**FRACTIONS**

Subject: *Reason with Fractions*  Grade: *4*

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| Common Core State Standards |
| **4.NF.2:** Compare two fractions with different numerators and different denominators, eg., by creating common denominators or numerators, or by comparing to a benchmark fraction such as (½). Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the result of comparisons with symbols *>, =, or <,* and justify the conclusions, e.g., by using a visual fraction model.  |
| Objectives |
| Learn to reason about the placement of the fraction on a number line and its relation to a “whole”. More importantly, learn how to approximate the value of a fraction by comparing it to known values. |
| Launch Questions |
| **Q.** If there a “rule of thumb” for figuring out which proper fraction, in a given sequence, is the biggest? Smallest? |
| Definition/Properties To Know |
| **Greatest Common Factor (GCF):** The GCF for integers *x* and *y* is the largest number (factor) that divides both *x* and *y* evenly. **Least Common Multiple (LCM):** The LCM for integers *x* and *y* is the smallest number that is a common multiple of both *x* and *y.*   |

*Warm-Up Activity:* See “WU 3”

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| Lesson (Introduction to Problem) |
| While shopping at a local bakery, your mom comes across 3 different pies that were on sale. She wanted to surprise you, so she bought all three for the family to eat. You were so happy and could not wait to eat some pie for dessert when you noticed that each pie was missing a slice. Your mom said that she took a slice because she wanted to taste it before anyone else. You were fine with your mom eating a slice but you were curious to know why your mom cut each pie into different slices. The Blueberry pie was cut into 6 slices, the Raspberry pie was cut into 8 slices, and the Apple pie was cut into 10 slices.**Q.** Of the 3 slices your mom ate, which slice was the biggest? Justify answer with a diagram and an explanation. **Q.** In terms of size, which of the 3 pies is the biggest after your mom took a slice from each?* Using a pencil, draw circle (or another shape) to represent the three pies, and outline the amount of slices (pieces) for each case.
* Shade in the fraction your mom ate and write out the fraction for each case. To answer the first question, students should think about the relation of a unit fraction and its whole number counterpart. Assuming the circles were drawn properly, the difference in sizes should be noticeable.
* Label the unshaded regions for each pie as the amount leftover. Students need to think about what it means for a fraction to be one unit fraction away from a whole number. For the second question, emphasis should be placed on the value of the denominator since the biggest pie, in terms of size, is the one with the largest denominator.
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| Materials (If Needed) |
| * Paper and Pencil
* Ruler (if necessary)
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*Main Project:* See “MP 3”

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| Closure/Expectations |
| Students should think about the relationships between a given fraction and a whole. At the same time, students should understand that not all fractions are alike even if they share the same denominator or numerator. To properly understand the value of a fraction and its position in an ordered sequence, students should represent fraction using a drawing.  |