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|  | Duration of Lesson: 15 minutes  |
| Title of Unit: Strategies for Multiplying Fractions  | Title of Lesson: Use Properties to Multiply Fractions  |
| Lesson Objectives: Students use what they know about multiplying unit fractions to learn a general method for multiplying any fractions. Develop the general formula for the product of two fractions, $\frac{a}{b} ⋅\frac{c}{d}= \frac{ac}{bd}$e |
| Groupings (e.g., whole class, small groups, co-teaching): Small Groups   |
| Skills & Standards: CCSS.MATH.CONTENT.5.NF.B.4Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. |
| **Progression of Learning & Teaching**  |
| Opener:  | Create a story problem with your shoulder partner to reflect $\frac{2}{3}⋅ 4 $Have a whole class discussion about the various scenarios and do they in fact describe this situation?Share that by the end of class they will determine what the solution is. | **Points to Remember** Students are familiar with multiplying a whole number by a unit fraction from grade 4. And they have multiplied unit fractions by unit fractions. This lesson is to extend that knowledge to multiplying non unit fractions by whole numbers and non-unit fractions.Some students may intuitively know how to multiply a non-unit fraction by a whole number or non- unit fraction. If so extend their understanding to having them represent the product with a visual model- tape diagram, number line, area model |
| Activities & Tasks:  |  Guided practice prior to the task:$\frac{1}{4} ⋅8$ Explain that the number 8 can be written as a fraction over 1. Discuss with students what they know about the solution, work through the problem mathematically to show it simplifies to 2$\frac{2}{4} ⋅8$ Ask students what they anticipate the answer to this problem will be? Students may appreciate that they can simplify the $\frac{2}{4}$ Work through the problem mathematically and then discuss with the class how the two answers compare, and what they notice and wonder about the product of each Illustrative Mathematics task <https://tasks.illustrativemathematics.org/content-standards/5/NF/B/4/tasks/2080>Using this task, with multiple questions, assign different groups a question to solve. For each question students need to:* Show their reasoning with a visual model (diagram, number line)
* Write an equation that represents the situation
* Solve the problem
 | Resources: Whiteboard and workbook  Key Vocabulary:  * Denominator- the bottom number in a fraction. It tells how many equal parts the item is divided into
* Numerator- the top part of a fraction. It tells us how many parts we have.
* Product: a quantity obtained by multiplication; "the product of 2 and 3 is 6"
* Commutative property of multiplication: the order of factors in a multiplication sentence has no effect on the product.

 Monitoring/Scaffolding: **IF** students simplify fractions incorrectly,**THEN** model simplifying using divisibility rules.Divide by 2 if both numerator and denominator are even.Numbers ending in a 5 or 0 are divisible by 5.**IF**students have trouble multiplying fractions,**THEN**have them find products with simpler factors.Give students expressions with one unit fraction.Only use numbers less than 10 for numerators and denominators of fractions. |
| Level of Cognitive Complexity:  | ☐ Creating ☐ Evaluating  ☐ Analyzing  | ☐ Applying ☐ Understanding ☐ Remembering  |
| Key questions:  | What do we know about the product of unit fractions? Why is the product of two unit fractions also a unit fraction? What is the Commutative Property of Multiplication and how is using the Commutative Property helpful when multiplying two fractions?Will the product of two fractions always be less than 1? How do you know? |
| Closure:  | Students work independently on a problem as follows: Exit Ticket* Provide students with a number line
* Provide students with the following numbers to represent on the number line $\frac{5}{2}$ and $\frac{1}{3} ⋅ \frac{5}{2}$
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| Next Steps:  | Students play a strategy game to practice multiplying fractions. | **Formative Assessment Criteria for Success:** See Exit ticket |