

BODMAS

Subject

Mathematics

Prepared By

[Instructor Name]

Grade Level

5

Overview

This lesson plan covers teaching content for;

1. Order of operations
2. Solving problems using BODMAS

Objectives

Students should be able to;

1. Identify the different mathematical operations
2. Explain the order of operations
3. Use brackets to modify the order of operations.
4. Solve equations that involve the use of brackets and different operations.

Activity Starter/Instruction

1. "Operations" mean things like add, subtract, multiply, divide, squaring, etc. If it isn't a number it is perhaps an operation.
2. Ask pupils when they see something like $7 + (6 \times 52 + 3)$
What part will they calculate first?
3. Let them know if they calculate them in the wrong order, they will get a wrong answer!
4. To get it right, pupils have to follow the rule of BODMAS
B: Brackets first
O: Order (i.e. Powers and Square Roots, etc.)
D: Division
M: Multiplication
A: Addition
S: Subtraction
5. Teacher will use BODMAS to solve for $7 + (6 \times 5^2 + 3)$
 $7 + (6 \times 25 + 3)$ Start inside Brackets, and then use "Orders" First
 $7 + (150 + 3)$ Then Multiply
 $7 + (153)$ Then Add
 $7 + 153$ Brackets completed, last operation is add

Teacher Guide

Day 1/ Lesson 1: 15Mins

1. BODMAS important to remember; if the order is wrong, your answer will be too!
Let's calculate the math's problem below:
 $3 \times (4 \times 5^2) \div 6 + 7 - 8 = ?$
2. **Step 1: () Brackets**
Complete the calculation inside the brackets first.
 $4 \times 5^2 =$ Work out 5 squared first (Orders)
 $5^2 = 25$
So $4 \times 25 = 100$
Our calculation now becomes
 $3 \times 100 \div 6 + 7 - 8 = ?$
3. **Step 2: $\div \times$ Division and Multiplication**
In this calculation, we have both division and multiplication.
Follow the calculation left to right
 $3 \times 100 = 300$
 $300 \div 6 = 50$
Our calculation now becomes $50 + 7 - 8 = ?$
4. **Step 3: $+-$ Addition and Subtraction**
In this calculation, we have both addition and subtraction.
Follow the calculation left to right

Materials Required

- White Board
- Marker
- Paper Slips
- One blank calendar per student

Additional Resources

- <https://www.theschoolrun.com/what-is-bodmas>
- <http://www.mathsphere.co.uk/downloads/sample-worksheet-bodmas.pdf>
- <https://www.mathinenglish.com/worksheetview.php?sheet=1>
- <https://www.edubloxtutor.com/fun-with-bodmas/>
- <https://www.twinkl.co.uk/teaching-wiki/bodmas>
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Additional Notes

160 DONE!

6. Parentheses are used in math to show a part of a math expression or equation that must be solved first, before any other calculation are done.

Guided Practice

Day 2/ Lesson 2: 15 Mins

1. Divide class into pairs
2. Write numbers from 2 - 9 on paper slips fold them and put them in a box.
3. Ask each pair to take one paper slip.
Give them instruction that they have to use the number and operations to get the answer equal to 1.
4. For example if they have got 4, they have to use 4 four times and get answer equal to like: $(4 \div 4) + 4 - 1$
5. Similarly find an expression to make the number equal to 0.
6. Time the activity.
7. If pupils don't get the answers. Solve on the board with the help of the pupils.
8. This will give them extensive practice with application of BODMAS.

$$50 + 7 = 57$$

$$57 - 8 = 49$$

Answer: 49!

$$5. 3 \times (4 \times 5^2) \div 6 + 7 - 8 = 49$$

Guided Practice

Day 3/ Lesson 3: 20mins

1. Using their birth year (e.g. 1996) pupils will create expressions using a variety of operations on the digits (1, 9, 9, 6) to fill the boxes for each "date" on a calendar month.
2. For example, '1 + 9 + 9 + 6' would be written in the "25" date box. Pupils can use any of the operations (+, -, \times , \div) and can manipulate numbers by creating decimals, fractions, squaring numbers (or other indices from their birth year), and square rooting numbers.
3. Pupils are also allowed to round numbers off and can use brackets to control the order of operations used. Each birth year's digit must be used once in every calculation.
4. Work through some examples (on the teacher's birth year) with the class as a group, prior to handing out the blank calendars for pupils to complete individually (including the use of brackets).
5. Teacher could create expressions for 1963 as: $(1 \times 9) + (9 \div 3) = 12$; $1 \times (9 + 9) - 3 = 15$; $(9 \times 3) + 1 - 9 = 18$

Summary	Assessment Activity	Assessment Activity
As the problems are reviewed in front of the class, have the students check their answers for accuracy	Pupils need to be familiar with orders of operation. Make sure that pupils understand how to apply the orders.	Assess if pupils can: 1. Solve problems using BODMAS correctly.