Teacher Guide to Clarification

Instructional Math Materials

**5.NBT.3**

**Understand the place value system.**

**5.NBT.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 × 100 + 4 ×10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (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.

Read, Write, & Compare Decimals Using Expanded Form

Expanded Form takes on a new meaning here. Students will need to utilize their knowledge of decimals and fractions along with the multiplication (a whole times a fraction) and addition (same denominators) of fractions

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***Explanations and Examples:***

**5.NBT.3a** This standard references expanded form of decimals with fractions included. Students should build on their work from Fourth Grade, where they worked with both decimals and fractions interchangeably. Expanded form is included to build upon work in 5.NBT.2 and deepen students’ understanding of place value. Students build on the understanding they developed in fourth grade to read, write, and compare decimals to thousandths. They connect their prior experiences with using decimal notation for fractions and addition of fractions with denominators of 10 and 100. They use concrete models and number lines to extend this understanding to decimals to the thousandths. Models may include base ten blocks, place value charts, grids, pictures, drawings, manipulatives, technology-based, etc. They read decimals using fractional language and write decimals in fractional form, as well as in expanded notation. This investigation leads them to understanding equivalence of decimals (0.8 = 0.80 = 0.800).

**5.NBT.3b** Comparing decimals builds on work from fourth grade.

Example: Some equivalent forms of 0.72 are: 72/100, 7/10 + 2/100, 7 x (1/10) + 2 x (1/100), 0.70 + 0.02, 70/100 + 2/100, 0.720, 7 x (1/10) + 2 x (1/100) + 0, 720/1000

**New Standards**

586.23 =(5•100) + (8•10) + (6 • 1) + (2 • ) + (3 • $\frac{1}{100}$)

**Traditional Expanded Form**

586.23 = 500 + 80 + 6 + 0.2 + 0.03

Students need to understand the size of decimal numbers and relate them to common benchmarks such as 0, 0.5 (0.50 and 0.500), and 1. Comparing tenths to tenths, hundredths to hundredths, and thousandths to thousandths is simplified if students use their understanding of fractions to compare decimals.

Understanding the size of decimals here is an important reasoning skill and students will need opportunities to practice this.

Kansas Association of Teachers of Mathematics (KATM) Flipbooks. Questions or to send feedback: melisa@ksu.edu. Retrieved from: <http://katm.org/wp/wp-content/uploads/flipbooks/3FlipBookedited.pdf>

**Coherence and Connections: Need to Know**

|  |  |  |
| --- | --- | --- |
| Grade Below | Grade-Level | Grade Above |
| 4.NBT.34.NF.7 | **5.NBT.3**5.NBT.15.NBT.4 | None |

**PARCC Evidence Tables**

|  |  |  |  |
| --- | --- | --- | --- |
| **Evidence****Statement Key** | **Evidence Statement Text** | **Clarifications** | **MP** |
| 5.NBT.3a | 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 x 100 + 4 x 10 + 7 x 1 + 3 x $\frac{1}{10}$ + 9 x $\frac{1}{100}$ + 2 x $\frac{1}{1000}$ | i) Tasks assess conceptual understanding, e.g. by including a mixture (both within and between items) of expanded form, number names, and base ten numerals.ii) Tasks have “thin context” or no context | 7 |
| 5.NBT.3b | Read, write, and compare decimals to thousandths.b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons. | i) Tasks assess conceptual understanding, e.g. by including a mixture (both within and between items) of expanded form, number names, and base ten numerals.ii) Tasks have “thin context” or no context | 7 |
| 5.C.3 | Reason about the place value system itself. Content Scope: Knowledge and skills articulated in 5.NBT.A | i) Tasks do not involve reasoning about place value in service of some other goal (e.g., to multiply multi-digit numbers). Rather, tasks involve reasoning directly about the place value system, in ways consistent with the indicated content scope. | 3,7,6 |
| EOY5.NBT.3a | 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 x 100 + 4 x 10 + 7 x 1 + 3 x $\frac{1}{10}$ + 9 x $\frac{1}{100}$ + 2 x $\frac{1}{1000}$ | i) Tasks assess conceptual understanding, e.g. by including a mixture (both within and between items) of expanded form, number names, and base ten numerals.ii) Tasks have “thin context” or no context. |  |
| EOY5.NBT.3b | Read, write, and compare decimals to thousandths.b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons. | i) Tasks assess conceptual understanding, e.g. by including a mixture (both within and between items) of expanded form, number names, and base ten numerals.ii) Tasks have “thin context” or no context | 7 |

*PARCC Mathematics Evidence Tables. (*2013, April). Retrieved from:
 http://www.parcconline.org/assessment-blueprints-test-specs

**Classroom Resource**

Power Point to be used for Classroom Discourse.

Pick a number between .001 and .999 for the decimal of the day and complete the template.

*Decimal of the Day Template*

|  |  |
| --- | --- |
| $$\frac{}{10}+\frac{}{100}+\frac{}{1000}$$expanded form  | $$\frac{}{10}$$improper fraction  |
| The Decimal of the Day is \_\_\_\_\_\_\_\_\_\_\_ |
| What is $\frac{1}{10}$ more than the decimal of the day? \_\_\_\_\_\_\_What is $\frac{1}{100}$ more than the decimal of the day? \_\_\_\_\_\_\_What is $\frac{1}{1000}$ more than the decimal of the day? \_\_\_\_\_\_\_**Color the value of the decimal of the day** |

**HOT Questions**

39.857 is equivalent to (choose all correct answers)

a. 39 + 0.857

b. 30 + 9 + 0.8 + 0.05 + 0.07

c. 3 (10) + 9 (1) + 8 ($\frac{1}{10}$) + 5 ($\frac{1}{100}$ ) + 7 ($\frac{1}{1000}$ )

d. 39 + 857

e. four hundred thirty-nine and eighty-five hundredths

f. 0.857 + 39

g. 39 + $\frac{857}{10}$

Mrs. Vee asked her class to name 2.345 in expanded form.

Tina said 2.345 = 2 + 0.3 + 0.04 + 0.005

 Matthew said 2.345 = 2 x 1 + 3 x 1/10 + 4 x 1/100 + 5 x 1/1000

 Patrick said 2.345 = 2 x 1 + 345 x 1/1000

 Explain in words who is correct and justify your answer.

Compete the chart.

|  |  |  |
| --- | --- | --- |
| Equation | True or False? | Correct Sum if False |
| $$\frac{9}{10 }+\frac{2}{100}= .902$$ |  |  |
| $$\frac{9}{1000}+\frac{2}{1000}= .920$$ |  |  |
| $$\frac{9}{100 }+\frac{2}{1000}= .092$$ |  |  |
| $$.092=\frac{9}{10 }+\frac{2}{100}=$$ |  |  |



Inside Mathematics
<http://www.insidemathematics.org/assets/common-core-math-tasks/decimals.pdf>

Illustrative Mathematics
<https://www.illustrativemathematics.org/illustrations/1813>

<https://www.illustrativemathematics.org/illustrations/1803>

<https://www.illustrativemathematics.org/illustrations/1802>

Howard County Wikispace
[https://grade5commoncoremath.wikispaces.hcpss.org/Assessing+5.NBT.3](https://grade5commoncoremath.wikispaces.hcpss.org/Assessing%2B5.NBT.3)

LearnZillion
<https://learnzillion.com/lessons/3285>