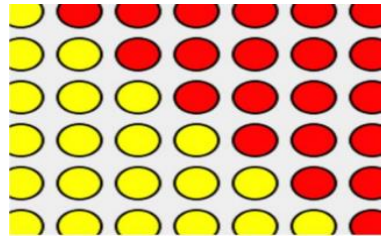




### 7<sup>th</sup> Grade Unit 1: Making Relevant Connections within The Number System



#### Overview:

The first unit of 7<sup>th</sup> grade math builds upon the students' understanding of rational numbers and introduces them to the formalization of rules for arithmetic operations with rational numbers. In this unit, student will explore the results of adding, subtracting, multiplying, and dividing positive and negative integers, percentages, fractions, and decimal numbers to understand the methods needed for computations and the generalization of rules.

#### Learning Targets:

In Unit 1, students will:

- Show that a number and its opposite have a sum of 0 (are additive inverses). Describe situations in which opposite quantities combine to make 0.
- Show and explain  $p + q$  as the number located a distance  $|q|$  from  $p$ , in the positive or negative direction, depending on whether  $q$  is positive or negative. Interpret sums of rational numbers by describing applicable situations.
- Represent addition and subtraction with rational numbers on a horizontal or a vertical number line diagram to solve authentic problems.
- Show and explain subtraction of rational numbers as adding the additive inverse,  $p - q = p + (-q)$ . Show that the distance between two rational numbers on the number line is the absolute value of their difference and apply this principle in contextual situations.
- Apply properties of operations, including part-whole reasoning, as strategies to add and subtract rational numbers.
- Make sense of multiplication of rational numbers using realistic applications.
- Show and explain that integers can be divided, assuming the divisor is not zero, and every quotient of integers is a rational number.
- Represent the multiplication and division of integers using a variety of strategies and interpret products and quotients of rational numbers by describing them based on the relevant situation.
- Apply properties of operations as strategies to solve multiplication and division problems involving rational numbers represented in an applicable scenario.
- Convert rational numbers between forms to include fractions, decimal numbers and percentages, using understanding of the part divided by the whole. Know that the decimal form of a rational number terminates in 0s or eventually repeat.
- Solve multi-step, contextual problems involving rational numbers, converting between forms as appropriate, and assessing the reasonableness of answers using mental computation and estimation strategies.

**Key Vocabulary:** (linked to GA DOE Interactive Glossary)

|                        |                  |                   |                     |
|------------------------|------------------|-------------------|---------------------|
| Absolute Value         | Additive Inverse | Integers          | Long Division       |
| Multiplicative Inverse | Natural Numbers  | Negative Numbers  | Opposite Numbers    |
| Positive Numbers       | Rational Numbers | Repeating Decimal | Terminating Decimal |
| Zero Pair              |                  |                   |                     |

#### Supporting Resources:

<http://ctlslearn.cobbk12.org/>

<https://www.khanacademy.org/math/7th-grade>

<https://gavirtual.instructure.com/courses/34330>

<https://www.ixl.com/math/grade-7>