

## GRADE 4 UNIT 2 – COMPUTE WITH WHOLE NUMBERS AND DEFINE EQUIVALENT FRACTIONS

<p><b>Established Goals:</b> Standards</p> <p><b><u>Operations and Algebraic Thinking</u></b></p> <p><b>4. OA.3:</b> Compose equations from information supplied in word problems (with all 4 operations) using letters to represent unknowns (without solving).</p> <p><b>4. OA.4:</b> Determine if a number between 1 and 100 is a prime or composite number. Find all factor pairs for a whole number up to 100 and determine whether it is a multiple of a given 1-digit whole number.</p> <p><b><u>Numbers and Base Ten</u></b></p> <p><b>4.NBT.5:</b> Use strategies to multiply multi-digit numbers and explain the answer using equations, rectangular arrays, and area models (up to 4-digits by 1-digit or 2-digits by 2-digits).</p> <p><b>4. NBT.6:</b> Use strategies to divide multi-digit dividends by one-digit divisors and explain the answer using equations, rectangular arrays, and area models.</p> <p><b><u>Number and Operations-Fractions</u></b></p> <p><b>4.NF.1:</b> Recognize and generate equivalent fractions and explain why they are equivalent using visual fraction models</p> <p><b>4. NF.2:</b> Compare two fractions with different numerators and different denominators using <math>&gt;</math>, <math>&lt;</math>, and <math>=</math> and justify the comparison by using visual fraction models (recognizing the comparison is valid only when two fractions refer to the same whole).</p>	<b>Transfer</b>	
	<p><i>Students will be able to:</i></p> <ul style="list-style-type: none"> <li>● Use a variety of strategies to solve multi-digit problems (using the four operations) from information supplied in word problems and explain the answer using equations, arrays, pictures or words.</li> <li>● Recognize and explain why fractions are equivalent, with attention to how the number of parts and size of the parts differ even though the two fractions themselves are the same size.</li> <li>● Recognize prime and composite numbers.</li> <li>● Compare fractions using a variety of strategies for various situations.</li> </ul>	
	<b>Meaning</b>	
	<b>ENDURING UNDERSTANDING</b>	<b>ESSENTIAL QUESTIONS</b>
	<ul style="list-style-type: none"> <li>● Numbers have factors that can be multiplied to produce another number.</li> <li>● A whole number is a multiple of each factor</li> <li>● Word problems can be represented by an equation with a letter standing for the unknown quantity.</li> <li>● There is an inverse relationship between multiplication and division.</li> <li>● two fractions are the same size they are equivalent, even though the number and size of the parts differ.</li> <li>● Arrays can represent multiplication equations.</li> </ul>	<p>How can place value help in solving multi-digit problems?</p> <ul style="list-style-type: none"> <li>•How can properties of operations help in solving multi-digit problems?</li> <li>•How can we find two ways to name the same part of a whole?</li> <li>•How many different factors can I use to</li> <li>•Describe numbers between 1 and 100?</li> <li>•What needs to be done with the remainder in a real world division problem?</li> </ul>
	<b>Acquisition</b>	
<b>KNOWLEDGE</b>	<b>SKILLS</b>	
<p><i>Students will know how to...</i></p> <ul style="list-style-type: none"> <li>● Factors of whole numbers 1-100</li> <li>● Multiples of whole one digit numbers</li> <li>● Prime and composite numbers</li> <li>● Estimation using rounding</li> <li>● Steps to solve multiplication of up to 4-digit by 1-digit</li> <li>● Steps to multiply two 2-digit numbers</li> <li>● Steps to find whole digit quotients and</li> </ul>	<p><i>Students will be skilled at...</i></p> <ul style="list-style-type: none"> <li>● Fluently add and subtract multi-digit whole numbers.</li> <li>● Use strategies to multiply multi-digit whole numbers.</li> <li>● Use strategies to divide multi-digit dividends by 1-digit divisors.</li> <li>● Recognize and generate equivalent fractions.</li> </ul>	

