$

MULTIPLICATION FACTS and Families

Guiding Question

How does the commutative property help me to multiply and create fact families?

Materials

- Array Examples
- Multiples Notebook Fold-Up
- Fact Spinner Practice

Learning Objectives

We will generate fact families using the commutative property.

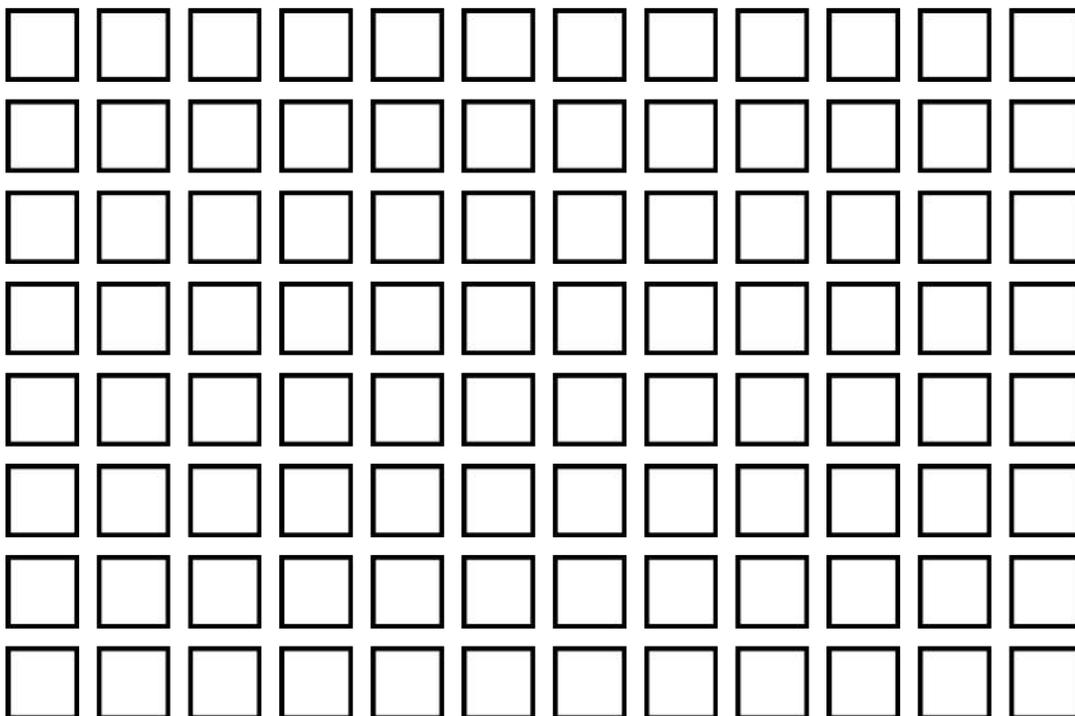
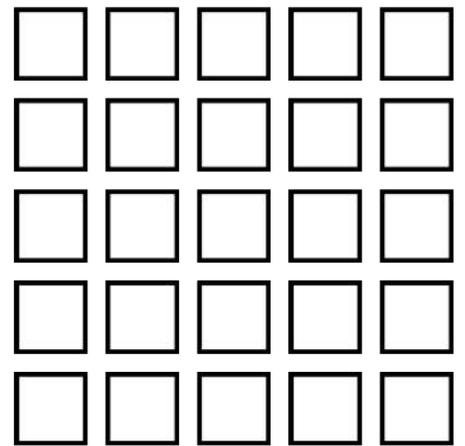
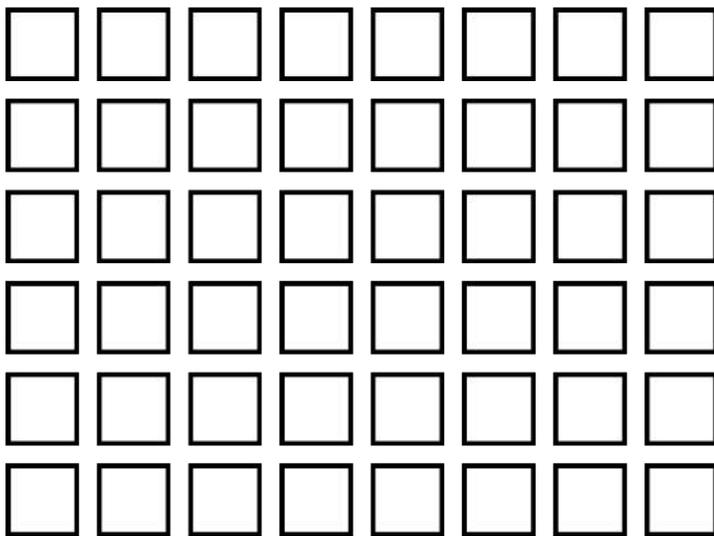
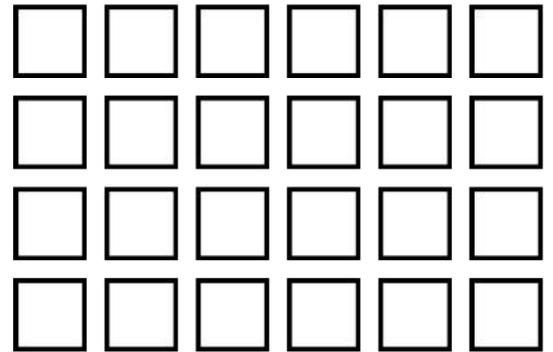
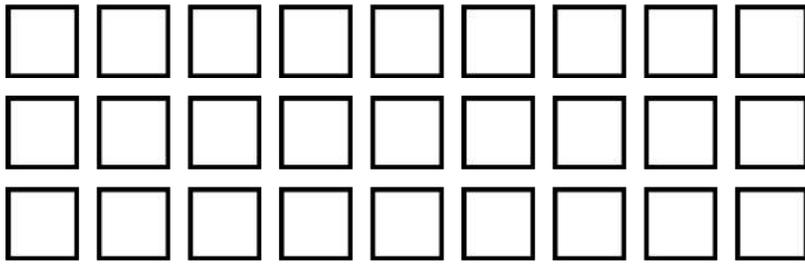
We will identify multiples of numbers through 12.

