

Session 19: Multiplication and division of fractions

Session Title	Multiplication and division of fractions
Objective	<ol style="list-style-type: none">1. Understand and apply the concepts of multiplying and dividing fractions.2. Collaborate effectively in groups to solve real-world problems.3. Communicate mathematical thinking and strategies with peers.
Topics/Concept	<ol style="list-style-type: none">1. Understand and apply multiplication of fractions using models.2. Understand and apply the division of fractions using real-life scenarios.
Materials Required	<ol style="list-style-type: none">1. Fraction tiles or strips2. Grid paper or printed fraction models3. Paper plates and scissors (for creating fraction pieces)4. Whiteboard and markers5. fraction cards
Methodology	<ol style="list-style-type: none">1. Activity-based learning: group work2. Experienced learning: relating fractions to real life
Session Duration	90 Minutes

Introduction Activity (20 minutes):

The teacher explains a scenario: “You’ve got a garden bed that covers $\frac{1}{2}$ of your backyard. You want to plant carrots in $\frac{1}{3}$ of that garden bed. How much of your backyard will be used for carrots?”

Step-by-Step Explanation:

1. Start with the whole backyard – think of it as 1 whole.
2. $\frac{1}{2}$ of the backyard is used as a garden bed.
3. That means half of your total space is now dedicated to gardening.
4. Now, you only want to use $\frac{1}{3}$ of that garden bed for carrots.

So you're taking a fraction ($\frac{1}{3}$) of another fraction ($\frac{1}{2}$).

Mathematically, that means you multiply:

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

That means: You can draw a rectangle

Shade half of it (that’s the garden bed).

Then, within the shaded half, divide it into 3 equal parts and shade 1 of them (that’s the carrots).

You’ll see 1 out of the 6 parts of the whole rectangle is shaded — which shows $\frac{1}{6}$.

Main Activity (55 minutes):

Activity 1: Multiply It! (20 minutes)

"Pizza Plate Fractions" (Hands-on Activity)

Divide students into small groups

Instructions:

1. Give each group paper plates.

2. Have them cut the plate into halves, fourths, eighths, etc.
3. Use the slices to represent multiplication of fractions.

Example: Multiply $\frac{2}{3} \times \frac{1}{2}$ using paper pieces and place them on a template.

Group Task:

Key Questions to Ask:

What happens when we multiply two fractions

Is the product bigger or smaller than the original fractions?

Activity 2: Divide and Discover (20 minutes)

Start with a real-world example:

“You have 1 pizza and want to share it with friends. Each person gets $\frac{1}{4}$ of a pizza. How many people can you feed?”

- Use paper models or drawings:
- Cut the pizza into fourths.
- Count how many $\frac{1}{4}$ s in 1 whole: $1 \div \frac{1}{4} = 4$

Explain the Rule (Reciprocal Method). Once they understand the concept:

- Division by a fraction means multiplying by the reciprocal.

$$> 1 \div \frac{1}{4} = 1 \times 4 = 4$$

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

"Sharing Cookies" Division Challenge(15 minutes)

Instructions:

1. Each group gets a “cookie card” with division problems (e.g., You have 3 cookies. Each person gets $\frac{1}{2}$ of a cookie. How many people can you serve?)
2. Use fraction strips or draw on paper to find answers.

3. Groups record solutions and explain their reasoning.

4. Sample Problems:

$$3 \div \frac{1}{2} = ?$$

$$1 \div \frac{1}{4} = ?$$

$$\frac{2}{3} \div \frac{1}{6} = ?$$

$$\frac{5}{4} \div \frac{7}{8} = ?$$

Review Questions (10 minutes):

Bring students together to share:

One multiplication and one division problem they solved

- What was tricky?
- How did their group help each other?

Follow-up Tasks (5 minutes):

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

2. $\frac{5}{8} \times \frac{1}{3}$

3. $2 \div \frac{3}{6}$

4. $\frac{5}{6} \div \frac{7}{8}$

Expected Learning Outcome:

Knowledge building:

- Expert in multiplication and division of fractions

Skill Building:

- Self-awareness
 - Social awareness
 - Responsible decision-making
 - Relationship skills
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Revision #7

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