**FRACTIONS**

Subject: *Comparing Decimals*  Grade: *4*

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| Common Core State Standards |
| **4.NF.7:** Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols *>,=, or <*, and justify the conclusions, e.g., by using a visual model.  |
| Objectives |
| Students will learn to compare and order decimals according to their size. They will also learn to optimize the comparing process by using checkpoints (previously known decimal values).  |
| Launch Questions |
| **Q.** Is there a “rule of thumb” for comparing (decimal) fractions?**Q.** Does the fact that the denominator of a decimal fraction is a multiple of 10 mean that the fraction itself is greater than other fractions? |
| Definition/Properties To Know |
| **Decimal Number:** A number that contains a decimal point followed by a series of digits whose value is less than 1. (*Ex. 2.35 is a decimal number and 0.35 < 1.*)**Decimal Fraction:** Fractions whose denominators are multiples of 10. (*Ex. 0.32 =* $\frac{32}{100})$ |

*Warm-Up Activity:* See “WU 11”

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| Lesson (Introduction to Problem) |
| You and 14 other students have completed a math exam about decimals. Your teacher hands back the exams and, because the theme was decimals, all the grades are in decimals with 100% equaling 1.00. The table below lists all the scores according to the student.

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| --- | --- | --- | --- | --- |
| You | Jake | Jack | Jimmy | John |
| 0.91 | 0.82 | 0.51 | 0.75 | 0.58 |
| Paul | Pablo | Patrick | Priscilla | Paula |
| 0.62 | 0.90 | 0.81 | 0.72 | 0.87 |
| Kevin | Kyle | Khloe | Kim | Karl |
| 0.80 | 0.71 | 0.52 | 0.88 | 0.49 |

**Q.** Order all the students from least to greatest according to their decimal score.**Q.** If your professor were to give you all an extra 5% on your test, will the order change? What are the new scores?* Students should look at the tenths value of all the decimals and organize the decimals according to their size. The list should go from 9,8,7,...2,1. If two decimals share the same digit in the tenths place, then they should look at the digit in the hundredths place.
* According to the information above, 100% translates to 1.00. Using this, we can calculate that 1% = 0.01. Therefore, 5% = 0.05. The extra points would not change the order, rather increase the scores.
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| Materials (If Needed) |
| * Paper and Pencil
* Ruler (if necessary)
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*Main Project:* See “MP 11”

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| Closure/Expectations |
| Like the other lessons involving comparing and ordering fractions, this lesson requires the same thought process in constructing these ordered sequences. Students should be comfortable ordering fractions without the use of checkpoints.  |