	<p>remainders with up to 4-digit dividends and 1-digit divisors</p> <ul style="list-style-type: none"> <li>• Explain why fractions are equivalent</li> </ul>	<ul style="list-style-type: none"> <li>• Compose equations from information supplied in word problems.</li> <li>• Determine if a between 1-100 is prime or composite.</li> <li>• Find all factor pairs for a whole number up to 100.</li> <li>• Determine if a number is a multiple of a given 1-digit number.</li> <li>• What needs to be done with the remainder in a real world division problem?</li> </ul>
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<b>Vocabulary</b>	<b>Instruction and Pacing (suggested order to teach)</b>	
Product, partial product, compatible numbers, rounding, array, factors, remainder, denominator, numerator, equivalent fractions, fraction, divisor, dividend, prime number, composite number, multiple, inverse relationship, estimate, equation, compose, compare	<b>Create Equations to solve Word Problems (all four operations)</b>	<b>Entire Unit</b>
	<b>Prime &amp; Composite Numbers</b>	<b>2-3 Days</b>
	<b>Multi-Digit Multiplication</b>	<b>1 ½ Weeks</b>
	<b>Multi-Digit Division</b>	<b>2 Weeks</b>
	<b>Fraction Basics &amp; Equivalent Fractions</b>	<b>2 Weeks</b>
	<b>Benchmark Testing &amp; Reteaching</b>	<b>2 Weeks</b>
<b>Resources</b>		
Go Math Chapter 3 Go Math Chapter 4 Go Math Chapter 5 Common Core Standards, New Jersey Model Curriculum People's Common Core Prodigy Math Game - website prodigymath.com SuperTeacherWorksheet.com <a href="http://www.aaamaticas.com/">http://www.aaamaticas.com/</a>		
<b>Differentiation and Accommodations</b>		
Provide graphic organizers Provide additional examples and opportunities for additional problems for repetition Provide tutoring opportunities Provide retesting opportunities after remediation (up to teacher and district discretion) Teach for mastery not test		

Teaching concepts in different modalities  
Adjust pace and homework assignments

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**21<sup>st</sup> Century Skills** Critical Thinking, Creative Thinking, Collaborating, Communicating, and Technology Literacy

**Instructional Strategies**  
Fairfield Township School recognizes the importance of the varying methodologies that may be successfully employed by teachers within the classroom and, as a result, identifies a wide variety of possible instructional strategies that may be used effectively to support student achievement. These may include, but not be limited to, strategies that fall into categories identified by the Framework for Teaching by Charlotte Danielson:

- Communicating with students
- Using questioning and discussion techniques
- Engaging students in learning
- Using assessment in instruction
- Demonstrating Flexibility and Responsiveness

**Interdisciplinary Connections** ELA, Science, and Technology

Common Misconceptions	Proper Conceptions
When solving word problems students have difficulty choosing the operation	Reread and comprehend the problem to find which solution or operation to use
Prime numbers are odd, composite are even.	Prime and Composite Numbers follow specific divisibility rules
Segmenting shapes and pictures can show compare fractions	Depending on the size of the drawings, comparing may not be accurate
The larger the denominator the larger the fraction.	A large denominator indicates smaller parts
Fractions are not numbers	Fractions are numbers representing values less than one or parts of sets
If denominators are even they are equivalent fractions	Equivalent fractions can be found using number lines to compare values
Students confuse the greater and less than sign when comparing fractions	The same rules apply with the greater and less than sign when comparing fractions as whole numbers.

**Performance Task**

**Use the fraction model below to complete the following:**

- **Label the numerical value of each row**
- **Analyze the fraction bar and list all fractions that are equivalent to  $\frac{1}{2}$ .**
- **Analyze the fraction bar and list 3 fractions equivalent to  $\frac{1}{4}$ .**

- List 3 fractions that are close to  $\frac{1}{2}$  but not more than
- List 3 fractions that are close to 1 whole, but not more than
- Find 2 fractions that are closest to 0

Rubric :  $\frac{1}{2}$  point for each correct bullet


# ASSESSMENTS

## Suggested Formative Assessment

Problem of the Day

Lesson Quizzes

Exit Ticket

Anecdotal Records (Topic Observation Checklist)

**Suggested Summative Assessment** - Grade Level developed Unit/Go Math Unit Tests/ Performance Task