

Maths - Year 6

Calculating 9: Written column methods of multiplying

Key Vocabulary		Mathematical Skills - Use rounding skills and knowledge of multiplying facts to give sensible estimates of the answers to multiplying calculations. - Use understanding of place value to help multiply with decimal numbers. - Accurately multiply whole and decimal numbers by 1-digit numbers using the short written method of multiplying. - Accurately multiply whole and decimal numbers by 2-digit numbers using the long written method of multiplying. - Describe and explain the steps involved in carrying out a multiplying calculation using the long written method. - Identify and explain errors in multiplying calculations.
Mental method	The process of working out maths calculations and carrying out problem-solving mentally, without the need to write down any working out. (Jottings may sometimes be made.)	
Written method	Solving a maths calculation following a structured method on paper.	
Short method	A written method to solve multiplication problems when multiplying by a single digit number.	
Long method	A written method to solve multiplication problems when multiplying by a number with more than one digit.	
Decimal	A number that has a whole number and a fractional part separated by a decimal point e.g. 34.7.	
Partitioning	Splitting a number in different ways, usually to help with calculating, e.g. 27 can be partitioned into 2 tens (20) and 7 ones (7).	
Grouping/ regrouping	Arranging/rearranging numbers into groups by place value to make it easier to carry out operations.	
Carrying	Transferring digits from one place value column to another to support calculating.	
Units of measure	E.g. pounds, pence, kilogram, litre etc.	

Mathematical Methods

- Multiply large numbers using the short written method.

		1	2	4	5	6
	x					8
		9	9	6	4	8
		1	3	4	4	

- Multiplying decimals using the short written method.

		2	7	8	
	x			6	
		1	6	6	8
		4	4		

- Understanding and practising long multiplication (HTO x TO, ThHTO x TO).

x	100	60	7	3000
30	3000	1800	210	1800
8	800	480	56	210
				800
				480
				+ 56
				6346
				21

		1	6	7
x		3	8	
	1	3 ₅	3 ₅	6
	5 ₂	0 ₂	1	0
	6	3	4	6

- Multiplying decimals using long multiplication e.g. a library has bought 75 books at a cost of £0.89 each.

			8	9
x		7	5	
	4 ₁	4 ₂	5	
6	2 ₁	3	0	
6	6	7	5	

= £66.75

- Using understanding of long multiplication in problem solving.

	1	▲	9
x	2	◆	
	◆	3	■
2	1	●	▲
2	■	1	■

	1	0	9
x	2	4	
	4	3 ₃	6
2	1 ₁	8	0
2	6	1	6

	▲	3	■	2
x		3	◆	
	8	▲	▲	2
4	0	■	◆	0
4	8	◆	7	2

Can you..?

- Each type of symbol represents a different digit. Can you work out what they are?

		4	●	■	2
x			3	●	
	3	●	▲	■	6
1	4	6	1	6	0
1	●	5	1	3	6

- Using the digits 4 - 9, can you create a calculation that will give you a product less than 400,000?

	■	■	■	■
x		■	■	

