

6th Grade Tier 2 Intervention Lessons

Readiness Standard 5 - 5.NF.4b

Learning Target: I will multiply fractions

Readiness for 6.NS.1: Multiply and divide fractions

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IES Recommendations for Tier 2 and 3 intervention lessons:

 Instructional materials for students receiving interventions should focus intensely on in-depth treatment of whole numbers in kindergar- ten through grade 5 and on rational numbers in grades 4 through 8. These materials should be selected by committee. 	Low
 Instruction during the intervention should be explicit and systematic. This includes providing models of proficient problem solving, verbalization of thought processes, guided practice, corrective feedback, and frequent cumulative review. 	Strong
4. Interventions should include instruction on solving word problems that is based on common underlying structures.	Strong
 Intervention materials should include opportunities for students to work with visual representations of mathematical ideas and interven- tionists should be proficient in the use of visual representations of mathematical ideas. 	Moderate
6. Interventions at all grade levels should devote about 10 minutes in each session to building fluent retrieval of basic arithmetic facts.	Moderate
7. Monitor the progress of students receiving supplemental instruction and other students who are at risk.	Low
8. Include motivational strategies in tier 2 and tier 3 interventions.	Low

(Institute of Educational Sciences, Assisting Students Struggling with Mathematics: Response to Intervention (RtI) for Elementary and Middle Schools, 2009, p. 6)

Gradual release of responsibility model

Focus Lesson "I do it" Guided Instruction Collaborative "You do it together" Independent "You do it alone"

Figure 1

(Dr. Douglas Fisher, Effective Use of the Gradual Release of Responsibility Model)



Planning Guide: Session 1

6th Grade - Readiness Standard 5 - 5.NF.4b

Learning Target: I will multiply fractions

Readiness for multiplying and dividing fractions

Recommended Actions				
Beginning (15 min.)	 Review the readiness standard with the intervention group using the Guided Review Introduce the learning target and why it is important for future learning Read each question on the Guided Review and ask students to share what they remember from the previous school year. 			
Middle (5 min.)	 Ask students to <u>reflect</u> on their progress towards the learning target What did I remember about the learning target? What did I learn today about the learning target? How confident do I feel about doing the learning target on my own? 			
End (10 min.)	 Assess each student's progress using Quick Check – Form A Guide students to self-correct their Quick Check – Form A Guide students to chart their progress by recording the date and Quick Check score in their Growth Chart Collect each student's Quick Check and Growth Chart 			
After	 Create sub-groups to differentiate the middle of sessions 2 through 8 Group 1 – Include students who did not meet the learning goal Group 2 – Include students who met or exceeded the learning goal 			

6th Grade Fall Guided Review

Readiness Standard 5 - 5.NF.4b

Name___ Date____

Learning Target: I will multiply fractions.

1.

Multiply: $\frac{1}{3} \times \frac{2}{5}$

2.

 $\frac{7}{8} \times \frac{3}{5}$ Multiply:

- $\circ \frac{10}{40}$

3.

 $\frac{3}{4} \times \frac{2}{7}$ Multiply:

6th Grade Winter Guided Review

Readiness Standard 5 - 5.NF.4b

Name_____ Date____

Learning Target: I will multiply fractions.

1.

Multiply: $\frac{1}{4} \times \frac{3}{5}$

- $\bigcirc \frac{4}{20}$
- \circ $\frac{3}{9}$
- $\circ \frac{3}{20}$
- $0 \frac{5}{12}$

2.

Multiply: $\frac{5}{6} \times \frac{1}{7}$

- $\bigcirc \frac{5}{42}$
- \circ $\frac{6}{13}$
- $\circ \frac{6}{35}$
- \circ $\frac{6}{42}$

3.

Multiply: $\frac{2}{3} \times \frac{5}{8}$

- $\circ \frac{7}{24}$
- $\bigcirc \frac{5}{12}$
- $0 \frac{7}{11}$
- $0 \qquad \frac{15}{16}$

6th Grade Spring Guided Review

Readiness Standard 5 - 5.NF.4b

Name_____ Date____

Learning Target: I will multiply fractions.

1.

Multiply: $\frac{1}{5} \times \frac{2}{3}$

- $\circ \frac{3}{10}$
- \circ $\frac{3}{8}$
- $\bigcirc \frac{2}{15}$
- $\bigcirc \frac{3}{15}$

2.

Multiply: $\frac{6}{7} \times \frac{2}{5}$

- $\circ \frac{8}{12}$
- $\bigcirc \frac{12}{35}$
- \circ $\frac{8}{35}$
- $\bigcirc \frac{14}{30}$

3.

Multiply: $\frac{2}{5} \times \frac{5}{6}$

- $0 \frac{12}{25}$
- $\bigcirc \frac{7}{30}$
- $0 \frac{7}{11}$
- $\bigcirc \frac{1}{3}$



Session 1: Self-Reflection

6th Grade - Readiness Standard 5 - 5.NF.4b

Learning Target: I will multiply fractions

Briefly discuss student responses:

- ➤ What did I remember today about multiplying fractions?
- ➤ What did I learn today about multiplying fractions?
- ➤ How confident do I feel about multiplying fractions on my own? (Thumbs up, down, or sideways)

Quick Check - Form A

6th Grade - Readiness Standard 5 - 5.NF.4b

Name______ Date_____

Learning Target: I will multiply fractions.

Directions: Write the answer to each problem. (Work time: 4 minutes)

$$\frac{2}{3} \times \frac{1}{5} =$$

$$\frac{1}{5} \times \frac{3}{8} =$$

$$\frac{6}{7} \times \frac{2}{5} =$$

$$\frac{7}{8} \times \frac{4}{9} =$$

$$\frac{5}{9} \times \frac{3}{10} =$$

$$\frac{3}{4} \times \frac{4}{5} =$$



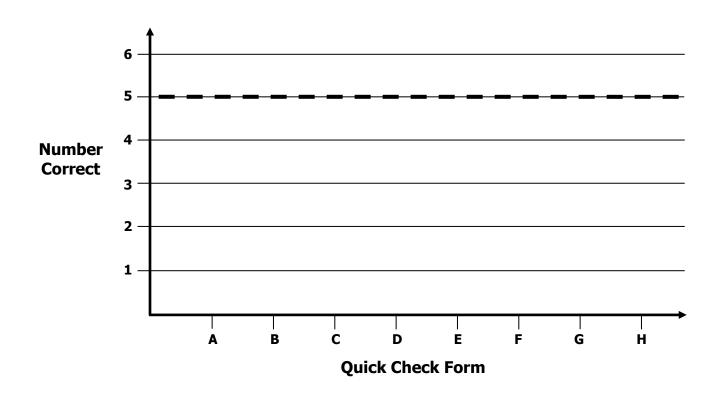
Growth Chart

6th Grade - Readiness Standard 5 - 5.NF.4b

Name	Date
1 Taille	Date

Learning Target: I will multiply fractions.

Goal: 5 out of 6 correct



Intervention	Date	Score
Session 1:		
Session 2:		
Session 3:		
Session 4:		
Session 5:		
Session 6:		
Session 7:		
Session 8:		



Planning Guide: Sessions 2 Through 8

6th Grade - Readiness Standard 5 - 5.NF.4b

Learning Target: I will multiply fractions

Readiness for multiplying and dividing fractions

	Recommended Actions						
Beginning (5 min.)	Review the learning target with the whole group a learning	nd ask each student to set a goal for today's					
Middle (15 min.)	Group 1: (Students who <u>did not</u> meet the learning goal on the previous Quick Check)	Group 2: (Students who met the learning goal)					
	 Model solving a word problem – "I do" Guided Practice – "We do together/ You do together" 	➤ Independent practice — "You do alone"					
	Session 2: Fold and highlight squares to multiply fractions Session 3: Use drawings to multiply fractions Session 4: Use understanding of "parts of" fractions to multiply fractions	Activity: Multiplication Match-up!					
		(Look for additional activities in 5 th grade core instruction resources.)					
End (10 min.)							
After	After Regroup students to differentiate the middle of sessions 3 through 8 Promote students who met the learning goal to group 2 Exit students who met the learning goal for a third time Problem solve with a team to plan additional support for students who did not exit						



Session 2: Modeling (I Do)

6th Grade - Readiness Standard 5 - 5.NF.4b

Learning Target: I will multiply fractions

Readiness for multiplying and dividing fractions

Last night, Benjamin's family ate one-half of a square pizza for dinner. The next day, Benjamin ate one-fourth of the left over pizza for his lunch. How much of the whole pizza did Benjamin eat for lunch?

