Equivalent Rational Numbers and Percents

Lesson Synopsis:

The students will match equivalent forms of non-negative rational numbers (whole numbers, fractions and decimals). Different forms of non-negative rational numbers are generated and the strategies used to generate equivalent non-negative rational numbers are discussed. Percents are represented using manipulatives, fractions and decimals. Various strategies to compare and order non-negative rational numbers are investigated.

TEKS:

6.1	*Number, operation, and quantitative reasoning. The student represents and uses rational numbers in a variety of equivalent forms. The student is expected to:*
6.1A	Compare and order non-negative rational numbers.
6.1B	Generate equivalent forms of rational numbers including whole numbers, fractions, and decimals.
6.3	*Patterns, relationships, and algebraic thinking. The student solves problems involving direct proportional relationships. The student is expected to:*
6.3B	Represent ~~ratios and~~ percents with concrete models, fractions, and decimals.

Related TEKS:

6.4	*Patterns, relationships, and algebraic thinking. The student uses letters as variables in mathematical expressions to describe how one quantity changes when a related quantity changes. The student is expected to:*
6.4A	Use tables and symbols to represent and describe proportional and other relationships such as those involving conversions, arithmetic sequences (with a constant rate of change), perimeter and area.

Process TEKS:

6.11	*Underlying processes and mathematical tools. The student applies Grade 6 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school. The student is expected to:*
6.11A	Identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics.
6.11D	Select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.
6.12	*Grade 6 mathematics through informal and mathematical language, representations, and models. The student is expected to:*
6.12A	Communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models.
6.12B	Evaluate the effectiveness of different representations to communicate ideas.

GETTING READY FOR INSTRUCTION

Performance Indicator(s):

- Generate equivalent forms of non-negative rational numbers (whole numbers, fractions, decimals) and percents using a variety of models such as fraction strips, percent bars, etc. Represent percents with concrete models, fractions, and decimals and justify the equivalence of the variety of forms. (6.1A, 6.1B; 6.3B)
  ELPS: 1C, 1E, 2E, 2I, 3D, 3H, 4E, 5B, 5F, 5G
- Write a paragraph to describe how the number line is a tool that may be used to compare and order a set of non-negative rational numbers. (6.1A, 6.1B)
  ELPS: 1C, 1E, 2E, 2I, 3D, 3H, 4E, 5B, 5F, 5G

Key Understandings and Guiding Questions:

- Non-negative rational numbers can be written as whole numbers, fractions, and decimals and for each non-negative rational number there is an equivalent whole number, fraction and decimal.
  — What is an equivalent decimal for this fraction?
  — What is an equivalent fraction for this decimal?