

Number	Algebra	Ratio & Proportion	Geometry & Measures	Statistics and Probability
Unit	8.1.1 Percentage of amounts		MASTERY CRITERIA	

Learning Goals for this Unit		
1	To be able to find a percentage of an amount without a calculator	
2	To be able to write percentages as multipliers	M437
3	To be able to find percentages of an amount with a calculator	
4	To be able to apply percentages to money problems	M905

Emerging – Recall	Developing – Fluency
Recall of vocabulary and facts	Using calculations and methods
What is a percentage? What is a percentage multiplier?	Without a calculator, find: 10% of 320 5% of 25 15% of 420 With a calculator, find: 29% of 300 2% of 80
Mastered – Problem Solving	
Solving contextual problems that require calculations and methods	
Tom, Rachel and Gemma share £420. Tom gets 15%, Rachel gets 25% and Gemma gets the rest. How much money does Gemma get?	
Ambitious – Deeper Thinking	
Solving complex contextual problems that link different areas of maths.	
A bag contains some counters. 4% of the counters are green and 40% of the counters are blue. If 32 counters are green, how many counters are blue?	Ezra and Ava each receive an £800 bonus. Ezra spends 7% of his bonus and Ava spends 4% of her bonus. How much more does Ezra spend than Ava?

Number	Algebra	Ratio & Proportion	Geometry & Measures	Statistics and Probability
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Unit	8.1.2 Percentage Change	MASTERY CRITERIA
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Learning Goals for this Unit		
1	To be able to increase a number by a percentage without a calculator	M476
2	To be able to decrease a number by a percentage without a calculator	M476
3	To be able to increase a number by a percentage with a calculator	M533
4	To be able to decrease a number by a percentage with a calculator	M533
5	To be able to apply percentage change to money problems	

Emerging – Recall Recall of vocabulary and facts	Developing – Fluency Using calculations and methods
What does increase mean?	Find 10% of 240
What does decrease mean?	Increase £320 by 10%
	Decrease £45 by 20%
What is a percentage multiplier?	What decimal represents a 35% increase?

Mastered – Problem Solving Solving contextual problems that require calculations and methods
a) There are 4200 members of a sports club. If the number of members increases by 15%, how many members does the club now have? b) A car is purchased for £15000, the value of the car decreases by 4.5%, how much is the car now worth?

Ambitious – Deeper Thinking Solving complex contextual problems that link different areas of maths.
Summer buys a computer for £400 She pays a 30% deposit immediately and then pays the rest in 8 equal monthly payments. How much does she pay each month? Holly increases 800 by 40% She then decreases the result by 40% What is her final number?

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Unit	8.1.3 Calculating with Money	MASTERY CRITERIA
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Learning Goals for this Unit		
1	To be able to calculate the cost of one unit given the cost of multiple units	M681
2	To be able to calculate cost using proportional reasoning	M681
3	To be able to calculate cost using the unitary method	M681
4	To be able to compare costs	M681
5	To be able to problem solve with money	M681

Emerging – Recall Recall of vocabulary and facts	Developing – Fluency Using calculations and methods
How many pence in a pound? Write 427p in £ Write £13.27 in pence	8 litres of orange juice cost for £14. How much does 1 litre cost? 20cm of ribbon cost 45p, how much does 100cm cost?

Mastered – Problem Solving Solving contextual problems that require calculations and methods	
Jack wants to buy 2 note books, how much does he pay?  £5 each Buy one, get another half price	A market sells necklaces for £3.20 each. There is a special offer that means if you buy 2 necklaces, you get another for free. How much will 12 necklaces cost?