Session 2: Modeling (I Do – Visual Support)

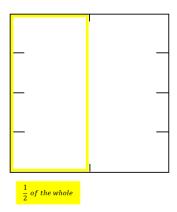
6th Grade - Readiness Standard 5 - 5.NF.4b

Learning Target: I will multiply fractions

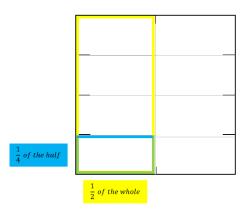
Readiness for multiplying and dividing fractions

Last night, Benjamin's family ate one-half of a square pizza for dinner. The next day, Benjamin ate one-fourth of the left over pizza for his lunch. How much of the whole pizza did Benjamin eat for lunch?

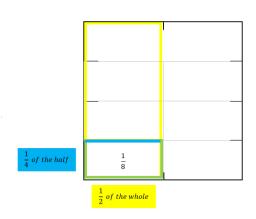
Find 1 half of the whole



Find 1 fourth of the half



Find the part of the whole



$$\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$$



Session 2: Modeling (I Do - Teacher Notes)

6th Grade - Readiness Standard 5 - 5.NF.4b

Learning Target: I will multiply fractions

Readiness for multiplying and dividing fractions

Last night, Benjamin's family ate one-half of a square pizza for dinner. The next day, Benjamin ate one-fourth of the left over pizza for his lunch. How much of the whole pizza did Benjamin eat for lunch?

I am going to think aloud to model solving this problem.

Your job is to watch, listen, think and ask questions.

First, it is important to know what the problem is about.

This problem is about Benjamin eating left-over pizza for lunch.

Second, I need to determine what I need to find.

I need to find how much of the original pizza he ate for lunch.

Third, I need to determine what I know.

I know that he ate 1-fourth of 1-half of the pizza.

Fourth, I need to figure out what I can try.

I am going to try modelling this situation using a square piece of paper.

(Hold up a paper square, use upper right square on page 10, and write the multiplication problem.)

I will begin by folding the square in half to represent the half of the pizza that was not eaten at dinner.

(Fold the square in half and outline it using a yellow highlighter. Open the paper to show students that the highlighted area is half of the whole. Fold it back again to show the highlighted half for the next step.)

Now I need to find 1 fourth of the half.

(Fold the half into fourths, see drawing on page 8, and outline the bottom fourth using blue highlighter.)

This bottom section represents the pizza that Benjamin ate...we need to find it's fractional part of the whole.

(Open the paper to reveal the whole.)

I see that the whole is made up of 8 parts that are all equal to how much Benjamin ate for lunch.

(Trace over the folds with a pencil and count the 8 sections.)

Therefore, this section is equal to 1 eighth of the whole.

(Point to the section and write $\frac{1}{8}$ inside of it.)

It looks like Benjamin ate 1 eighth of the whole pizza for lunch.

Last, I need to make sure that my answer makes sense.

I found that Benjamin ate 1 eighth of the whole pizza for lunch. It makes sense because I represented the pizza with a paper square and folded it to find how much of the whole he ate for lunch.

Finding 1 fourth of 1 half can be represented symbolically with the multiplication problem $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$. (Write the equation and highlight each fraction.)

During our guided practice, we will use fraction squares as tools to multiply fractions together.





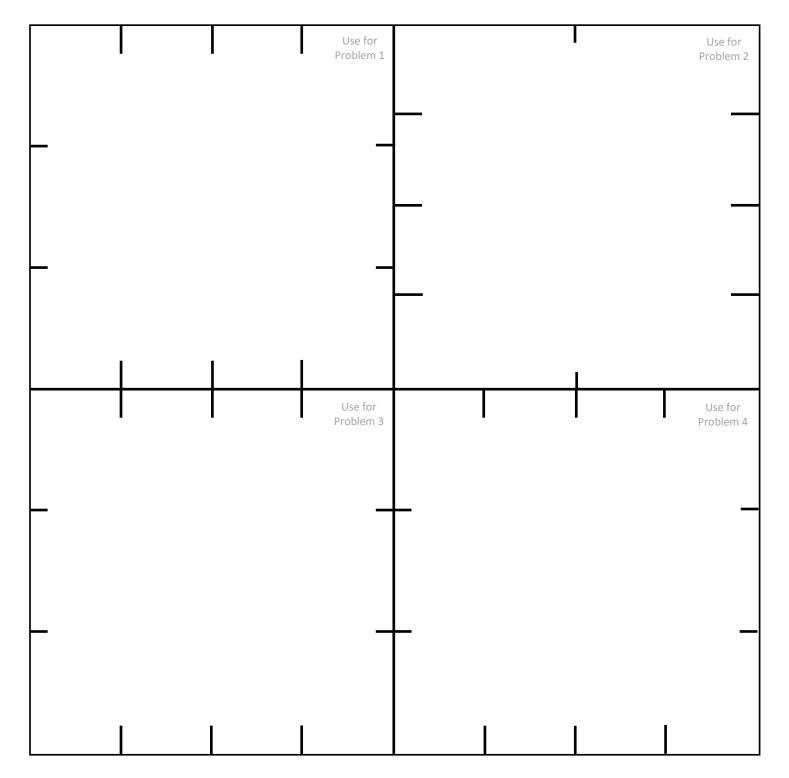
Squares for Multplying (Set 1)

6th Grade - Readiness Standard 5 - 5.NF.4b

Directions: Provide each student 2 sheets of squares for the Guided Practice.

Note: The teacher may use the upper right square for the Modeling problem.

(We Do Together, problems 1-4)





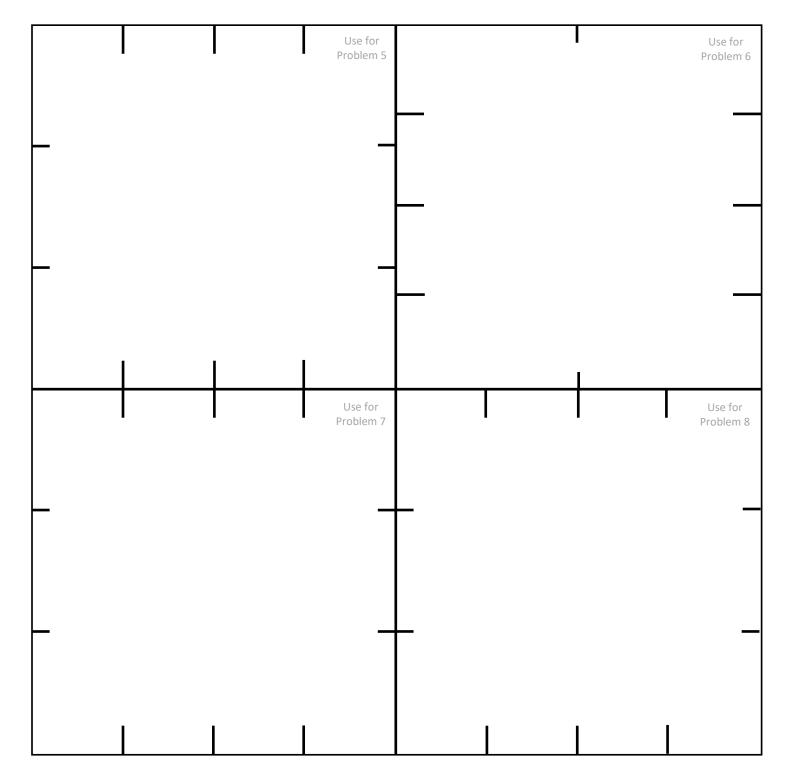
Squares for Multplying (Set 2)

6th Grade - Readiness Standard 5 - 5.NF.4b

Directions: Provide each student 2 sheets of squares for the Guided Practice.

