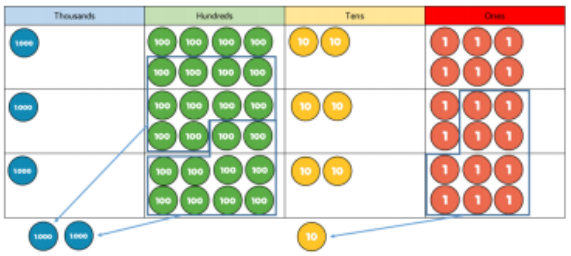
MATHS SUMMER 1 KNOWLEDGE ORGANISERS

Year 5 Unit 7 —Multiplication and Division

Multiplication

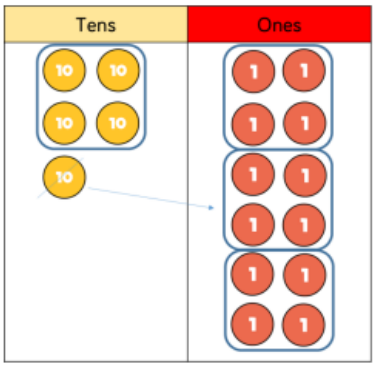
$$\begin{array}{r} 34 \\ \times\ 5 \\ \hline 170 \\ \hline 1\ 2 \end{array}$$



$1{,}826 \times 3 = 5{,}478$

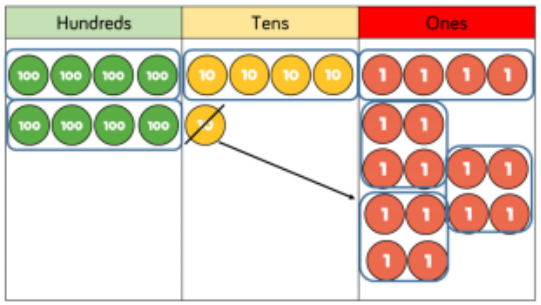
	Th	H	T	O
	1	8	2	6
×				3
	5	4	7	8
	2		1	

Division —written methods

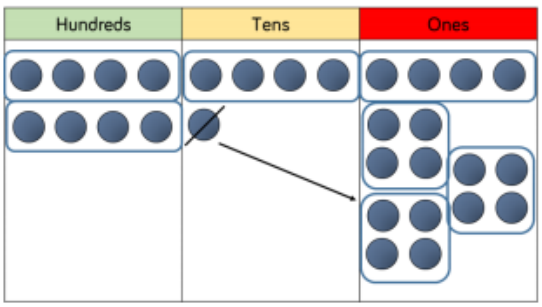


$52 \div 4 = 13$

		1	3	
	4	5	$^{1}2$	



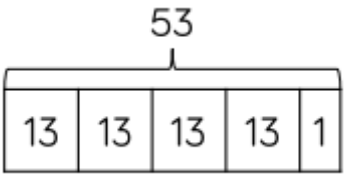
		2	1	4
	4	8	5	$^{1}6$



$856 \div 4 = 214$

Remainder— The amount left over after a division

$53 \div 4 = 13\ r1$



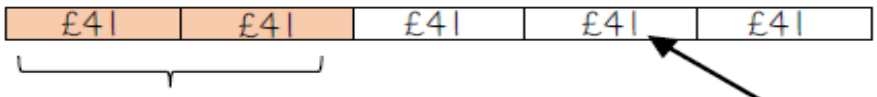
Year 7 Unit 7
Fractions and percentages of an amount

Finding a fraction of a given amount

Find $\frac{2}{5}$ of £205

The bar represents the whole amount

£205



2 out of the 5 equal parts

2 x £41 = £82

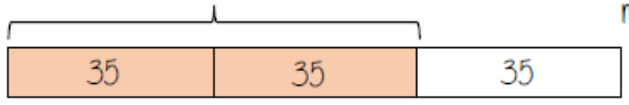
£205 ÷ 5 = £41

Each part of the bar model represents £41

Finding the whole from a given fraction

$\frac{2}{3}$ of a value is 70. What is the whole number?

