

I should already know:

- How to find half of something
- How to share things out

I will learn:

- to work with percentages, without a calculator
- to work with percentages, with a calculator
- to find original values following percentage changes
- to understand and use ratios

This will help in the future:

Understanding ratio and percentages will allow you to make comparison between values in science and geography. These are also important life skills for working with money

Key Words

Percentage	The proportion something is out of the whole being 100
Original value	The starting amount in a percentages question
Final value	The end amount in a percentage question
Equivalent	A value that represents the same amount, but is written in a different way
Ratio	A ratio shows how much of one thing there is compared to another



Greater Depth Challenge

Can you describe how to convert a given ratio into a set of percentages?
 Can you do this for a ratio made up of 3 or 4 numbers?

Further Reading

Hegarty Maths

Unit 10 - % increase and decrease			
No.	Percentage	Fraction	Decimal
10.1	25%	$\frac{1}{4}$	0.25
10.2	50%	$\frac{1}{2}$	0.5
10.3	75%	$\frac{3}{4}$	0.75
10.4	12.5%	$\frac{1}{8}$	0.125
10.5	20%	$\frac{1}{5}$	0.2
10.6	33. $\dot{3}$	$\frac{1}{3}$	0. $\dot{3}$
10.7	66. $\dot{6}$	$\frac{2}{3}$	0. $\dot{6}$
10.8	10%	$\frac{1}{10}$	0.1
10.9	20%	$\frac{2}{10} = \left(\frac{1}{5}\right)$	0.2
10.10	30%	$\frac{3}{10}$	0.3
10.11	40%	$\frac{4}{10} = \left(\frac{2}{5}\right)$	0.4
10.12	50%	$\frac{5}{10}$	0.5
10.13	60%	$\frac{6}{10} = \left(\frac{3}{5}\right)$	0.6
10.14	70%	$\frac{7}{10}$	0.7
10.15	80%	$\frac{8}{10} = \left(\frac{4}{5}\right)$	0.8
10.16	90%	$\frac{9}{10}$	0.9
10.17	100%	1 whole	1

Unit 10 - % increase and decrease (cont.)			
No.	Question	Answer	Example
10.18	How do you find 1% of an amount?	Divide by 100	1% of 70. $70 \div 100 = 0.7$
10.19	How do you find 10% of an amount?	Divide by 10	10% of 70. $70 \div 10 = 7$
10.20	How do you find 50% of an amount?	Divide by 2	50% of 70. $70 \div 2 = 35$
10.21	How do you find 25% of an amount?	Divide by 4	25% of 70. $70 \div 4 = 17.5$
10.22	How do you express a quantity as a percentage of another?	1. Represent the quantities as a fraction 2. Convert the fraction to decimal	I score 7 out of 25 on a test $\frac{7}{25} = \frac{28}{100} = 28\%$
10.23	How do you compare and order FDP?	Convert them all to be written in the same representation.	20% or $\frac{2}{5}$? $20\% = \frac{2}{10} = \frac{1}{5}$ $\frac{2}{5} > 20\%$
10.24	How do you increase by a %?	1. Find the percentage 2. Add it on	Increase £50 by 20% $20\% = \text{£}10$ $\text{£}50 + \text{£}10 = \text{£}60$
10.25	How do you decrease by a %?	1. Find the percentage 2. Take it away	Decrease £50 by 20% $20\% = \text{£}10$ $\text{£}50 - \text{£}10 = \text{£}40$
10.26	How do you calculate % change?	$\frac{\text{new} - \text{original}}{\text{original}} \times 100$	Was £200, now £250. $\frac{250 - 200}{200} \times 100 = 25\%$
10.27	How do you calculate reverse %s?	1. Divide the new amount by its total % 2. Multiply by 100. The original is always 100%.	After 20% increase, now costs £180. What was the original? $\frac{180}{120} \times 100 = 150$

Unit 11 - ratio			
No.	Question	Answer	Example
11.1	How do you represent a ratio?	1. Count how many of each part you're given 2. Write it as a ratio in the order specified.	Represent the following as a ratio Black : White 5 : 3
11.2	How do you represent a ratio as a fraction?	1. Add the total number of parts together 2. Each part of the ratio represents the numerator	2:3 as a fraction $2 + 3 = 5$ $\frac{2}{5}$ and $\frac{3}{5}$
11.3	How do you divide a quantity into a ratio?	1. Divide the quantity by the total number of parts 2. Multiply by the number of parts in each share of the ratio	20 shared into the ratio 2:3 $2 + 3 = 5$ $20 \div 5 = 4$ (1 share) $4 \times 2 = 8$ $4 \times 3 = 12$
11.4	Speed = ...	Speed = $\frac{\text{distance}}{\text{time}}$	Distance = 70m, time = 2 hours $S = \frac{70}{2}$ $S = 35\text{m/h}$

Unit 10 - % increase and decrease

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10.12	50%		
10.13	60%		
10.14	70%		
10.15	80%		
10.16	90%		
10.17	100%		

Unit 10 - % increase and decrease (cont.)

No.	Question	Answer	Example
10.18	How do you find 1% of an amount?		
10.19	How do you find 10% of an amount?		
10.20	How do you find 50% of an amount?		
10.21	How do you find 25% of an amount?		
10.22	How do you express a quantity as a percentage of another?		
10.23	How do you compare and order FDP?		
10.24	How do you increase by a %?		
10.25	How do you decrease by a %?		
10.26	How do you calculate % change?		
10.27	How do you calculate reverse %s?		

Unit 11 - ratio

No.	Question	Answer	Example
11.1	How do you represent a ratio?		
11.2	How do you represent a ratio as a fraction?		
11.3	How do you divide a quantity into a ratio?		
11.4	Speed = ...		