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Unit 2: Multiplying and Dividing Whole Numbers Grade 4

Dear Parents or Guardians,

What great mathematicians we have! In our second unit, Multiplying and Dividing Whole Numbers, students have multiplied 4-digit numbers by 1-digit numbers and two-digit numbers by two-digit numbers, divided numbers to get whole number quotients or quotients with remainders, found factors pairs and listed factors of products, determined if a number was prime or composite, generated number and shape patterns, and have solved multi-step word problems.

Students should be able to:

- Interpret a multiplication equation as a comparison
- 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.
- Multiply or divide to solve word problems involving multiplicative comparison
- Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division.
- Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.
- Find all factor pairs for a whole number in the range 1-100
- Determine if a number is prime or composite
- Generate a number or shape pattern that follows a given rule.

It is important that your child knows how to apply the standards in daily situations. Below is a chart that will help your child master this unit.

Standard	Examples
Multiply a whole number of up to four digits by a one-digit	$\begin{array}{r} 1,656 \\ \times \quad 5 \\ \hline \end{array}$ $\begin{array}{r} 596 \\ \times \quad 9 \\ \hline \end{array}$
Multiply two two-digit numbers	$\begin{array}{r} 22 \\ \times 17 \\ \hline \end{array}$ $\begin{array}{r} 56 \\ \times 36 \\ \hline \end{array}$
Divide numbers to find whole number quotients or quotients with remainders	$6 \overline{)366}$ $5 \overline{)576}$
Find factor pairs or list factors	Factors of 24: 1, 2, 3, 8, 12, 24 Factor Pairs of 24: 1 and 24, 2 and 12, 3 and 8
Determine if a number is prime or composite	3: Prime (Only factors are 1 and itself, 3) 9: Composite (Has more than 1 and 9 as factors)
Generate a number or shape pattern that follows a given rule	What shape is the 15 th step of this pattern? _____ <div style="text-align: center;">  </div>

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Standards and Sample Problems:

4.OA.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.1 Sample Problem:

Gregory's sister is two times as old as he is. His cousin is three times as old as he is. If Gregory is 8 years old, how old is his cousin? Write an equation that shows how to find the age of Gregory's cousin.

4.OA.2 - Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

4.OA.2 Sample Problem:

Rewrite the following problem as a multiplication problem:
 $35 \div 7 = c$

4.OA.3 - Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

4.OA.3 Sample Problem:

Grandma makes 5 teddy bears each day for 7 days. She ships her teddy bears to the store in boxes of 10. Which equation shows how many boxes will be needed to ship the bears each week?

- A. $5 \times 7 = n$ and $n \div 10 = 3 \text{ r } 5$ so she will need 3 boxes.
- B. $5 \times 7 = n$ and $n \div 10 = 3 \text{ r } 5$ so she will need 4 boxes.
- C. $5 \times 10 = n$ and $n \div 7 = 7 \text{ r } 1$ so she will need 7 boxes.
- D. $7 \times 10 = n$ and $n \div 5 = 14$ so she will need 14 boxes.

4.OA.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 whole 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.

4.OA.4 Sample Problem:

Which number is NOT a prime number?

- A. 37
- B. 67
- C. 77
- D. 97

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4.OA.5 - Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. Explain informally why the pattern will continue to develop in this way. For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers.

4.OA.5 Sample Problem:

Examine the numbers in the following sequence of numbers: 2, 5, 11, 23, ...

A. Determine the next number in the sequence.

B. As you continue using the same rule, what do you notice that all the answers have in common except for the 2? Why?

4.NBT.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.NBT.5 Sample Problem:

Explain why the following area model represents the expression 18×34 .

	30	4	
10	300	40	
8	240	32	

4.NBT.6 - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

4.NBT.6 Sample Problem:

Latoya has 434 gummy worms to share equally among her 3 friends. How many gummy worms does each friend get? Are there any remainder gummy worms left?

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How can I study?

Students: Please remember, cramming the night before an assessment is not the best way to study! Reviewing the material nightly helps you tremendously. Most importantly, you will be less stressed, and will feel confident on assessment day!

- Review interactive notebooks
- Have your parents create a practice test
- Teach the material to your parents/siblings/friends/pets!
- Review your quizzes
- Create an informational poster or PowerPoint
- Create a practice test or quiz for a friend, and check their work!
- Re-watch Study Jams and Brain Pops we viewed during the unit
- Go back and practice the IXL skills that were done for homework, and try to earn a higher score!
- Check out any of the posted resources on the **Weebly** (www.fourthgradenpes.weebly.com)
- Create flashcards to carry around with you so you can study when you are not at home

In our math class, students spend time discussing problems in depth and are asked to share their reasoning and solutions. It is important that children solve math problems in ways that make sense to them. At home, encourage your child to explain the math thinking that supports those solutions and show you the strategies that he/she uses to solve math problems.

Happy learning!
Ms. Spaeth