'Financial maths with percentages'

The Knowledge for Progression:

- o To know that a balance is the amount in your bank account.
- o To know that a credit is money going into an account.
- o To know that a debit is money going out of an account.
- o To know that percentage change = (difference in values ÷ original value) x 100.
- o To know that compound interest is interest upon interest over time.
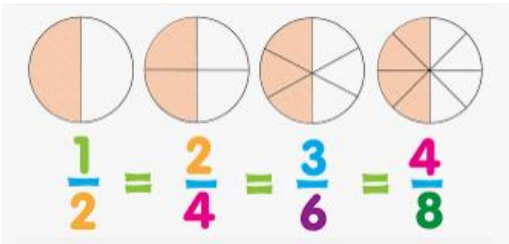
Speak Like a Mathematician
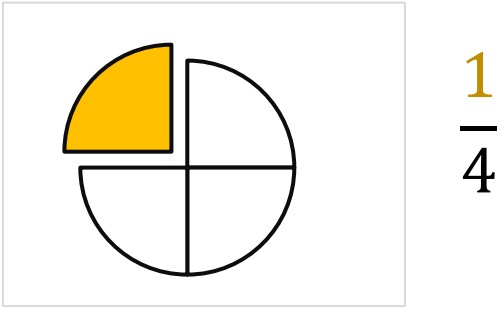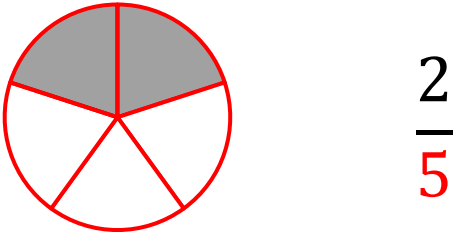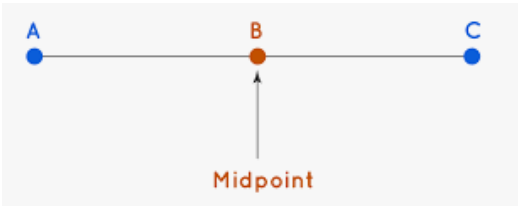
Key Word	Dual Coding	Definition
Balance		The amount of money in your bank account
Credit		Money going **into** your bank account
Debit		Money going **out** of your bank account
Compound Interest		Interest you earn upon previous interest over time
Depreciation		Reduction in value over time

'Calculations with fractions'

The Knowledge for Progression:

- To know that a fraction a numerical value that is not an integer.
- To know that the numerator is the top value of a fraction.
- To know that the denominator is the bottom value of a fraction.
- To know that a mid-point is the middle value.

Speak Like a Mathematician
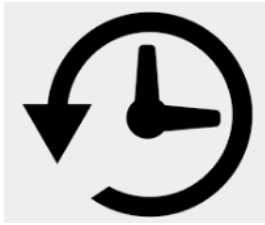
Key Word	Dual Coding	Definition
Fraction		How many parts of a whole we have
Numerator	$$\frac{1}{4}$$	The number above the line in a fraction. Represents the number of equal parts of the whole
Denominator	$$\frac{2}{5}$$	The number below the line in a fraction. Total of parts that make up the whole
Midpoint		The middle between two values

'Speed, distance and time'

The Knowledge for Progression:

- To know 15 minutes = 0.25 hours
- To know 30 minutes = 0.5 hours
- To know 45 minutes = 0.75 hours
- To know $Speed = \frac{Distance}{Time}$
- To know speed is a compound unit
- To know speed can be measured in miles/h, km/h and m/s
- To know $Distance = Speed \times Time$
- To know $Time = \frac{Distance}{Speed}$

Speak Like a Mathematician
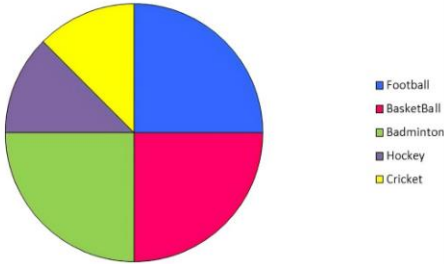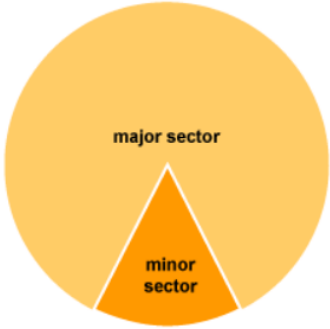
Key Word	Dual Coding		Definition
Speed			The rate of distance travelled per unit of time
Compound unit		Per	A measurement that requires two different types of unit

'Pie Charts'

The Knowledge for Progression:

- o To know that there are 360° in a circle.
- o To know that a protractor is used to measure angles.
- o To know that a pie chart shows the proportion of each section to the whole.
- o To know that 90° is ¼ of a circle, 180° is ½ of a circle.

