**FRACTIONS**

Subject: *Model Equivalent Fractions* 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.**3.NF.3b**: Recognize and generate simple equivalent fractions, e.g., $\frac{1}{2}$ = $\frac{2}{4}$ and $\frac{4}{6}$ = $\frac{2}{3}$ . Explain why the fractions are equivalent, e.g., by using visual fraction model.  |
| Objectives |
| Understand that the multiples of fractions are equivalent to one another, and that sharing either the same denominator or numerator does not imply that two fractions are equivalent. Learn to identify equivalent fractions using models and write the simplest representation (*simplified version)* of equivalent fraction. |
| Launch Questions |
| **Q.** What happens to a fraction if you multiply it by a positive integer? Will its value change?**Q.** Could the same be said if we divide an equivalent fraction, that’s not a unit fraction, by a positive integer*?* |
| Definition/Properties To Know |
| **Lowest Terms:** We say that a fraction $\frac{n}{m}$ is in lowest terms is the numerator *n* and the denominator *m* have no common factors other than one, and *n* and *m* are relatively prime. **Equivalence:** Being equal or equivalent in value, worth, function, etc.**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 4”

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| Lesson (Introduction to Problem) |
| (Bakery part 2) You and a friend go “cake shopping” and, this time, you decide to visit two different bakeries. At the first bakery, the pastry chef gives both of you$\frac{1}{6}$of a chocolate cake, $\frac{2}{7}$of a vanilla cake, and$\frac{3}{8}$of a strawberry short cake. Later, you both decide to go to the second bakery with the intention of eating the same amount of cake for each flavor. Upon entering, you read a sign warning you that “the pastry chef has a tendency to over-slice his cakes.” Below that sign was a key for ordering: “If you want a **fourth** of a cake, the chef will accidently give you an eighth, therefore you must order t**wo fourths** to be given two eights since $\frac{2}{8}=\frac{1}{4}$.”**Q.** For each ordering of cake, what should you and your friend say to the chef in order to get the correct amount/portion of cake? Represent your answers as fractions* Using a pencil, draw 3 circles (or another shape) horizontally to represent the 3 flavors from the first bakery and shade the portions you and your friend ate for each cake. Remember to write the fraction representing the portions eaten.
* (Teacher) Help students realize that for the second bakery, the pastry chef actually **doubles** the amount of slices. If you taught students the adjective-noun theme, then you will see that the *noun* is doubled. *(Ex. A fourth becomes an eight, and a third becomes a sixth)*.
* Using a pencil, draw 3 more circles next to the ones drawn before to represent the cakes from the second bakery.
* Determine the number of slices (parts) that should be outlined for the second group of cakes. Shade the correct amount of portions to show equivalence. Write the fraction representing the portions eaten.
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| Materials (If Needed) |
| * Paper and Pencil
* Ruler (if needed)
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*Main Project:* See “MP 4”

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| Closure/Expectations |
| Students learn to generate simple equivalent fractions by calculating the product between a fraction and the many representations of 1, meaning $\frac{1}{1},\frac{2}{2},\frac{3}{3},...,\frac{n}{n}$. By learning how to model equivalent fractions, students will realize that plotting equivalent fractions on a number line leads them to the same point.  |