Session 19: Multiplication and division of fractions

Session Title	Multiplication and division of fractions
Objective	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	1. Understand and apply multiplication of fractions using models. 2. Understand and apply the division of fractions using real-li scenarios.
Materials Required	1. Fraction tiles or strips 2. Grid paper or printed fraction models 3. Paper plates and scissors (for creating fraction pieces) 4. Whiteboard and markers 5. fraction cards
Methodology	1. Activity-based learning: group work 2. 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 1/2 of your backyard. You want to plant carrots in 1/3 of that garden bed. How much of your backyard will be used for carrots?”

Step-by-Step Explanation:

1. 1. Start with the whole backyard – think of it as 1 whole.
2. 2. 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. 3. Now, you only want to use 1/3 of that garden bed for carrots.

So you're taking a fraction (1/3) of another fraction (1/2).

Mathematically, that means you multiply:

1/3 × 1/2 = 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 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. 1. Give each group paper plates.
2. 2. Have them cut the plate into halves, fourths, eighths, etc.
3. 3. Use the slices to represent multiplication of fractions.

Example: Multiply 2/3 × 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 1/4 of a pizza. How many people can you feed?”

- Use paper models or drawings:
- Cut the pizza into fourths.
- Count how many 1/4s in 1 whole: 1 ÷ 1/4 = 4

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

- Division by a fraction means multiplying by the reciprocal.

> 1 ÷ 1/4 = 1 × 4 = 4

2/3 ÷ 1/6 = 2/3 × 6/1 = 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 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 ÷ 1/2 = ?

1 ÷ 1/4 = ?

2/3 ÷ 1/6 = ?

5/4 ÷ 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. ¾ × 2/4
2. 5/8 × 1/3
3. 2 ÷ 3/6
4. 5/6 ÷ 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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