Addition, Subtraction, Multiplication and Division: Bonkers BODMAS

Aim: Use their knowledge of the order of operations to carry out calculations involving the four operations. I can correctly use the order of operations to carry out calculations.	Success Criteria: I know the order of operations. I can use the order of operations to work out and check calculations.	Resources: Lesson Pack Scissors Glue sticks
	Key/New Words: BODMAS, brackets, order, division, multiplication, addition, subtraction.	Preparation: Multiplication Mayhem Square - one per pair BODMAS Calculation Cards - one per pair BODMAS Matching Activity Sheet - one per child BODMAS Calculation Activity Sheet - one per child Extra Challenge Activity Sheet - as required

Prior Learning:

g: It will be helpful if children are familiar with methods of calculations for the four main operations (addition, subtraction, multiplication and division).

Learning Sequence

? . ()	Multiplication Mayhem: The children work in pairs to find missing numbers and correct mistakes on the Multiplication Mayhem Activity Sheet. They are given one minute to complete as much as they can.									
	What Is BODMAS? Go through the slides from the Lesson Presentation to explain what BODMAS is, giving examples. Repeat with additional examples if necessary.									
	Correct Calculations: Using the Lesson Presentation, the children work out which calculations give the answer desired. Can the children explain how they completed the calculation? Did the children use BODMAS? Did the children check their answer?									
	Bonkers BODMAS: Explain to the children that they will be completing a range of questions that will require them to perform calculations using BODMAS.									
	In pairs, the children sort the BODMAS Calculation Cards into true or false categories, checking the calculations using BODMAS. Children complete a series of calculations using BODMAS to match questions with the corresponding answer to complete BODMAS Matching Activity Sheet. Children complete a series of calculations involving BODMAS using BODMAS Calculation Activity Sheet. An Extra Challenge Activity Sheet is provided as an extension activity if required.									
	Diving into Mastery: Schools using a mastery approach may prefer to use the following as an alternative activity. These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.									
	Children use their knowledge of the order of operations (BODMAS) in order to complete fluency problems.									
	Children explore answering reasoning problems which involve knowledge and understanding of the order of operations (BODMAS).									
	Children use problem solving skills in order to answer an open-ended task that involves a greater depth of thinking when using the order of operations (BODMAS).									



Picture This: As a whole class, children choose a calculation to complete using BODMAS. If the calculation answer is correct, part of a picture is revealed. Can the children correctly guess the picture before the calculations are complete?



Exploreit

 Makeit:
 Children create their own poster to demonstrate BODMAS using this
 as a guide.

 Completeit:
 Practise BODMAS by completing this challenging ______.
 .

 Createit:
 Children create a game that allows players to practise BODMAS by answering a series of questions.

Maths Addition, Subtraction, Multiplication and Division

Maths | Year 6 | Addition, Subtraction, Multiplication and Division | Order of Operations | Lesson 5 of 8: Bonkers BODMAS

Bonkers BODMAS



Aim

• I can correctly use the order of operations to carry out calculations.

Success Criteria

- I know the order of operations.
- I can use the order of operations to work out and check calculations.

Multiplication Mayhem



In pairs, fill in the missing numbers on the Multiplication Mayhem Square. How many can you complete in one minute?



Missing Multiplication



Here are the answers:



What do you think the answer to $45 + 9 \times 5$ is?



What do you think the answer to $45 + 9 \times 5$ is?



Let's meet the BODMAS Squad.



Let's meet the BODMAS Squad.



Let's meet the BODMAS Squad.



Let's meet the BODMAS Squad.



Let's meet the BODMAS Squad.



Let's meet the BODMAS Squad.



So here we are: The BODMAS Squad. Brackets, Orders, Division, Multiplication, Addition and Subtraction.



45 + 9 × 5

45 + **9**5×=59€

Brackets Order (exponents) Division and Multiplication Addition and Subtraction Wow, that has made the calculation so much clearer!

multipication.

Let's try some more calculations.



Let's try some more calculations.



Let's try some more calculations.



Correct Calculation



Which calculation gives the answer 75?



Correct Calculation

Which calculations give the answer 252?



Correct Calculation

Which calculation gives the answer 20?



Bonkers BODMAS



Use your marvellous maths skills to complete these activities:



Diving into Mastery

Dive in by completing your own activity!



Picture This



Choose a calculation to complete using BODMAS as a class.



