**FRACTIONS**

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

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| Common Core Standards |
| **3.NF.3a**: Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. |
| Objectives |
| Represent equivalent fractions on one and/or different number lines in order to show that they are visually equivalent to one another.  |
| Launch Question |
| **Q.** If two equivalent fractions are placed on a number line, would they be located on the same point? If so, why? |
| Definition/Properties To Know |
| **Equivalent Fractions:** Suppose $\frac{1}{k}$ and$\frac{n}{m}$are two fractions with *k,m*$\ne $0. These fractions are equivalent provided they both represent the same number and are of the same size;$\frac{1}{k}=\frac{n}{m}$. (Alternate Definition): Provided that *r*$\ne $0, the fraction $\frac{n x r}{m x r}$ is equivalent to$\frac{n}{m}$. |

*Warm-Up Activity:* See “WU 5”

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| Lesson (Introduction to Problem) |
| After a hot day at the beach, you decide grab some water to quench your thirst. You take your two empty water bottles to the refill station and place both bottles next to each other. Both bottles are of the same size, and both have a number line alongside their edges to represent the amount of fluid ounces inside the bottle. However, the number line for bottle #2 has twice the amount of marks/ticks on its number line than the number line for bottle #1. (Bottle #1 is split into eighths.)**Q.** Let's suppose that the intervals for both number lines start at 0 and end at 1, with 1 representing 32 fluid ounces; $1=\frac{32}{32}$. For what fractions would both bottles have the same amount of water? Represent series of answers as equations. (*Ex.* $\frac{1}{3}=\frac{2}{6}$, $\frac{2}{4}=\frac{1}{2}$)**Q.** If a third bottle was given with a number line split into fourths, for what fractions would all 3 bottles have the same amount of water?* Draw three numbers from 0 to 1 to represent number lines along bottles.
* Mark each number line with their respective amount of marks.
* Determine the points/fractions for which bottles have same amount of water.
* (Teacher) Best strategy would be to ask students about the relation between eighths, sixteenths and fourths. This would help students determine how many of what fraction equal another.
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| Materials (If Needed) |
| * Paper and Pencil
* Ruler (if needed)
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*Main Project:* See “MP 5”

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| Close/Expectations |
| Student learn to plot equivalent fractions on a number line. Understanding this topic will aid students in comparing and ordering fractions which slightly differ. *(Ex. We know* $\frac{1}{2}=\frac{2}{4}$*. Since* $\frac{2}{4}>\frac{1}{4}$, $\frac{1}{2}>\frac{1}{4}$. *)*  |