Speak Like a Mathematician
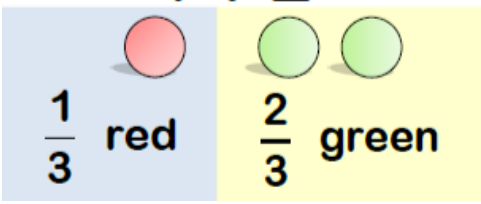
Key Word	Dual Coding	Definition
Pie Chart	**Favourite Sports Percentage** Football / BasketBall / Badminton / Hockey / Cricket	A type of graph in which a circle is divided into sectors to represent data.
Sector	major sector / minor sector	The region within a circle bounded by two radii and one of the arcs they cut off

'Ratio and Proportion'

The Knowledge for Progression:

- o To know that a ratio is a comparison of two or more quantities in relation to each other.

- o To know that a fraction is an example of a type of ratio where the denominator represents the whole and numerator 1 of the parts.

Speak Like a Mathematician
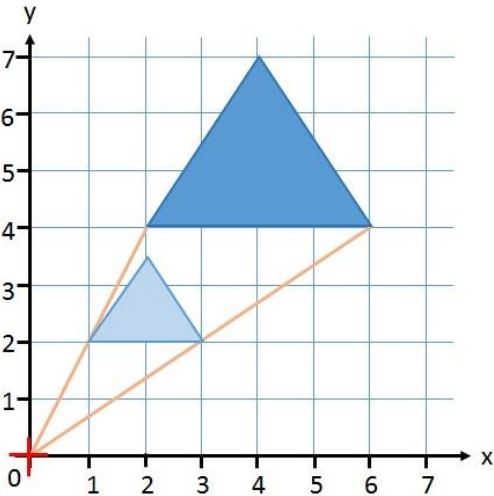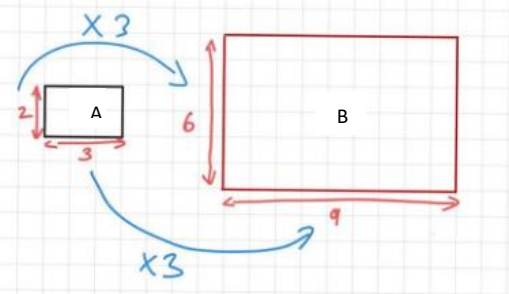
Key Word	Dual Coding	Definition
Ratio	$1 : 2$ $\frac{1}{3}$ red $\frac{2}{3}$ green	A part-to-part comparison
Proportion	x 2 $3 : 4$ = $6 : 8$ x 2 **Direct Proportion** Quantity 1 Quantity 2 x 2 $3 : 4$ = $6 : 2$ ÷ 2 **Inverse Proportion** Quantity 1 Quantity 2	A mathematical relationship, where quantities are increasing or decreasing in the same ratio

'Enlargements'

The Knowledge for Progression:

○ To know that an enlargement changes the size of a shape in proportion.

○ To know that a scale factor describes how much the shape is enlarged by.

○ To know that the centre of enlarge is the point from which a shape is enlarged.

Speak Like a Mathematician

Key Word	Dual Coding	Definition
Enlargement		A transformation in which lengths are multiplied whilst directions and angles remain the same.
Scale Factor	Shape A has been enlarged into shape B by a ratio of 1:3	The ratio of corresponding edge lengths

'Vector arithmetic'

The Knowledge for Progression:

o   To know that a translation is horizontal and vertical movement of a shape.

o   To know that a column vector describes a movement.

o   To know that the top value of a column vector represents the horizontal movement.

o   To know that the bottom value of a column vector represents the vertical movement.

o   To know that movements up and down are represented by a positive value.

o   To know that movements left and down are represented by a negative value.

Speak Like a Mathematician

Key Word	Dual Coding	Definition
Column vector	$\begin{pmatrix} 3 \\ 2 \end{pmatrix}$ is $\begin{pmatrix} 3\ right \\ 2\ up \end{pmatrix}$	Describes the movement of a translation