Note: The teacher may use the upper right square for the Modeling problem.

(You Do Together, problems 5-8)





Name _____ Date ____

6th Grade - RS 5 - 5.NF.4b

Learning Target: I will multiply fractions

Session 2: Guided Practice (We Do)

Materials:

- > Templates for Squares (2 sheets per student)
- > 1 yellow and 1 blue highlighter per student

We Do Together: (Teacher Actions)

- > Restate each fraction multiplication problem based on your conceptual understanding.
- > Fold and highlight fraction squares to find each answer.

1.	$\frac{1}{3}$ X $\frac{1}{4}$	2.	$\frac{1}{2} \times \frac{1}{4}$
3.	$\frac{1}{4}$ X $\frac{2}{3}$	4.	$\frac{3}{4}$ X $\frac{1}{3}$

You Do Together: (As a class, or in small groups)

> Students take turns leading to multiply fractions.

5.	$\frac{1}{3}$ X $\frac{2}{4}$	6.	$\frac{1}{2}$ X $\frac{3}{4}$
7.	$\frac{1}{3}$ X $\frac{3}{4}$	8.	$\frac{2}{3}$ \times $\frac{3}{4}$

Session 2: Guided Practice (We Do – Teacher Notes)

Materials:

- Square sheets of paper (8 per student)
- > 1 yellow and 1 blue highlighter per student

We Do Together: (Teacher Actions)



Restate each fraction multiplication problem based on your conceptual understanding.

> Fold and highlight fraction squares to find each answer.

1.

$$\frac{1}{3} \times \frac{1}{4} = \frac{1}{12}$$

2.

$$\frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$$

1 third of 1 fourth is how much of the whole?

1 half of 1 fourth is how much of the whole?

3.

$$\frac{1}{4} \times \frac{2}{3} = \frac{2}{12} = \frac{1}{6}$$

1 fourth of 2 thirds is how much of the whole?

$$\frac{3}{4} \times \frac{1}{3} = \frac{3}{12} = \frac{1}{4}$$

3 fourths of 1 third is how much of the whole?

You Do Together: (As a class, or in small groups)

> Students take turns leading to create 2 examples and 1 non-example for each sharing situation.

5.

$$\frac{1}{3} \times \frac{2}{4} = \frac{2}{12} = \frac{1}{6}$$

1 third of 2 fourths is how much of the whole?

$$\frac{1}{2} \times \frac{3}{4} = \frac{3}{8}$$

1 half of 3 fourths is how much of the whole?

7.

$$\frac{1}{3} \times \frac{3}{4} = \frac{3}{12} = \frac{1}{4}$$

$$3 \times 4$$

1 third of 3 fourths is how much of the whole?

$$\frac{2}{3} \times \frac{3}{4} = \frac{6 \times 1}{12} = \frac{1}{2}$$

2 thirds of 3 fourths is how much of the whole?



Session 2: Self-Reflection

6th Grade - Readiness Standard 5 - 5.NF.4b

Learning Target: I will multiply fractions

Briefly discuss student responses:

- ➤ What did I learn today about multiplying fractions?
- ➤ How confident do I feel about multiplying fractions on my own? (Thumbs up, down, or sideways)

Quick Check - Form B

6th Grade - Readiness Standard 5 - 5.NF.4b

Name______ Date_____

Learning Target: I will multiply fractions.

Directions: Write the answer to each problem. (Work time: 4 minutes)

$$\frac{1}{3} \times \frac{2}{3} =$$

$$\frac{1}{5} \times \frac{1}{6} =$$

$$\frac{8}{9} \times \frac{2}{5} =$$

$$\frac{2}{9} \times \frac{3}{4} =$$

$$\frac{3}{10} \times \frac{6}{7} =$$

$$\frac{3}{4} \times \frac{2}{3} =$$



Session 3: Modeling (I Do)

6th Grade - Readiness Standard 5 - 5.NF.4b

Learning Target: I will multiply fractions

Readiness for multiplying and dividing fractions

Bill and Murray split a giant brownie in half to share. Bill ate two-thirds of his portion and Murray ate three-fourths of his portion. How much of the giant brownie did Bill eat?

Session 3: Modeling (I Do – Visual Support)

6th Grade - Readiness Standard 5 - 5.NF.4b

Learning Target: I will multiply fractions

Readiness for multiplying and dividing fractions

Bill and Murray split a giant brownie in half to share. Bill ate two-thirds of his portion and Murray ate three-fourths of his portion. How much of the giant brownie did Bill eat?

1 Whole Giant Brownie

$$\frac{2}{3} \times \frac{1}{2} = \frac{2}{6} = \frac{1}{3}$$

 $\frac{1}{6}$ $\frac{1}{6}$ Bill's Half

 $\frac{2}{3}$ of Bill's half



Session 3: Modeling (I Do - Teacher Notes)

6th Grade - Readiness Standard 5 - 5.NF.4b

Learning Target: I will multiply fractions

Readiness for multiplying and dividing fractions

Bill and Murray split a giant brownie in half to share. Bill ate two-thirds of his portion and Murray ate three-

fourths of his portion. How much of the giant brownie did Bill eat?

I am going to think aloud to model solving this problem.

Your job is to watch, listen, think and ask questions.

First, it is important to know what the problem is about.

This problem is about Bill and Murray sharing a giant brownie.

Second, I need to determine what I need to find.

I need to find how much of the giant brownie Bill ate.

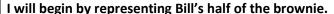
Third, I need to determine what I know.

I know that Bill ate 2 thirds of his half of the brownie.

Fourth, I need to figure out what I can try.

I am going to try using an area drawing to find the part of the whole.

(Write the multiplication problem above the square.)



(Use the guide for drawing fractions and draw a line separating the 2 halves, outline the left half with a yellow highlighter and label it as "Bill's Half".)

Now I need to find 2 thirds of Bill's half.

(Use the guide for drawing fractions and draw 2 lines that separate Bill's half into 3 equal parts, outline it with a blue highlighter and label it as " $\frac{2}{3}$ of Bill's Half".)



Since the whole is made up of 6 equal parts, then each part is equal to 1 sixth.

(Write " $\frac{1}{6}$ " in the bottom left section.)

And, since Bill ate 2 of the parts, then he at 2 sixths of the whole brownie.

(Write $\frac{u^2}{6}$ as the answer to the problem above.)

2 sixths can be simplified because the numerator and denominator have a common factor of 2.

(Draw an arrow and write "2 x" next to the numerator and denominator)

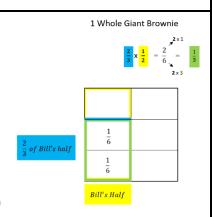
The numerator is equal to 2 times 1 and the denominator is equal to 2 times 3.

(Complete the expressions "2 x 1" by the numerator and "2 x 3" by the denominator.)

So, 2 sixths is simplified to 1 third. (Write the answer $\frac{1}{3}$.)

Last, I need to make sure that my answer makes sense.

I found that Bill ate 1 third of the whole brownie. It makes sense because I represented the brownie with a square and separated it into fractional parts to find how much of the whole he ate.