Picture This



Choose a calculation to complete using BODMAS as a class.



Aim

• I can correctly use the order of operations to carry out calculations.

Success Criteria

- I know the order of operations.
- I can use the order of operations to work out and check calculations.





I can correctly use the order of operations to carry out calculations.

Use the order of operations to complete the following calculations. Once completed, switch your activity sheet with another member of your group and check their work. Did your partner get their calculations correct?

a)	(483 × 54) ÷ 100 =	
b)	154 × 112 ÷ 7 =	Don't forget your BODMAS order:
c)	14 + 12 ² - 81 =	Brackets Orders (exponents)
d)	583 - (43 × 4) =	Division and Multiplication Addition and Subtraction
e)	4 × 67 ÷ 5 =	
f)	15 ² × 3 + 325 =	
g)	583 - 54 × 6 =	
h)	52.7 + 538 ÷ 10 =	
i)	235 × 45 ÷ 5 =	
j)	684.67 + 385.75 × 3 =	



BODMAS Calculation Answers

Question	Answer
	Use the order of operations to complete the following calculations.
a	(483 × 54) ÷ 100 = 260.82
b	154 × 112 ÷ 7 = 2464
с	14 + 12 ² - 81 = 77
d	583 - (43 × 4) = 4 11
е	4 × 67 ÷ 5 = 53.6
f	15 ² × 3 + 325 = 1000
g	583 - 54 × 6 = 259
h	52.7 + 538 ÷ 10 = 106.5
i	235 × 45 ÷ 5 = 2115
j	684.67 + 385.75 × 3 = 1841.92

I can correctly use the order of operations to carry out calculations.

Cut, sort and glue the calculation cards into true or false statements.



14 × 5 - 60 = 10	54 + 27 × 3 = 243	129 ÷ 3 × 2 = 86
120 - 56 + 44 = 109	1000 - 571 + 429 = 0	25 + 108 ÷ 9 = 37
183 - 45 ÷ 5 = 27.6	50 - 49 ÷ 7 = 43	5 + 54 ÷ 6 = 45
45 ÷ 9 + 150 = 159		

BODMAS Calculation Cards Answers

Question	Ans	wer									
	Cut, sort and glue the calculation cards into true or false statements.										
	True	False									
	14 × 5 - 60 = 10 25 + 108 ÷ 9 = 37 129 ÷ 3 × 2 = 86 50 - 49 ÷ 7 = 43 1000 - 571 + 429 = 0	54 + 27 × 3 = 243 183 - 45 ÷ 5 = 27.6 120 - 56 + 44 = 109 5 + 54 ÷ 6 = 45 45 ÷ 9 + 150 = 159									



I can correctly use the order of operations to carry out calculations.

Match the calculation to the correct answer using your knowledge of BODMAS. One calculation has been done for you.





BODMAS Matching Answers



Answers

1) $(8 \times 6) + 12 = 60$ $81 \div (6 - 3) = 27$ $(19 + 14) \times 6 = 198$ 36 - (14 + 9) = 132) $13 \times (5 - 2) = (3 \times 15) - 6$ $181 - (27 \div 3) = 17 \times (29 - 19) + 2$

1) Adam has moved from left to right in this calculation, ignoring the order of operations. The correct answer is 28.

Adam has taken 4 away from 6 then added the answer to $24 \div 3$. The correct answer is 44.

- 2) a) $30 \div (6 + 4)$ is the correct answer.
 - b) Each group will consist of 10 children (6 boys + 4 girls). We need to divide the total number of children in the class by the number of children in a whole group. This means there will be 3 groups of 10.







- 8 × 6 + 12 = 60 81 ÷ 6 3 = 27
- 19 + 14 × 6 = 198 36 14 + 9 = 13
- 2) Add two pairs of missing brackets to each of these calculations to make them correct:

13 × 5 - 2 = 3 × 15 - 6

 $181 - 27 \div 3 = 17 \times 29 - 19 + 2$







1) Use a number from each of the sets above to complete the number calculations below:



2) Use a number from each set to find out possible calculations that have an answer between 40 and 60.





Orders	0	I	Indices
Division	D	D	Division
Multiplication	М	М	Multiplication
Addition	Α	Α	Addition
Subtraction	S	S	Subtraction

1) Adam has carried out the following calculations.



Look carefully at his calculations and describe the errors he has made with the order of operations.