- L** Begin by asking students what they know about fact families. 4th graders should have a firm grasp of what a fact family is, but may need review.
- S** Next, use the array examples (cut apart) to have students generate complete fact families. This can be done as a class on the chart paper or individually using math journals or white boards.
- S** Finally, review with students the multiples of each number through 12 using the Multiples Notebook Fold-Up.
- O** For practice, students will independently complete the Fact Spinner Practice identifying multiples and fact families.

Small Group Ideas

Using student white boards or math journals, have students practice identifying multiples of a number and fact families using a deck of cards. Have students draw a card and write the multiples for that card (Jack-11, Queen-12, King-13) then draw a second card and generate the fact family for the two cards.

Array Examples



1

2

3

4

5

6

7

8

9

10

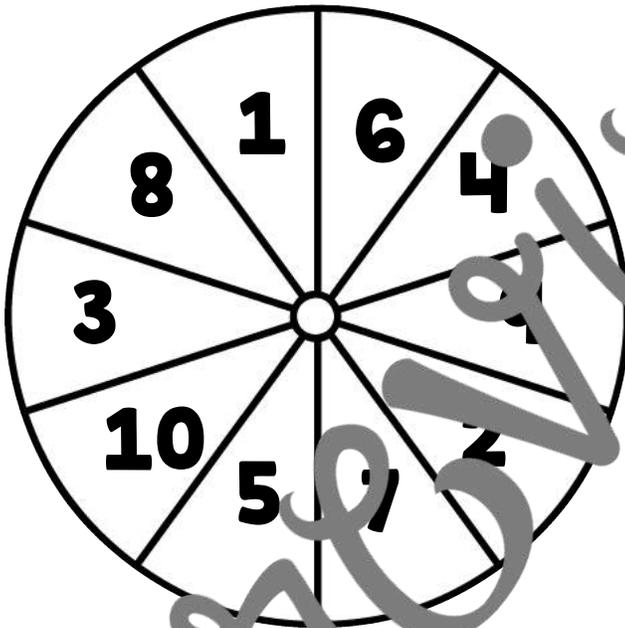
11

12

Name _____

MULTIPLICATION & FACT FAMILIES

Use the spinner to determine a number and list the first twelve multiples of that number. Then, spin again. Using both numbers write the multiplication and division fact family.



Multiples of _____

Fact Family for _____ & _____

Multiples of _____

Fact Family for _____ & _____

Example:

Multiples of **6**

6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72

Fact Family for **6 & 2**

$6 \times 2 = 12$, $2 \times 6 = 12$, $12 \div 2 = 6$, $12 \div 6 = 2$

Multiples of _____

Multiples of _____

Fact Family for _____ & _____ Fact Family for _____ & _____

Multiples of _____ Multiples of _____

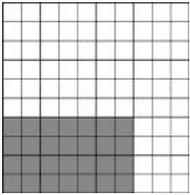
Fact Family for _____ & _____ Fact Family for _____ & _____

Answer Key

1 A roll of toilet paper has approximately 100 sheets per roll. How many sheets would you expect to find in a package of 24 rolls?

2,400 sheets

2 What equation is represented by the array shown?



$4 \times 7 = 28$

$7 \times 4 = 28$

3 Identify the first twelve multiples of 6.

(0), 6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72

4 Name the factor pairs for 64.

64 and 1, 32 and 2, 16 and 4, 8 and 8

5 $23 \times 37 = P$

851

$19 \times 42 = ?$

798

7 $1,952 \times 4 = R$

7,808

8 $87 \times 10 = K$

870

9 Criselda logged a total of 2,309 kilometers run in the last year. If each kilometer took her 5 minutes to run, how long did she spend running?

11,945 minutes

10 Derek walks 14 blocks to school every day. If he attends school 22 days in a month, how many blocks does he walk to school in that month?

308 blocks