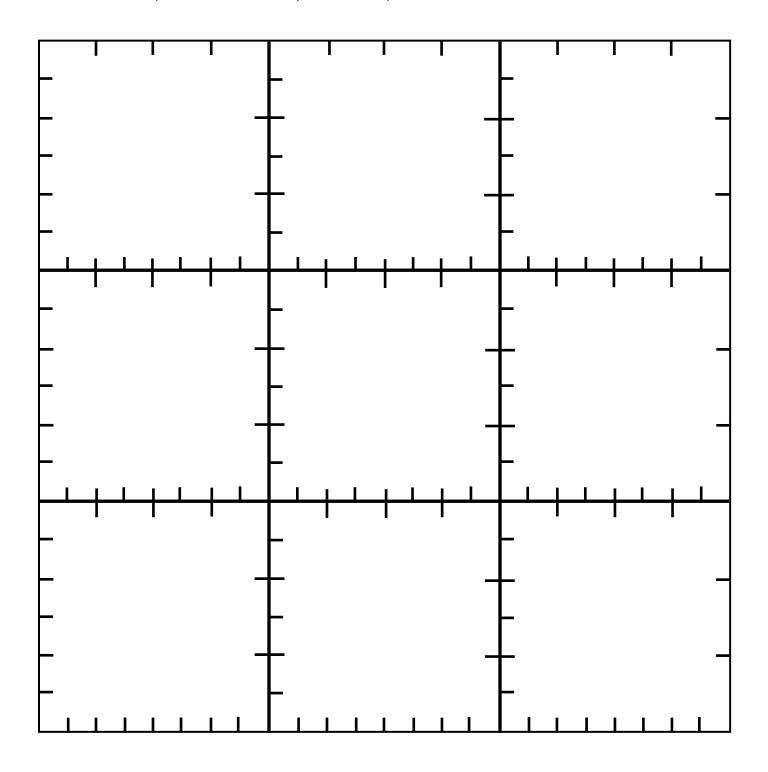




Guides for Drawing Fractions

Directions: Copy on cardstock and cut out 1 square per student.

Note: The sides of each square provide a guide to draw thirds, fourths, sixths and eighths. Rotate the square to use the side required for each problem.

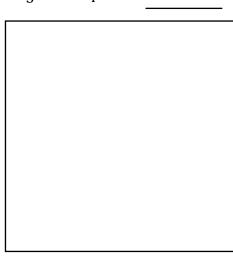


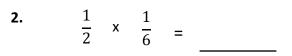
Session 3: Guided Practice (We Do)

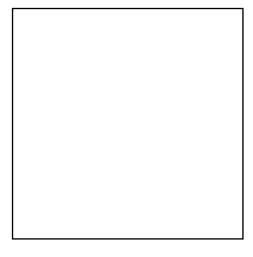
We Do Together: (Teacher Actions)

- ➤ Restate each fraction multiplication problem based on your conceptual understanding. Example: 1 third of 1 fourth is equal to what part of the whole?
- > Use the square guide to help you draw the fractions given in each problem.

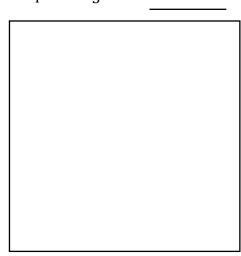
1.	1		1			
	3	Х	$\overline{4}$	=		







3.
$$\frac{1}{4}$$
 x $\frac{2}{3}$ = _____



4.
$$\frac{3}{4} \times \frac{5}{8} =$$

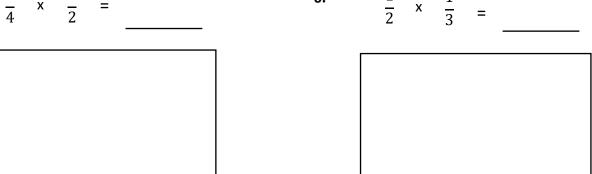
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Session 3: Guided Practice (We Do Continued)

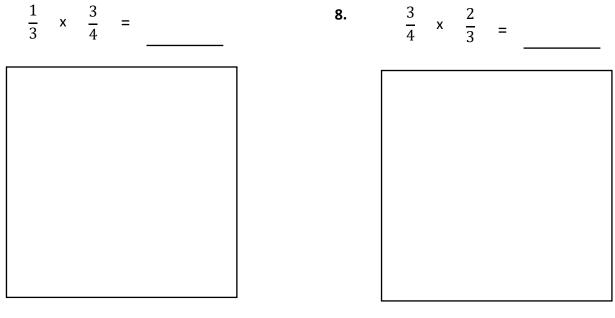
You Do Together: (As a class, or in small groups)

- > Students take turns restating each fraction multiplication problem.
- ➤ Use the square guide to help you draw the fractions given in each problem.

5.	$\frac{1}{4}$	х	$\frac{1}{2}$	=		
	4	^	2	_		



7.
$$\frac{1}{3} \times \frac{3}{4} =$$



Session 3: Guided Practice (We Do – Teacher Notes)

We Do Together: (Teacher Actions)

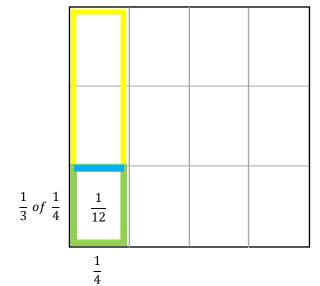
- > Restate each fraction multiplication problem based on your conceptual understanding. Example: 1 third of 1 fourth is equal to what part of the whole?
- > Use the square below to find each answer.

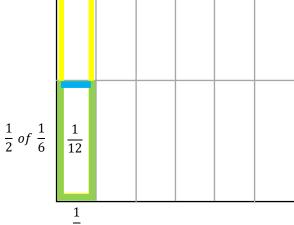
1.

$$\frac{1}{3}$$
 x $\frac{1}{4}$ = $\frac{1}{12}$

2.

$$\frac{1}{2}$$
 x $\frac{1}{6}$ = $\frac{1}{12}$



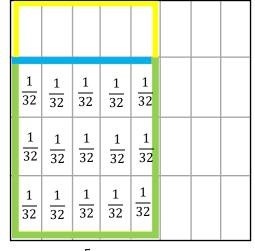


3.

$$\frac{1}{4}$$
 x $\frac{2}{3}$ = $\frac{2}{12}$ = $\frac{1}{6}$

$$\frac{3}{4}$$
 x $\frac{5}{8}$ = $\frac{15}{32}$

 $\frac{3}{4}$ of $\frac{5}{8}$



 $\frac{2}{3}$



Session 3: Self-Reflection

6th Grade - Readiness Standard 5 - 5.NF.4b

Learning Target: I will multiply fractions

Briefly discuss student responses:

- ➤ What did I learn today about multiplying fractions?
- ➤ How confident do I feel about multiplying fractions on my own? (Thumbs up, down, or sideways)

Quick Check - Form C

6th Grade - Readiness Standard 5 - 5.NF.4b

Name______ Date_____

Learning Target: I will multiply fractions.

Directions: Write the answer to each problem. (Work time: 4 minutes)

1.

$$\frac{3}{4} \times \frac{3}{5} =$$

$$\frac{4}{5} \times \frac{1}{2} =$$

3.

$$\frac{5}{7} \times \frac{2}{5} =$$

$$\frac{3}{10} \times \frac{5}{6} =$$

5.

$$\frac{6}{7} \times \frac{3}{8} =$$

$$\frac{3}{5} \times \frac{5}{5} =$$

Session 4: Modeling (I Do)

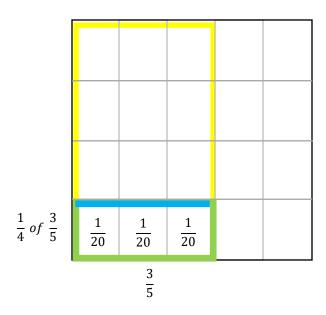
6th Grade - Readiness Standard 5 - 5.NF.4b

Learning Target: I will multiply fractions

Readiness for multiplying and dividing fractions

Jenn used an area drawing to find the answer to $\frac{1}{4}$ X $\frac{3}{5}$. Look for structure in her drawing that would help you multiply fractions without making a drawing.

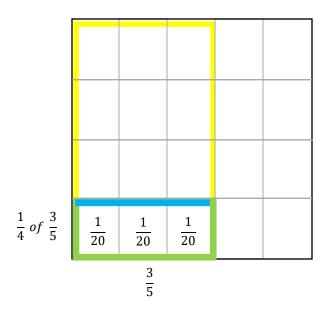
$$\frac{1}{4} \times \frac{3}{5} = \frac{3}{20}$$



Readiness for multiplying and dividing fractions

Jenn used an area drawing to find the answer to $\frac{1}{4} \times \frac{3}{5}$. Look for structure in her drawing that would help you multiply fractions without making a drawing.

