| **MATHEMATICS Unit 5:** Exploring fractions, decimals and percentages and Calculating fractions, decimals and percentages	**Year Group: 9 set 4-5**

Key Vocabulary

Fraction	Any part of a group, number or whole
Mixed number	A number written as a whole number and a fraction
Top Heavy fraction	The numerator of the fraction is larger than the denominator
Percentage	A number expressed as a fraction out of 100 followed by a %.
Decimal	A number containing a decimal point
Proportion	Being in proportion means that two ratio or fractions are of equal value
Terminating decimal	A decimal that has a finite number of digits, that it is finished and does not go on forever.
Recurring decimal	A decimal that has an infinite number of digits and will go on forever.
Simply	To reduce a fraction to the smallest possible number in the numerator and denominator

Key facts / Diagrams
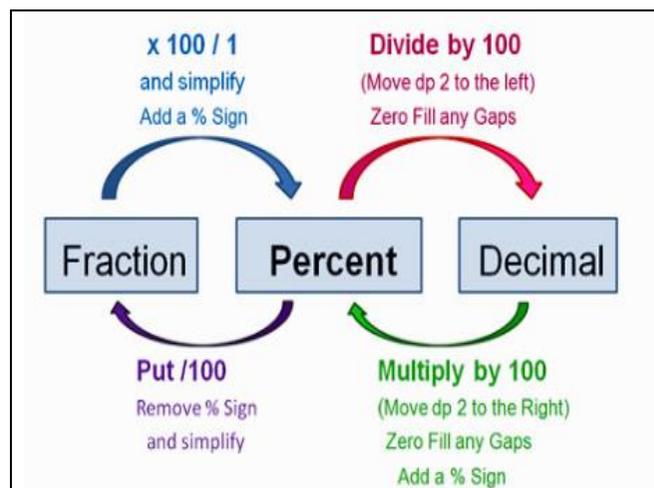
Fraction	Percent	Decimal
$\frac{1}{1}$	100%	1.0
$\frac{1}{2}$	50%	0.5
$\frac{1}{3}$	33%	0.33
$\frac{1}{4}$	25%	0.25
$\frac{1}{5}$	20%	0.2
$\frac{1}{6}$	16.6%	0.166
$\frac{1}{8}$	12.5%	0.125
$\frac{1}{10}$	10%	0.1

Common misconceptions

- Some pupils may make incorrect links between fractions and decimals such as thinking that 1/5 = 0.15
- Some pupils may think that 5% = 0.5, 4% = 0.4, etc.
- Some pupils may think it is not possible to have a percentage greater than 100%.

Worked examples

Finding 10% = divide by 10
Finding 5% = divide by 10 then divide by 2

Examples
Find 35% of 40
10% = 4
5% = 2
35% = 4+4+4+2=14

Percentage increase/ decrease with multipliers.
Example
Increase £15 by 30%
100% + 30% = 130% = 1.3
15 x 1.3 = £19.50

Decrease £90 by 20 %
100% - 20% = 80% = 0.8
90 x 0.8 = 72

Percentage change
A pair of socks went from £2 to £2.50. What is the % change?
£0.50 ÷£2 x 100 = 25%