

Progress Page: Year 8 Autumn 1:

Proportional Reasoning

Working Towards	Expected Standard	Reaching Greater Depth
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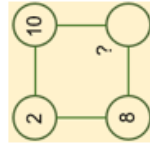
Topic	To achieve 'Expected Standard' you will be able to....	WT	ES	Sparx code
Multiplicative Change	Solve problems involving direct proportion			M478 & M681
	Explore conversion graphs			M843
	Convert between currencies			M478
	Understand scale factors as multiplicative representations			M324
	Draw and interpret scale factors and ratios			M112
Ratio and Scale	Understand the meaning and representation of ratio			M885
	Understand and use ratio notation			M885
	Solve proportional problems involving the ratio $m : n$			M885
	Divide a value into a given ratio			M525
	Express ratios in their simplest integer form			M885
	Compare ratios and related fractions			M267
Multiplying and Dividing Fractions	Multiply a fraction by an integer			M157
	Find the product of a pair of unit fractions			M157
	Find the product of a pair of any fractions			M197
	Divide an integer by a fraction			M110
	Divide a fraction by a unit fraction			M110
	Understand and use the reciprocal			M110
	Divide any pair of fractions			M265
	Multiply and divide improper and mixed fractions			M197 and M265
	To achieve 'Greater Depth' you will be able to...	GD		
MC	Explore direct proportion graphs			M771
Ratio and Scale	Solve problems involving ratios of the form $1 : n$ (or $n : 1$)			M543
	Express ratios in the form $1 : n$			M543
$\times \div$ Fracs	Multiply and divide algebraic fractions			M336



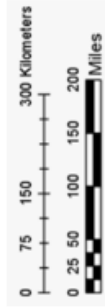
Y8 Autumn 1: Proportional Reasoning



This topic focuses on understanding ratio and scaling using a variety of representations. You will learn how to use ratios and proportion to solve problems, before learning how to multiply and divide with fractions.



Solve problems using direct proportion



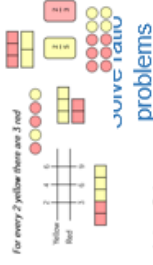
Interpret scale diagrams and maps

Understand and use ratio notation

3 : 1
3 : 4
1 : 3

Express ratios in their simplest form

14 : 21
2 : 3



Multiply a fraction by an integer

Divide an integer by a fraction

Divide any pair of fractions

'There are ... thirds in 1 whole.'
'Therefore, there are ... thirds in 4 wholes.'
 $1 + \frac{1}{3} = 4 + \frac{1}{3} = 40 \div \frac{1}{3} =$

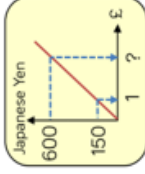
$$\frac{2}{5} \div \frac{3}{4} = \frac{2}{5} \times \frac{4}{3} = \frac{8}{15}$$

Proportional Reasoning

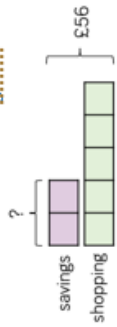
Understand scale factors



Explore direct proportion graphs

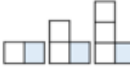


Divide in a given ratio



Compare ratios and related fractions

B : W	Fraction	Blue
1 : 1	$\frac{1}{2}$	
1 : 2	$\frac{1}{3}$	
1 : 3	$\frac{1}{4}$	



Multiply unit fractions

Which method is the most effective to work out $\frac{2}{3} \times \frac{3}{5}$?

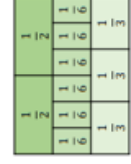
$$\frac{2 \times 3}{3 \times 5} = \frac{6}{15} = \frac{2}{5}$$

Rewrite the question as $2 \times \frac{1}{3} \times \frac{1}{5}$

Find a third of $\frac{2}{5}$, then double it.



Divide a fraction by a unit fraction



Assessment Point: Autumn 1 benchmark



Next Topic: Algebraic Techniques