 $20 - 4 \times 2 + 16 = 48$

- $6 \times (24 \div 3) 4 = 10$
- 2) a) Yan is solving this word problem. Which of these calculations correctly shows the problem? Explain your reasoning.

A class of 30 children are going on a school trip. The teacher is organising the children into small groups. She decides that each group will be made up of 6 boys and 4 girls.

$$30 \div 6 + 4$$

b) How many groups of children will there be?



1) Add one pair of missing brackets to each of these calculations to make them correct:

 $8 \times 6 + 12 = 60$ $81 \div 6 - 3 = 27$ $19 + 1/4 \times 6 - 109$

2) Add two pairs of missing brackets to each of these calculations to make them correct:

 $13 \times 5 - 2 = 3 \times 15 - 6$

 $181 - 27 \div 3 = 17 \times 29 - 19 + 2$

Brackets	В	В	Brackets
Orders	0	I	Indices
Division	D	D	Division
Multiplication	М	М	Multiplication
Addition	Α	Α	Addition
Subtraction	S	S	Subtraction

1) Adam has carried out the following calculations.



Look carefully at his calculations and describe the errors he has made with the order of operations.

 $6 \times (24 \div 3) - 4 = 10$

2) a) Yan is solving this word problem. Which of these calculations correctly shows the problem? Explain your reasoning.

> A class of 30 children are going on a school trip. The teacher is organising the children into small groups. She decides that each group will be made up of 6 boys and 4 girls.

b) How many groups of children will there be?





Number from Set 1		Number from Set 2		Number from Set 3	N	umber between 40 and 60
	× (+) =	

1) Use a number from each of the sets to complete the number calculations:





2) Use a number from each set to find out possible calculations that have an answer between 40 and 60.





Extra Challenge

I can correctly use the order of operations to carry out calculations.

Use the order of operations to match each calculation to the correct answer.

18 ² × (48.45 + 48.4) =	1862
474 + 30 736 ÷ 68 =	326
30 970 ÷ (54 + 41) =	926
19 × (7 ² + 49) =	31 379.4

Think of two possible calculations using the order of operations that would give the answer shown.





Extra Challenge Answers



Multiplication Mayhem

Fill in the missing multiples. Included in the multiplication square are some incorrect numbers; colour these in to show the errors.

×	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5		7	8	9	10	11	13
2	2	4	6	8	10	13	14	16	18		21	24
3	3	6	10	12	15	18	20			30	34	36
4	4	8	12		20	23	28	32		40	44	48
5	5	10	15	20	25	30	35	40	46	50		60
6	6	12		23			42	47	54	60	67	72
7	7	14	20	28	35		49	56		70	77	
8	9	16	24				56	65		81	88	96
9	9	18	27	35	45	54		72	82	90	99	108
10	10	20	30		50	60	70	80	90	101	110	120
11	11	21	33	44	55	66	76	88	99		122	
12	12	24		49		74		96		120	132	144

Multiplication Mayhem

Fill in the missing multiples. Included in the multiplication square are some incorrect numbers; colour these in to show the errors.

×	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5		7	8	9	10	11	13
2	2	4	6	8	10	13	14	16	18		21	24
3	3	6	10	12	15	18	20			30	34	36
4	4	8	12		20	23	28	32		40	44	48
5	5	10	15	20	25	30	35	40	46	50		60
6	6	12		23			42	47	54	60	67	72
7	7	14	20	28	35		49	56		70	77	
8	9	16	24				56	65		81	88	96
9	9	18	27	35	45	54		72	82	90	99	108
10	10	20	30		50	60	70	80	90	101	110	120
11	11	21	33	44	55	66	76	88	99		122	
12	12	24		49		74		96		120	132	144

Multiplication Mayhem **Answers**

×	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	13
2	2	4	6	8	10	13	14	16	18	20	21	24
3	3	6	10	12	15	18	20	24	27	30	34	36
4	4	8	12	16	20	23	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	46	50	ss	60
6	6	12	18	23	30	36	42	47	54	60	67	72
7	7	14	20	28	35	42	49	56	63	70	77	84
8	9	16	24	32	40	48	56	65	72	81	88	96
9	9	18	27	35	45	54	63	72	82	90	99	108
10	10	20	30	40	50	60	70	80	90	101	110	120
11	11	21	33	44	55	66	76	88	99	110	122	132
12	12	24	36	49	60	74	84	96	108	120	132	144

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