**FRACTIONS**

Subject: *Fractions on a Number Line* Grade: *3*

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| Common Core Standards |
| **3.NF.2a**: Represent a fraction $\frac{1}{b}$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size $\frac{1}{b}$ and that the endpoint of the part based at 0 locates the number $\frac{1}{b}$ on the number line. |
| Objectives |
| Understand that a unit fraction - represented as $\frac{1}{b}$*-* is one fractional part of a whole number divided into *b* equal parts. If *0 < b < 1*, then $\frac{1}{b}$ is between those two intervals, exclusively. Student should familiarize themselves with unit fractions and be able to represent them on a number line.  |
| Launch Questions |
| **Q.** For what positive integer b will the unit fraction $\frac{1}{b}$ equal 1? Is there a unit fraction that greater than 1?**Q.** On different number lines, represent $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, and $\frac{1}{5}$on a number line.  |
| Definition/Properties To Know |
| **Unit Fraction:** A fraction in the form of $\frac{1}{b}$ - where *b* is a positive integer - which represents one part of a whole of size *b*.**Adjective-Noun Theme:** A form of fractional representation in which the numerator is the adjective and the denominator is the noun. *Ex.* $\frac{1}{3}$is one (adj) third (noun).  |

*Warm-Up Activity:* See “WU 2”

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| Lesson (Introduction to Problem) |
| For lunch, you decide to go to a vending machine to buy 4 giant chocolate bars of equal size. Upon opening the first chocolate bar, 3 of your friends walk up to you and ask for a piece. Because you are a friendly person, you give each person an equally sized piece. Later, when you opened the second bar, 5 more friends appear and ask for a piece. Again, you decide to give each person an equally sized piece. For the last two chocolate bars, 8 and 10 of your friends walk up and, before they know it, you already are dividing the pieces into equal sizes. **Q.** For each chocolate bar, what fraction of the entire bar did you give to each friend? Represent fractions using the adjective-noun theme, and plot each fraction on a separate number line. * Using a pencil, draw a number line using the edges of the chocolate bar. Label the endpoint 0 and 1 in order to show a “whole”.
* For each problem, mark the number of pieces that will be distributed to all friends and yourself.
* Find the unit fraction of that number line and write answer using adjective-noun theme.
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| Materials (If Needed) |
| * Paper and Pencil
* Ruler (if necessary)
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*Main Project:* See “MP 2”

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| Closure/Expectations |
| Students learn that a fractional unit of a whole number or object represents one part (section) of a whole. They should see a unit relative to size of the object. With whole numbers, *b* sections of $\frac{1}{b}$should equal a whole of size *b.* This lesson will eventually lead students to representing proper fractions (other than unit fractions) on a number line.  |