

# Session 16: BODMAS (+, -, ×, ÷)

Session Title	BODMAS (+, -, ×, ÷)
Objectives	<ol style="list-style-type: none"><li>1. Understanding the Order of Operations</li><li>2. Recognize and apply the BODMAS rule solve mathematical expressions.</li><li>3. Identify and differentiate between operations such as addition, subtraction multiplication, division, powers, and brackets.</li></ol>
Topics	<ol style="list-style-type: none"><li>1. What is BODMAS,</li><li>2. Why is BODMAS studied?</li></ol>
Materials required	<ol style="list-style-type: none"><li>1. Chart with BODMAS acronym</li><li>2. Worksheets with practice problems</li></ol>
Methodology	The teacher explains BODMAS with example Students practice through group and indivic work.
Session Duration	90 Minutes

## Introduction activity (25 minutes):

**Give the children problems first .(10 minutes)**

1.  $6 + 4 \times 5 = ?$
2.  $(8 + 2) \times (10 - 4) = ?$
3.  $50 - 6 \times 3 + 8 \div 2 = ?$

- Then ask the students to find the answer.
- They will get different types of answers
- Then analyze why everyone gets different answers instead of the same ones.
- Then tell the children that we need to follow some rules to ensure that everyone gets the same correct answers

### Then introduce BODMAS (15 minutes)

BODMAS stands for Brackets, Orders, Division/Multiplication, Addition/Subtraction. It is a rule used to determine the order of operations when solving mathematical expressions.

### Steps of Solving BODMAS

1. **B - Brackets** ( Solve anything inside ( ), [ ], or { } first .Example:  $(3 + 2) \times 4 \rightarrow 5 \times 4 = 20$ )
2. **O - Orders** (Calculate exponents (powers) or roots. Example:  $2^2 = 4$ )
3. **D - Division** (Do any division from left to right.)
4. **M - Multiplication** (Do any multiplication from left to right)
5. **A - Addition** (Do any addition from left to right)
6. **S - Subtraction** (Do any subtraction from left to right)

## Main Activity (

### Practice session ( 30 minutes )

**Solve:**

$$8+4 \times 3-6 \div 2$$

### Solution

1. According to BODMAS (Brackets, Orders (powers & roots), Division and Multiplication, Addition and Subtraction), we first handle multiplication and division from left to right, then addition and subtraction.

2. Multiply and divide first:  $8+(4\times 3)-(6\div 2)=8+12-3$

3. Then, perform addition and subtraction from left to right:

$$8+12=20, 20-3=17, \text{ Answer: } 17$$

### **Solve**

$$5\times(6+4)-3\text{square}$$

Solution :

1. Start with the parentheses :  $5\times(6+4)-3\text{square} = 5\times 10-3\text{ square}$
2. Next, handle the exponent (3 squared):  $5\times 10-9$
3. Perform multiplication :  $50-9=41$  , Answer 41

### **Solve**

$$(12\div 4)+(5\times 2)-3$$

Solution :

1. Handle the division and multiplication first

$$(12\div 4)+(5\times 2)-3=3+10-3$$

2. perform addition and subtraction:

$$3+10=13, 13-3=10, \text{ Answer } 10$$

### **BODMAS Relay Race (20 minutes)**

Objective: Solve as many BODMAS problems as possible in a race format.

How to Play:

- Divide players into teams. Each team will have a whiteboard and a marker or paper and a pen.
- The host reads out a math problem that requires the BODMAS rule to solve (e.g.,  $3 \times (4 + 2) - 5$ ).

- The team must solve it step by step, following the BODMAS order.
- When the first team solves the problem correctly, they pass the turn to the next team member who has to solve a new problem.
- Continue until the team solves a set number of problems. The team that finishes first with all correct answers wins.

### **BODMAS Relay Race Problems**

1.  $(4 + 6) \times 3 - 8$

2.  $8 \times (5 + 7) \div 4$

3.  $(9 + 3) \times 2 + 5$

4.  $(15 - 3) \times (7 \div 7)$

5.  $(6 + 4) \times (12 \div 3) - 2$

## **Review Questions (10 minutes)**

- Why is the order of operations important in math?
- What happens if we don't follow BODMAS correctly?
- Which part of BODMAS do you find most challenging and why?
- How do brackets change the outcome of an expression?

## **Follow up Task (5 minutes)**

### **Home Work**

Simplify the following using BODMAS:

a)  $6 + 3 \times 2$

b)  $(4 + 5) \times 3$

c)  $18 \div (3 \times 3)$

d)  $24 - [6 + (2 \times 3)]$

# Expected Learning Outcome

## **Knowledge building:**

- Foundational understanding of operations
- Problem solving skill

## **Skill building:**

- Recognition skill
- Collaborative and reflective learning

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