**FRACTIONS**

Subject: *Comparing and Ordering Fraction* Grade: *4*

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| Common Core State Standards |
| **4.NF.2:** Compare two fractions with different numerators and different denominators, e.g., 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 conclusion, e.g., by using a visual fraction model. |
| Objectives |
| Apply knowledge of least common multiples and greatest common factors in order to compare fractions, in terms of value, and organize them in a sequence. |
| Launch Question |
| **Q.** If two fractions are in lowest terms but do not have any factors in common aside from 1, what strategy/algorithm would you use to compare them? |
| 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 2”

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| Lesson (Introduction to Problem) |
| Last week you decided to buy 5 bags of potato chips and for the last 5 days, you have been eating bits of each bag but have yet to finish one bag. Below are the name of the chips you bought, their initial amount, and the total number of chips you have eaten.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | CHIPS | Cheesy Potatoes | Sweet & Sour | Baked Potatoes | Honey Dew Chips | Extreme Po-ta-toes | | Initial Amount | 45 | 24 | 36 | 50 | 42 | | Eaten So Far | 18 | 12 | 14 | 40 | 7 |   **Q.** For each bag of chips, what fraction of each bag have you finished so far?  **Q.** Order the fractions from least to greatest.   * To construct the fractions, students must assign the numerator to be the number of chips “eaten so far” and assign the denominator to be the “initial amount” since they will be calculating the fraction of the bag that has been eaten so far. * To avoid large calculations, students should simplify all fractions using the GCF strategy, and then implement the LCM strategy so that all fractions have the same denominator thus making it easier for them to figure out which fraction is bigger/smaller. |
| Materials (If Needed) |
| * Paper and Pencil |

*Main Project:* See “MP 2”

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| Closure/Expectations |
| Students will learn to find the LCM and the GCF for a set of fractions in order to order them from least to greatest, or vice versa. In addition, students will be able to visually display the conversions by modeling the fractions. Finally, students will be encourage to not to depend on benchmark fractions. |