**FRACTIONS**

Subject: *Multiples of Unit Fractions* Grade: *4*

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| Common Core State Standards |
| **4.NF.4a:** Understand a fraction $\frac{a}{b}$ as a multiple of $\frac{1}{b}$ . *For example, use a visual fraction model to represent* $\frac{5}{4}$  *as the product 5 x* $\frac{1}{4}$ *, recording the conclusion by the equation* $\frac{5}{4}=5 x \frac{1}{4}. $ |
| Objectives |
| Extend knowledge of mixed numbers, and understand a proper or improper fraction as a multiple of a unit fraction.  |
| Launch Questions |
| **Q.** What is the relation between addition and multiplication?**Q.** How can we model multiplies of fractions? |
| Definition/Properties To Know |
| **Multiple:** The result of multiplying any number by an integer. *(Ex.* $\frac{1}{3}⋅3=\frac{3}{3}$) |

*Warm-Up Activity:* See “WU 7”

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| Lesson (Introduction to Problem) |
| You are the CEO of the biggest tech company in the world. Your savings account has over 1 billion dollars and before can you enter your early retirement at the age of 25, you decide to have a “one dollar salary”, meaning after 50 days of hard work, you will only get paid $1.00 (or 100 pennies). **Q.** How many pennies will you earn per day, and what fraction of your total salary does that represent?**Q.** What fraction of your total salary will you earn after 5 days, 10 days, 25 days, 50 days, and 75 days. Express answer in lowest terms.* Students need to reason about the structure of the fraction, that is, which number will represent the numerator or denominator. They should ask themselves what “what will happen if I place this number in the numerator/denominator?” and “what will this mean and equal if I extend the number of days?”. Answer: $\frac{100}{50}=2$pennies; $\frac{2}{100}=\frac{1}{50}$
* The second question is pretty straightforward, multiply the fraction you earn per day (fraction) by the number of given days (whole numbers). For the simplification process, it is advised that students start out with 5’s and then work their way to the fraction in lowest terms.
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| Materials (If Needed) |
| * Paper and Pencil
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*Main Project:* See “MP 7”

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| Closure/Expectations |
| Students should be comfortable modeling multiples of unit fractions, and relating multiplication of unit fractions with addition of unit fractions.  |