Number of parts
$$\frac{1}{4} \times \frac{3}{5} = \frac{3}{20} = \frac{\frac{1 \times 3}{4 \times 5}}{\frac{1}{4 \times 5}}$$
Size of each part





Session 4: Modeling (I Do - Teacher Notes)

6th Grade - Readiness Standard 5 - 5.NF.4b

Learning Target: I will multiply fractions

Readiness for multiplying and dividing fractions

Jenn used an area drawing to find the answer to $\frac{1}{4} \times \frac{3}{5}$. Look for structure in her drawing that would help you multiply fractions without making a drawing.

I am going to think aloud to model solving this problem.

Your job is to watch, listen, think and ask questions.

First, it is important to know what the problem is about.

This problem is about Jenn using an area drawing to multiply fractions.

Second, I need to determine what I need to find.

I need to find structure in the drawing to help multiply fractions without making a drawing.

Third, I need to determine what I know.

I know that 1 fourth times 3 fifths is the same as finding 1 fourth of 3 fifths.

Fourth, I need to figure out what I can try.

I am going to try looking for structure in the drawing.

I see that the size of each part in the answer is twentieths.

(Point to the 3 twentieths in the drawing.)

I notice that multiplying the denominators, 4 and 5, is equal to 20.

(Write "= $\frac{1}{4 \times 5}$ " next to the problem.)

The multiplication problem "4 times 5" can also be seen in the drawing.

(Point to the 4 parts separated horizontally and the 5 parts separated vertically.)

Also, I see that the number of parts in the answer is 3.

(Point and count each of the 3 twentieths in the drawing.)

I also notice that multiplying the numerators, 1 and 3 is equal to 3.

(Write the numerators "1 x 3" next to the problem.)

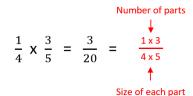
The multiplication problem "1 times 3" can also be seen in the drawing.

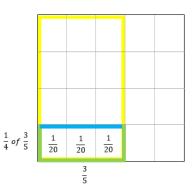
(Point to the 1 by 3 rectangle that represents the answer.)

So, anytime I need to multiply two fractions I can always multiply the denominators together to find the size of the parts in the answer, then the numerators to find the number of parts.

Last, I need to make sure that my answer makes sense.

I found that I might be able to multiply fractions without using a drawing. It makes sense because the denominators tell us how many parts make up a whole and the numerators tell us how many parts we have... let's see if it works for the guided practice problems.







Name	Date
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6th Grade - RS 5 - 5.NF.4b

Learning Target: I will multiply fractions

Session 4: Guided Practice (We Do)

We Do Together: (Teacher Actions)

- > Fold your paper to hide the math drawings. Then, multiply to find each answer and simplify, if needed.
- > Use the drawing to check if your answer is correct.

	Multiply and Simplify	Check Your Work
1. $\frac{1}{3} \times \frac{1}{4}$		$\frac{1}{3}$ of $\frac{1}{4}$ $\frac{1}{12}$ $\frac{1}{4}$
2. $\frac{1}{2} \times \frac{3}{4}$		$\frac{1}{2} \text{ of } \frac{3}{4}$ $\frac{1}{8} \qquad \frac{1}{8} \qquad \frac{1}{8}$ $\frac{3}{4}$
3. $\frac{1}{4} \times \frac{2}{3}$		$\frac{1}{4} \text{ of } \frac{2}{3}$ $\frac{1}{12} \qquad \frac{1}{12}$ $\frac{2}{3}$
4. $\frac{3}{4} \times \frac{4}{5}$		$\frac{3}{4} \text{ of } \frac{4}{5}$ $\frac{1}{20}$ $\frac{4}{5}$



Name Date

6th Grade - RS 5 - 5.NF.4b

Learning Target: I will multiply fractions

Session 4: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

- > Fold your paper to hide the math drawings.
- > Students take turns leading to multiply fractions, simplify answers if needed and check your work.

	Multiply and Simplify	Check Your Work
5. $\frac{1}{4} \times \frac{1}{2}$		$\frac{1}{4} \text{ of } \frac{1}{2}$ $\frac{1}{8}$ $\frac{1}{2}$
6. $\frac{1}{2} \times \frac{3}{5}$		$ \frac{1}{2} \text{ of } \frac{3}{5} \qquad \frac{1}{10} \qquad \frac{1}{10} \qquad \frac{1}{10} \qquad \frac{3}{5} $
7. $\frac{3}{4} \times \frac{2}{3}$		$ \frac{1}{12} \qquad \frac{1}{12} \\ \frac{1}{12} \qquad \frac{1}{12} \\ \frac{1}{12} \qquad \frac{1}{12} \\ \frac{1}{12} \qquad \frac{1}{12} $ $ \frac{2}{3}$
8. $\frac{2}{3} \times \frac{7}{8}$		$\frac{2}{3}$ of $\frac{7}{8}$ $\frac{1}{24}$ $\frac{7}{8}$

6th Grade - RS 5 - 5.NF.4b

Learning Target: I will multiply fractions

Session 4: Guided Practice (We Do – Teacher Notes)

We Do Together: (Teacher Actions)

- > Fold your paper to hide the math drawings. Then, multiply to find each answer and simplify, if needed.
- > Use the drawing to check if your answer is correct.

	Multiply and Simplify	Check Your Work
1. $\frac{1}{3} \times \frac{1}{4}$	$\frac{1\times1}{3\times4} = \frac{1}{12}$	$\frac{1}{3}$ of $\frac{1}{4}$ $\frac{1}{12}$ $\frac{1}{4}$
2. $\frac{1}{2} \times \frac{3}{4}$	$\frac{1\times3}{2\times4} = \frac{3}{8}$	$ \frac{1}{2} \text{ of } \frac{3}{4} \\ \frac{1}{8} \frac{1}{8} \frac{1}{8} \\ \frac{3}{4} $
3. $\frac{1}{4} \times \frac{2}{3}$	$\frac{1 \times 2}{4 \times 3} = \frac{2}{12} = \frac{1}{6}$ 2×6	$\frac{1}{4} \text{ of } \frac{2}{3}$ $\frac{1}{12} \qquad \frac{1}{12}$ $\frac{2}{3}$
4. $\frac{3}{4} \times \frac{4}{5}$	$\frac{3 \times 4}{4 \times 5} = \frac{12}{20} = \frac{3}{5}$ 4×5	$\frac{3}{4}$ of $\frac{4}{5}$ $\frac{1}{20}$ $\frac{4}{5}$



Session 4: Self-Reflection

6th Grade - Readiness Standard 5 - 5.NF.4b

Learning Target: I will multiply fractions

Briefly discuss student responses:

- ➤ What did I learn today about multiplying fractions?
- ➤ How confident do I feel about multiplying fractions on my own? (Thumbs up, down, or sideways)

Quick Check - Form D

6th Grade - Readiness Standard 5 - 5.NF.4b

Name_____ Date____

Learning Target: I will multiply fractions.

Directions: Write the answer to each problem. (Work time: 4 minutes)

$$\frac{1}{4} \times \frac{3}{5} =$$

$$\frac{2}{5} \times \frac{2}{3} =$$

$$\frac{5}{6} \times \frac{4}{5} =$$

$$\frac{7}{10} \times \frac{3}{4} =$$

$$\frac{8}{9} \times \frac{2}{4} =$$

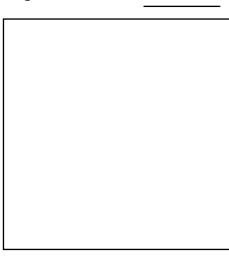
$$\frac{2}{3} \times \frac{3}{5} =$$

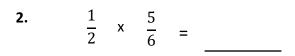
Session 5: Guided Practice (We Do)

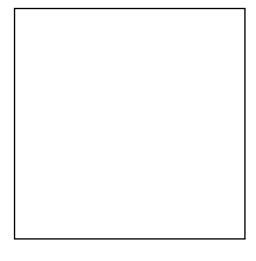
We Do Together: (Teacher Actions)

- Restate each fraction multiplication problem based on your conceptual understanding. Example: 1 third of 1 fourth is equal to what part of the whole?
- > Use the square guide to help you draw the fractions given in each problem.