Ambitious – Deeper Thinking Solving complex contextual problems that link different areas of maths.	
Which shop is cheaper to buy 24 cereal bars? Corner shop 4 cereal bars = £2.49 Supermarket 3 cereal bars = £1.99	Is it cheaper to buy 20 plants from shop A or shop B? Shop A £9.80 for 4 plants Shop B Were £3.80 each Now with 20% off

Learning Goals for this Unit		
1	To be able to complete index rules with positive indices	M608
2	To be able to complete index rules with negative indices	M150
3	To be able to simplify expressions using index laws	M120
4	To be able to simplify algebraic fractions by cancelling common factors	M568

Emerging – Recall	Developing – Fluency
Recall of vocabulary and facts	Using calculations and methods
What does the word "index" mean in maths?	1) Simplify: $5^2 \times 5^3$
What is 3^1 ?	2) Simplify: $x^4 \div x^2$
What is 4^0 ?	3) Simplify: $(y^2)^3$
What is the base in 2^5 ?	4) Simplify: $\frac{a^5}{a^3}$

Mastered – Problem Solving											
Solving contextual problems that require calculations and methods											
True or False? Decide if each statement is true or false. Explain your reasoning. $x^2 \times x^3 = x^6$ $(a^2)^2 = a^4$ $\frac{y^5}{y^2} = y^3$ $x^0 = 0$	Match each expression to the simplified form. <table><tr><th>Expression</th><th>Simplified Form</th></tr><tr><td>A. $(y^2)^3$</td><td>1. a^4</td></tr><tr><td>B. $x^3 \times x^2$</td><td>4. y^6</td></tr><tr><td>C. $b^4 \div b$</td><td>2. x^5</td></tr><tr><td>D. $a^6 \div a^2$</td><td>3. b^3</td></tr></table>	Expression	Simplified Form	A. $(y^2)^3$	1. a^4	B. $x^3 \times x^2$	4. y^6	C. $b^4 \div b$	2. x^5	D. $a^6 \div a^2$	3. b^3
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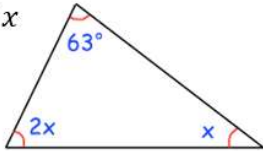
Ambitious – Deeper Thinking	
Solving complex contextual problems that link different areas of maths.	
Fully simplify $5c^2d^4 \times 2c^3d^2$ Calculate the value of x in this equality: $\frac{7^{13} \times 7^2}{7^4 \times 7^9} = 7^x$	Which three of these expressions are equivalent to d^5 ? $d + d + d + d + d$ $d^4 + d$ $d^{10} \div d^2$ $d^4 \times d$ $d^6 \div d$ $d \times d \times d \times d \times d$

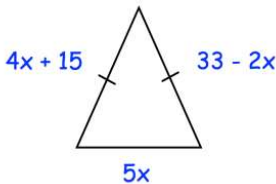
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Unit	8.1.5 Solving Equations	MASTERY CRITERIA
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Learning Goals for this Unit		
1	To be able to solve equations of the form $(x+a)/b = c$	M401
2	To be able to solve linear equations involving brackets	M902
3	To be able to solve equations with the unknown in the denominator	M387
4	To be able to solve equations with the unknown on both sides	M554
5	To be able to solve construct and solving equations	M957

Emerging – Recall Recall of vocabulary and facts	Developing – Fluency Using calculations and methods
What do we mean, by SOLVING an equation? What is the inverse of dividing?	Solve: 1) $3(x + 6) = 30$ 2) $\frac{m-8}{5} = 3$ 3) $7x - 5 = 2x + 25$

Mastered – Problem Solving Solving contextual problems that require calculations and methods	
Steve is asked to solve the equation $5(x + 2) = 47$. Here is his working. $5(x + 2) = 47$ $5x + 2 = 47$ $5x = 45$ $x = 9$ Steve's answer is wrong. What mistake did he make?	a) Form an equation in terms of x  b) Solve the equation to find the value of x

Ambitious – Deeper Thinking Solving complex contextual problems that link different areas of maths.	
Shown is an isosceles triangle  (a) Explain why $4x + 15 = 33 - 2x$ (b) Find x (c) Find the perimeter of the isosceles triangle	The diagram shows a rectangle. All measurements are in centimetres. The area of the rectangle is 48 cm^2. Find the value of y. 