

Core Content

Cluster Title: Understand the place value system.

Standard 3: Read, write, and compare decimals to thousandths.

- a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form (e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$).
- b. Compare two decimals to thousandths based on meanings of the digits in each place, using $<$, $=$, and $>$ symbols to record the results of comparisons.

MASTERY Patterns of Reasoning:

Conceptual:

Students will understand expanded form represents a digit multiplied by its place value ($347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$).

Students will expand understanding of place value to include the thousandths place.

Procedural:

Students will read and write decimals to the thousandths place using base ten numerals, number word names and expanded form.

Students will compare two decimal numbers to the thousandths place based on the meaning of the digits in each place by using $<$, $=$, and $>$ to record the results of the comparisons.

Students will compare tenths to tenths, hundredths to hundredths, thousandths to thousandths.

Representational:

Students will model comparisons of decimals to thousandths using place value charts, grids, manipulatives and technology.

Supports for Teachers

Critical Background Knowledge	
<p>Conceptual: Students will understand the value of decimal numbers as compared to benchmark numbers such as 0, 0.5 and 1. Students will understand the value of digits to the hundredths place.</p> <p>Procedural: Students can compare decimal numbers to the hundredths place. Students can write numbers in expanded form to the hundredths place.</p> <p>Representational: Students can represent multi-digit numbers in expanded form (such as 435 as $400 + 30 + 5$).</p>	
Academic Vocabulary and Notation	
<p><, =, >, greater than, less than, equal to, equality, expanded notation, benchmark</p>	
Instructional Strategies Used	Resources Used
<p>Match the standard form to the expanded form using activities such as those found on the website for “Expanded notation games.” (See resources for “Expanded notation games.”)</p> <p>Use 0, 0.5, and 1 as benchmarks when comparing decimals.</p> <p>Have students create numbers and then arrange them in order from least to greatest, etc.</p>	<p>Expanded notation games: http://www.ehow.com/list_5880741_math-games-expanded-notation.html</p>
Assessment Tasks Used	
<p>Skill-Based Task: Write 562.376 in expanded form. Given 1.02, 1.2 and 1.002, place the numbers in order from least to greatest.</p>	<p>Problem Task: Find four numbers that are between 0.11 and 0.12 and put all six numbers in order from least to greatest.</p>