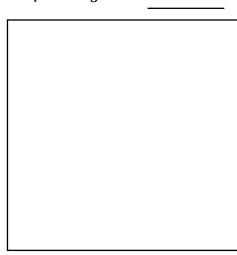
1.	$\frac{2}{3}$	х	$\frac{1}{4}$	=	
	3		4		







3.
$$\frac{3}{4}$$
 x $\frac{2}{3}$ = _____



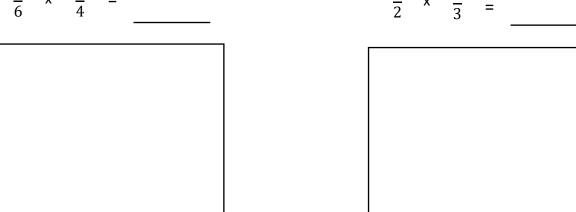
4.
$$\frac{1}{4} \times \frac{5}{8} =$$

Session 5: Guided Practice (We Do Continued)

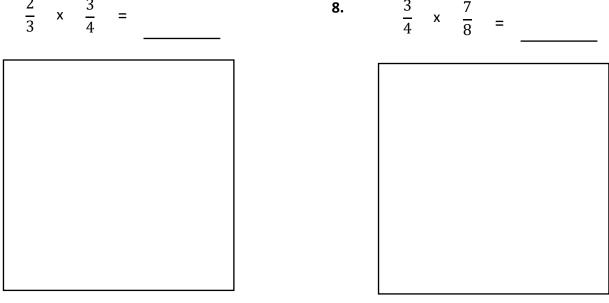
You Do Together: (As a class, or in small groups)

- > Students take turns restating each fraction multiplication problem.
- ➤ Use the square guide to help you draw the fractions given in each problem.

$\frac{1}{6}$ x $\frac{3}{4}$ =	
_ ^	



7.
$$\frac{2}{3} \times \frac{3}{4} =$$





Session 5: Self-Reflection

6th Grade - Readiness Standard 5 - 5.NF.4b

Learning Target: I will multiply fractions

Briefly discuss student responses:

- ➤ What did I learn today about multiplying fractions?
- ➤ How confident do I feel about multiplying fractions on my own? (Thumbs up, down, or sideways)

Quick Check - Form E

6th Grade - Readiness Standard 5 - 5.NF.4b

Name______ Date_____

Learning Target: I will multiply fractions.

Directions: Write the answer to each problem. (Work time: 4 minutes)

$$\frac{2}{3} \times \frac{1}{5} =$$

$$\frac{1}{5} \times \frac{3}{8} =$$

$$\frac{6}{7} \times \frac{2}{5} =$$

$$\frac{7}{8} \times \frac{4}{9} =$$

$$\frac{5}{9} \times \frac{3}{10} =$$

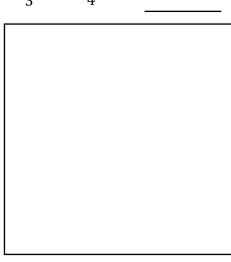
$$\frac{3}{4} \times \frac{4}{5} =$$

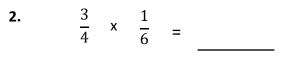
Session 6: Guided Practice (We Do)

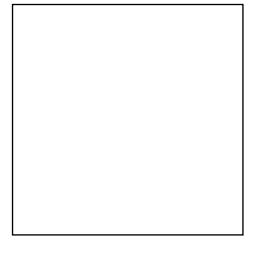
We Do Together: (Teacher Actions)

- ➤ Restate each fraction multiplication problem based on your conceptual understanding. Example: 1 third of 1 fourth is equal to what part of the whole?
- > Use the square guide to help you draw the fractions given in each problem.

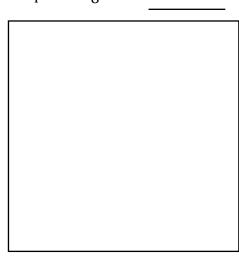
1.	$\frac{1}{3}$	х	$\frac{3}{4}$	=	







3.
$$\frac{1}{4} \times \frac{7}{8} =$$



4.
$$\frac{2}{3} \times \frac{5}{6} =$$

43

Learning Target: I will multiply fractions

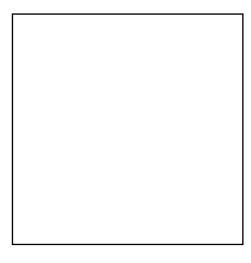
Session 6: Guided Practice (We Do Continued)

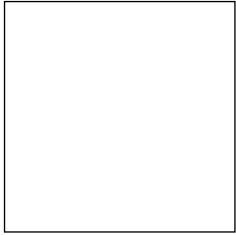
You Do Together: (As a class, or in small groups)

- > Students take turns restating each fraction multiplication problem.
- ➤ Use the square guide to help you draw the fractions given in each problem.

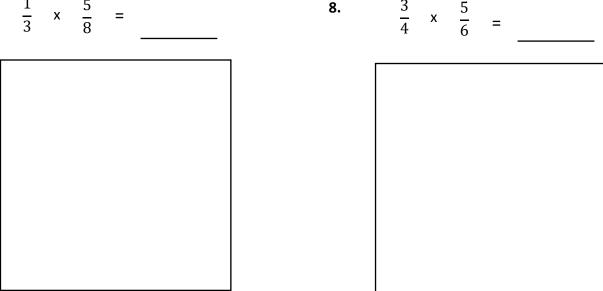
5.	1		2	
•	$\overline{4}$	Х	3	=

6.
$$\frac{1}{2} \times \frac{3}{4} =$$





7.
$$\frac{1}{3} \times \frac{5}{8} =$$





Session 6: Self-Reflection

6th Grade - Readiness Standard 5 - 5.NF.4b

Learning Target: I will multiply fractions

Briefly discuss student responses:

- ➤ What did I learn today about multiplying fractions?
- ➤ How confident do I feel about multiplying fractions on my own? (Thumbs up, down, or sideways)

Quick Check - Form F

6th Grade - Readiness Standard 5 - 5.NF.4b

Name______ Date_____

Learning Target: I will multiply fractions.

Directions: Write the answer to each problem. (Work time: 4 minutes)

1.

$$\frac{1}{3} \times \frac{2}{3} =$$

2.

$$\frac{1}{5} \times \frac{1}{6} =$$

3.

$$\frac{8}{9} \times \frac{2}{5} =$$

4.

$$\frac{2}{9} \times \frac{3}{4} =$$

5.

$$\frac{3}{10} \times \frac{6}{7} =$$

6.

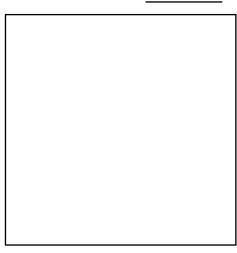
$$\frac{3}{4} \times \frac{2}{3} =$$

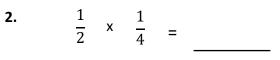
Session 7: Guided Practice (We Do)

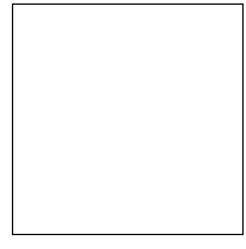
We Do Together: (Teacher Actions)

- Restate each fraction multiplication problem based on your conceptual understanding. Example: 1 third of 3 fourths is equal to what part of the whole?
- Multiply to find the size of each part and number of parts.
- > Sketch the multiplication problem to check your answer.