70



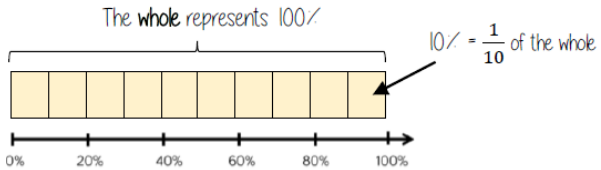
70 ÷ 2 = 35

Each part of the bar model represents 35.

35 x 3 = 105

The whole number is 105

Find the percentage of an amount using mental methods.



10% = $\frac{1}{10}$ of the whole

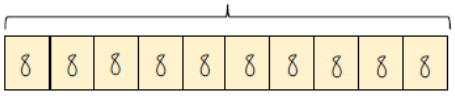
50% = $\frac{5}{10} = \frac{1}{2}$ of the whole

20% = $\frac{2}{10} = \frac{1}{5}$ of the whole

5% = $\frac{1}{20}$ of the whole

Find 65% of 80

80



For bigger percentages it is sometimes easier to take away from 100%

Method 1:

65% = 10% x 6 + 5%

= (8 x 6) + 4

= 52

Method 2:

65% = 50% + 10% + 5%

= 40 + 8 + 4

= 52

Find the percentage of an amount using a calculator.

Using a multiplier

Find 65% of 80

Fraction, decimal, percentage conversion

65% = $\frac{65}{100}$ = 0.65 ← The multiplier

0.65 x 80 = 52

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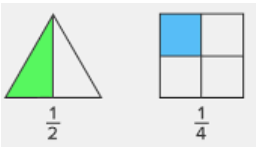
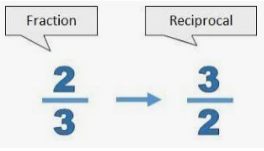
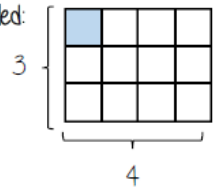
Year 8 Unit 7
Multiplying and Dividing Fractions

Unit Fractions	Fractions with a numerator of one,	
Reciprocal	A pair of numbers that multiply together to give 1	

Multiplying Unit Fractions

$\frac{1}{4} \times \frac{1}{3} = \frac{1}{12}$ ← Parts shaded

Modelled:



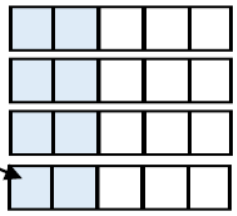
Total number of parts in the diagram

Multiplying by an integer=repeated addition

$4 \times \frac{2}{5} \rightarrow \frac{2}{5} + \frac{2}{5} + \frac{2}{5} + \frac{2}{5}$

Integer (Whole number)

Each part represents $\frac{1}{5}$



How many parts are shaded?
What each part represents

$= \frac{8}{5}$

$= 1\frac{3}{5}$

Multiplying non-unit fractions

Shade in 3 parts

Repeat it on this many rows

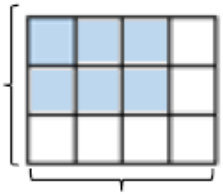
$\frac{3}{4} \times \frac{2}{3}$

This many columns

This many rows

$\frac{3}{4} \times \frac{2}{3} = \frac{6}{12}$ ← Parts shaded

Modelled:



Total number of parts in the diagram

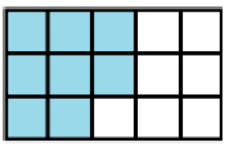
Dividing by any fraction

$\frac{2}{5} \div \frac{3}{4}$

$\frac{2}{5} \times \frac{4}{3}$

Multiplying by a reciprocal gives the same outcome

Represented



$= \frac{8}{15}$

Dividing an integer by a unit fraction

$1 \div \frac{1}{4} = 4$

How many quarters are in 1?

"There are 4 quarters in 1 whole. Therefore, there are 20 quarters in 5 wholes"

$5 \div \frac{1}{4} = 20$

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