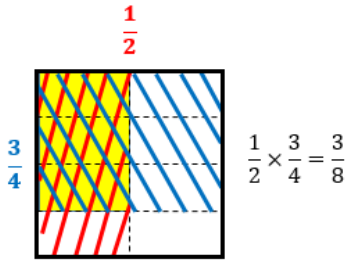


Goals:

New Content		Standards for Mathematical Practice	
<ul style="list-style-type: none"> Students will relate the process of fraction multiplication to integer multiplication. Students will use the area method to discover how fractions are multiplied. Students will multiply fractions using both the area method and the traditional algorithm. 		<ul style="list-style-type: none"> Construct viable arguments and critique the reasoning of others. Model with mathematics. Look for and express regularity in repeated reasoning. 	
Foundation		Continuing Practice	
<ul style="list-style-type: none"> Students will multiply integers. Students will connect numerical fractions to their area representations. 	<ul style="list-style-type: none"> Students will add fractions. Students will compare fractions to determine which is larger. 	<ul style="list-style-type: none"> Students will apply fraction multiplication in a real life setting. 	

Procedures:

Time	Content Educator	Special Educator
First 12-15 minutes	<p>New Content Lesson: Multiplying Fractions (Round 1)</p> <ul style="list-style-type: none"> During the first 12-15 minutes, the content educator will lead a discovery lesson on multiplying fractions. <i>Multiplying Fractions.</i> Fraction multiplication will be taught using the “area method.” Students will do an integer multiplication problem using the area method to activate prior knowledge of this skill and reasoning before doing the same process with fractions. After doing a few fraction multiplication problems with this method, students will look for a pattern between the fractions and the product. They should notice that the numerators are multiplied to get the numerator of the product, and the denominators are multiplied to get the denominator of the product. <i>Formative Assessment:</i> Students will take a short formative assessment using the Socrative app on their devices. This 8 question quiz will ask them to multiply fractions. Students who answer 6-8 questions correctly will move to the enrichment group in the next portion of the lesson. 	<p>Foundation Building: Multiplication Practice and Fraction Review</p> <ul style="list-style-type: none"> During the first 12-15 minutes, the special educator will provide support for those struggling students in one portion of the room at a table. These struggling students may include those with special needs, but could also include any other student who is having difficulty. Because the new content lesson involves multiplying fractions, the special educator will work with the necessary foundational skills of multiplication and fractions. <i>Multiplication Practice:</i> Students will play “Multiplication Mash.” Index cards with numbers will be laid out, and the special educator will read a multiplication product. Students should “mash” the correct product index card by putting their hand on it. This game will continue for 5-8 minutes. <i>Fraction Review:</i> Students will play a matching game with fractions and their area representations. Students may work in large or small groups with support from the special educator. This game will continue for 5-8 minutes.