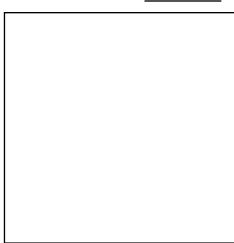
1.	1	v	3	_
	3	^	5	_







3.
$$\frac{3}{4}$$
 x $\frac{2}{3}$ =



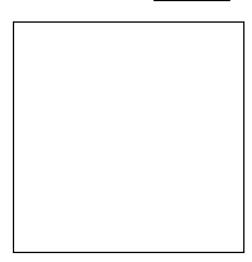
4.
$$\frac{1}{3} \times \frac{5}{8} =$$

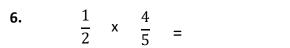
Session 7: Guided Practice (We Do Continued)

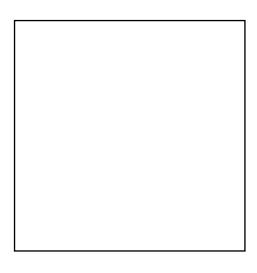
You Do Together: (As a class, or in small groups)

> Students take turns leading to restating each fraction multiplication problem. Then, multiply the fractions and sketch the problem to check your answer.

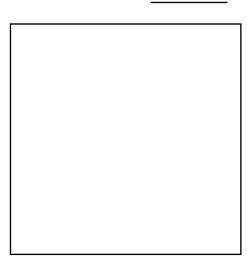
5.
$$\frac{3}{4} \times \frac{2}{3} =$$



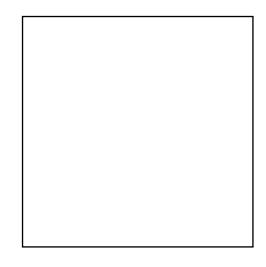




7.
$$\frac{1}{4} \times \frac{5}{6} =$$



8.
$$\frac{3}{4}$$
 x $\frac{7}{8}$ =





Session 7: Self-Reflection

6th Grade - Readiness Standard 5 - 5.NF.4b

Learning Target: I will multiply fractions

Briefly discuss student responses:

- ➤ What did I learn today about multiplying fractions?
- ➤ How confident do I feel about multiplying fractions on my own? (Thumbs up, down, or sideways)

Quick Check - Form G

6th Grade - Readiness Standard 5 - 5.NF.4b

Name_____ Date____

Learning Target: I will multiply fractions.

Directions: Write the answer to each problem. (Work time: 4 minutes)

$$\frac{3}{4} \times \frac{3}{5} =$$

$$\frac{4}{5} \times \frac{1}{2} =$$

$$\frac{5}{7} \times \frac{2}{5} =$$

$$\frac{3}{10} \times \frac{5}{6} =$$

$$\frac{6}{7} \times \frac{3}{8} =$$

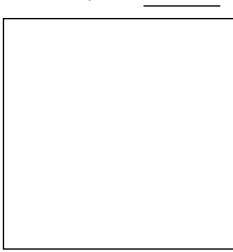
$$\frac{3}{5} \times \frac{5}{5} =$$

Session 8: Guided Practice (We Do)

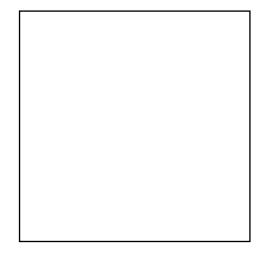
We Do Together: (Teacher Actions)

- Restate each fraction multiplication problem based on your conceptual understanding. Example: 1 third of 3 fourths is equal to what part of the whole?
- Multiply to find the size of each part and number of parts.
- > Sketch the multiplication problem to check your answer.

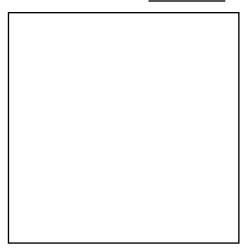
1.	$\frac{1}{2}$	х	$\frac{3}{5}$	=		
			_			



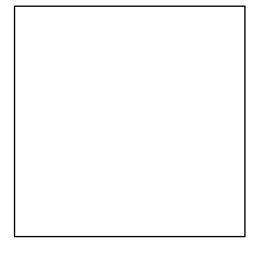
2.
$$\frac{1}{3} \times \frac{3}{4} =$$



3.
$$\frac{3}{4}$$
 x $\frac{2}{5}$ =



4.
$$\frac{2}{3} \times \frac{5}{8} =$$

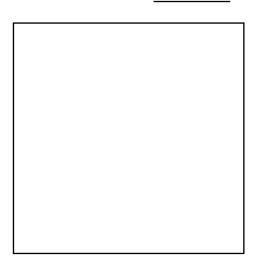


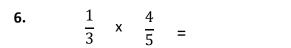
Session 8: Guided Practice (We Do Continued)

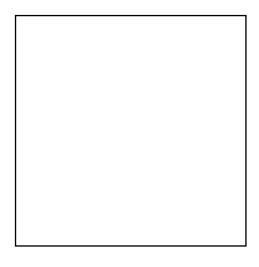
You Do Together: (As a class, or in small groups)

> Students take turns leading to restating each fraction multiplication problem. Then, multiply the fractions and sketch the problem to check your answer.

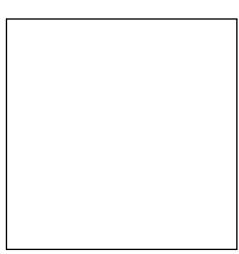
5.
$$\frac{1}{4}$$
 x $\frac{2}{3}$ =



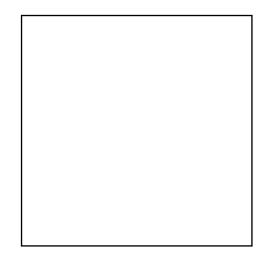




7.
$$\frac{3}{4}$$
 x $\frac{5}{6}$ = _____



8.
$$\frac{2}{4} \times \frac{3}{8} =$$





Session 8: Self-Reflection

6th Grade - Readiness Standard 5 - 5.NF.4b

Learning Target: I will multiply fractions

Briefly discuss student responses:

➤ What did I learn today about multiplying fractions?

➤ How confident do I feel about multiplying fractions on my own? (Thumbs up, down, or sideways)

Quick Check - Form H

6th Grade - Readiness Standard 5 - 5.NF.4b

Name	Date
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Learning Target: I will multiply fractions.

Directions: Write the answer to each problem. (Work time: 4 minutes)

$$\frac{1}{4} \times \frac{3}{5} =$$

$$\frac{2}{5} \times \frac{2}{3} =$$

$$\frac{5}{6} \times \frac{4}{5} =$$

$$\frac{7}{10} \times \frac{3}{4} =$$

$$\frac{8}{9} \times \frac{2}{4} =$$

$$\frac{2}{3} \times \frac{3}{5} =$$



Independent Practice (You Do)

6th Grade - Readiness Standard 5 - 5.NF.4b

Learning Target: I will multiply fractions

Readiness for multiplying and dividing fractions

Title of Game: Play "Multiplication Match-up!"

Number of Players: 2

Objective: To match your answer cards to unknown problem cards.

Materials:

- > 1 set of **Problem** and **Answer** cards per group
- > 1 recording sheet per player

Set-up:

- > Deal all 10 **Problem** cards face down in a row.
- Deal 5 Answer cards face up to each player.

Directions:

- > Player 1 goes first
 - o Take a card from the row of face down **Problem** cards and turn it face up
 - Write the problem on the recording sheet
 - o And, find the answer in simplest form
- > If **Player 1** has the **Answer** card, place it face up on top of the **Problem** card, take both cards and say:

"The answer to ____ is equal to ____."

- If **Player 1** does not have the answer to the **Problem** card, turn the **Problem** card back over.
- Players 1 and 2 alternate turns. The winner is the first player to match all 5 of their cards.



Names	Date

6th Grade - RS 5 - 5.NF.4b

Learning Target: I will multiply fractions

Independent Practice: Multiplication Match-up!

(Recording Sheet)

Problem Cards (Set A)

6th Grade - Readiness Standard 5 - 5.NF.4b

Storage Suggestions: Copy the Problem (Set A) cards and Answer (Set A) cards in two different colors.

Store 1 set of each in a sealable bag for each pair of students.

	_			
	$\frac{1}{2}$ \times $\frac{1}{3}$	$\frac{1}{2}$ \times $\frac{2}{3}$	$\frac{1}{2}$ x $\frac{3}{4}$	$\frac{1}{2}$ x $\frac{2}{5}$
Set A ₁	$\frac{1}{2}$ x $\frac{4}{5}$	$\frac{1}{3}$ x $\frac{3}{4}$	$\frac{1}{3}$ x $\frac{3}{5}$	$\frac{2}{3}$ x $\frac{1}{4}$
	$\frac{2}{3} \times \frac{3}{4}$	$\frac{1}{4} \times \frac{2}{5}$ Set A	Set A	Set A
	$\frac{1}{2} \times \frac{1}{3}$	$\frac{1}{2} \times \frac{2}{3}$ Set A	$\frac{1}{2} \times \frac{3}{4}$	$\frac{1}{2}$ x $\frac{2}{5}$
Set A ₂	$\frac{1}{2}$ \times $\frac{4}{5}$	$\frac{1}{3} \times \frac{3}{4}$	$\frac{1}{3}$ \times $\frac{3}{5}$	$\frac{2}{3} \times \frac{1}{4}$
	$\frac{2}{3} \times \frac{3}{4}$	$\frac{1}{4}$ \times $\frac{2}{5}$		



Answer Cards (Set A)

6th Grade - Readiness Standard 5 - 5.NF.4b

Storage Suggestions: Copy the Problem (Set A) cards and Answer (Set A) cards in two different colors.

Store 1 set of each in a sealable bag for each pair of students.

		'	
1/6	$\frac{1}{3}$	3 8	1/5 Set A
Set A	SetA	Set A	Set A
2 5	$\frac{1}{4}$	1 5	$\frac{1}{6}$
Set A	Set A	Set A	Set A
$\frac{1}{2}$	$\frac{1}{10}$		
Set A	Set A		
$\frac{1}{6}$	$\frac{1}{3}$	$\frac{3}{8}$	$\frac{1}{5}$
2 5 Set A	$\frac{1}{4}$	1 5	$\frac{1}{6}$
Set A	Set A	Jet A	Set A
$\frac{1}{2}$	$\frac{1}{10}$		
Set A	Set A		
	$\frac{2}{5}$ $\frac{1}{2}$ $\frac{1}{6}$ $\frac{2}{5}$ $\frac{2}{5}$ $\frac{2}{5}$ $\frac{2}{5}$ $\frac{2}{5}$ $\frac{2}{5}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$



Problem Cards (Set B)

6th Grade - Readiness Standard 5 - 5.NF.4b

Storage Suggestions: Copy the Problem (Set B) cards and Answer (Set B) cards in two different colors.

Store 1 set of each in a sealable bag for each pair of students.

		or each in a sealable bag for ea	en pan or stadents.	
	$\frac{1}{2} \times \frac{1}{6}$	$\frac{1}{2} \times \frac{3}{6}$	$\frac{2}{3} \times \frac{3}{6}$	$\frac{2}{3}$ x $\frac{4}{6}$
Set B ₁	$\frac{2}{3} \times \frac{1}{6}$	$\frac{1}{4}$ x $\frac{2}{5}$	$\frac{3}{4}$ x $\frac{4}{5}$	$\frac{3}{4}$ x $\frac{5}{6}$
	Set B	Set B	Set B	Set B
	$\frac{2}{5}$ x $\frac{3}{8}$	$\frac{4}{5}$ \times $\frac{3}{8}$		
	Set B	Set B		
	$\frac{1}{2}$ x $\frac{1}{6}$	$\frac{1}{2} \times \frac{3}{6}$	$\frac{2}{3} \times \frac{3}{6}$	$\frac{2}{3}$ \times $\frac{4}{6}$
	30.5			33.2
Set B ₂	$\frac{2}{3}$ x $\frac{1}{6}$	$\frac{1}{4}$ \times $\frac{2}{5}$	$\frac{3}{4}$ x $\frac{4}{5}$	$\frac{3}{4}$ x $\frac{5}{6}$
	Set B	Set B	Set B	Set B
	$\frac{2}{5}$ x $\frac{3}{8}$	$\frac{4}{5}$ \times $\frac{3}{8}$		
	Set B	Set B		



Answer Cards (Set B)

6th Grade - Readiness Standard 5 - 5.NF.4b

Storage Suggestions: Copy the Problem (Set B) cards and Answer (Set B) cards in two different colors.

Store 1 set of each in a sealable bag for each pair of students.

	$\frac{1}{12}$ Set B	$\frac{1}{4}$ Set B	$\frac{1}{3}$	$\frac{4}{9}$
Set B ₁	1 9	$\frac{1}{10}$	3 5	5 8
	Set B	Set B	Set B	Set B
	$\frac{3}{20}$	$\frac{3}{10}$ Set B		
	Set B	Set B		
	$\frac{1}{12}$ Set B	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{4}{9}$
Set B ₂	$\frac{1}{9}$	$\frac{1}{10}$	3 5	<u>5</u> 8
	Set B	Set B	Set B	Set B
	$\frac{3}{20}$	$\frac{3}{10}$		
	Set B	Set B		



Problem Cards (Set C)

6th Grade - Readiness Standard 5 - 5.NF.4b

Storage Suggestions: Copy the Problem (Set C) cards and Answer (Set C) cards in two different colors.

Store 1 set of each in a sealable bag for each pair of students.

	$\frac{1}{2} \times \frac{5}{6}$	$\frac{2}{3} \times \frac{9}{10}$	$\frac{1}{3} \times \frac{9}{10}$	$\frac{1}{4} \times \frac{4}{5}$
Set C ₁	$\frac{3}{4}$ x $\frac{4}{5}$	$\frac{2}{3}$ x $\frac{7}{10}$	$\frac{3}{5}$ \times $\frac{5}{8}$	$\frac{5}{6}$ \times $\frac{3}{8}$
	Set C	Set C	Set C	Set C
	$\frac{5}{9} \times \frac{3}{10}$	$\frac{2}{9}$ \times $\frac{3}{8}$		
	$\frac{1}{2} \times \frac{5}{6}$	$\frac{2}{3} \times \frac{9}{10}$	$\frac{1}{3}$ x $\frac{9}{10}$	$\frac{1}{4}$ \times $\frac{4}{5}$
Set C ₂	$\frac{3}{4}$ x $\frac{4}{5}$	$\frac{2}{3} \times \frac{7}{10}$	$\frac{3}{5}$ x $\frac{5}{8}$	$\frac{5}{6}$ x $\frac{3}{8}$
	Set C	Set C	Set C	Set C
	$\frac{5}{9} \times \frac{3}{10}$	$\frac{2}{9} \times \frac{3}{8}$		



Answer Cards (Set C)

6th Grade - Readiness Standard 5 - 5.NF.4b

Storage Suggestions: Copy the Problem (Set C) cards and Answer (Set C) cards in two different colors.

Store 1 set of each in a sealable bag for each pair of students.

	$\frac{5}{12}$	$\frac{3}{5}$	$\frac{3}{10}$ Set C	$\frac{1}{5}$
Set C ₁	$\frac{3}{5}$	$\frac{7}{15}$	3 8	5 16
	$\frac{1}{6}$	1 12	36.0	Set C
	$\frac{5}{12}$ Set C	$\frac{3}{5}$	$\frac{3}{10}$	$\frac{1}{5}$
Set C ₂	$\frac{3}{5}$	$\frac{7}{15}$	$\frac{3}{8}$	$\frac{5}{16}$
	$\frac{1}{6}$	1 12 Set C		



Questions for Solving Word Problems

Q_1	
	What is the problem about?
Q_2	
	What do I need to find?
Q ₃	
	What do I know?
Q ₄	
	What can I try?
Q_5	
	Does my answer make sense?



Steps for Solving Word Problems

-	
Q_1 .	What is the problem about?
1	
Oa	What do I need to find?
Q ₂ .	What do theed to jind:
Oa	What do I know?
Q 3.	what do I know:
0	What can I try?
Q4.	what can't try:
Q_5 .	Does my answer make sense?