<p>Next 12-15 minutes</p>	<p>New Content Lesson: Multiplying Fractions (Round 2)</p> <ul style="list-style-type: none"> • During the next 12-15 minutes, students who had been working on foundational skills will move to the new content lesson with the content educator. Students who scored 0-5 on the formative assessment during Round 1 will stay with the content educator to continue to refine skills during Round 2. • The content educator will teach the same lesson to this new group of students using the same method outlined above. 	<p>Enrichment Opportunity: Word Problem</p> <ul style="list-style-type: none"> • During the next 12-15 minutes, students who scored 6-8 points on the formative assessment during Round 1 will move to work with the special educator on an enrichment task involving multiplication of fractions. The special educator will divide students, deliver instructions, and encourage students to discuss their problem solving using correct vocabulary. • <i>Enrichment Task:</i> Students will work in groups of 1, 2, or 3. This task asks students to first double a recipe with ingredients written as fractions (multiplying an integer and a fraction). Then, students are asked to make a third of a separate recipe (multiplying fractions). Last, students must determine how much of each ingredient needs to be bought to make both the doubled recipe and recipe cut in thirds (adding fractions).
<p>Last 12-15 minutes</p>	<p>Practice with Presentations</p> <ul style="list-style-type: none"> • Students will return to their seats so that all levels of students are evenly dispersed through the classroom. Students will work with their seat partners on the next task. • The content educator will explain the task. Each student must solve his or her own fraction multiplication problem on the white board, and explain their reasoning to their partner. Next, each pair should decide which product is larger. • While students work on this task, the content educator should circulate and monitor work, selecting which pair(s) might present work at the end of class (if there is time). The content educator may also provide assistance. • <i>Presentations:</i> When all students have finished, the content educator will select one pair to present their problems and solutions to the class as a whole. • While students work on their exit ticket, the content educator will collect the materials. 	<p>Practice with Presentations</p> <ul style="list-style-type: none"> • The special educator will distribute the materials. Each pair of students will receive a dry erase board, markers, and two fraction multiplication problems. • While students work on this task, the special educator should circulate and monitor work, selecting which pair(s) might present work at the end of class (if there is time). The special educator may also provide assistance. • As students finish this task, the special educator will prompt them to share their problems and solutions with another pair who is also finished. • <i>Presentations:</i> When all students have finished, the special educator will select one pair to present their problems and solutions to the class as a whole. • <i>Exit Ticket:</i> The special educator will instruct students to complete an exit ticket. The question for the exit ticket is “How do we multiply fractions?”

Meeting the Needs and Strengths of All Learners:

This co-taught lesson meets the needs of all learners in multiple ways. First, those students who struggle with foundational math skills have the opportunity to practice those skills in an engaging way before conquering the lesson, which allows them to interact with those skills and be more prepared for the new content. Students who are prepared to engage with the new content from the beginning of class are able to do so immediately and are not held back by others in the class. The enrichment opportunity allows those students who understand the new content to apply this new knowledge to a real-life situation instead of requiring them to continue to interact on a basic level with a skill they already can do. The chance for the “middle of the road” students to complete the discovery lesson twice ensures that they are able to understand the material fully before they move on. The choice to group students first homogeneously and then heterogeneously allows students to learn from others who are on their level and those that are not. In addition, breaking up the class into different parts allows for a smaller student to teacher ratio, which helps all students receive more personalized instruction.

Assessment of Student Learning:

Both the content educator and special educator have the opportunity to assess students throughout the lesson. During the first round of the new content lesson, the content teacher can use observation and the Socratic quiz as formative assessments. During the foundation building and enrichment opportunity, the special educator can use observation and student success to monitor if students are applying their skills correctly. Both the content educator and special educator can monitor progress and understanding during the partner work time by interacting with students and asking them questions. This interaction also allows the educators to check progress on socio-emotional development by assessing how students interact with each other. All students will complete an exit ticket asking them to describe how to multiply fractions, and this exit ticket serves as the final assessment for this lesson.

Co-teaching Justification:

These teachers are using parallel co-teaching (Villa, Thousand, and Nevin, 2008) to meet the needs of both the high and the low students through foundation and enrichment activities that occur as other students interact with new content. Without these activities, these students would not have the chance for the extra practice that they need to succeed with the new material. Additionally, co-teaching this lesson allows for smaller groups and therefore more personalized instruction and interaction during a difficult but important topic (Villa, Thousand, and Nevin, 2008). The content educator and special educator also ensure that each has equal weight in the classroom by doing the same tasks at different points. The special educator distributes materials while the content educator gives instructions about the new task, and the content educator collects materials while the special educator gives instruction about the exit ticket. This lets students know that both teachers are valuable sources of knowledge and help in the classroom (Villa, Thousand, and Nevin, 2008).

Reference:

Villa, R. A., Thousand, J. S., & Nevin, A. I. (2008). *A guide to co-teaching* (2nd ed.). Thousand Oaks, CA: Sage.