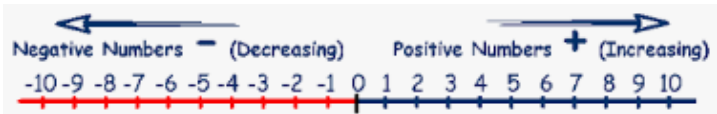


'Negatives'

The Knowledge for Progression:

- To know that a negative number is a value less than 0.
- To know that adding positives increases the value.
- To know that subtracting positives decreases the value.
- To know that adding negatives decrease the value.
- To know that subtracting negatives increases the value.
- To know that negative values need to have brackets around them when using a calculator

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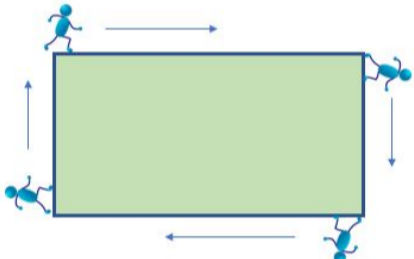
Key Word	Dual Coding	Definition
Negative		A value below zero

'Perimeter'

The Knowledge for Progression:

- To know that the perimeter is the sum of the lengths around a 2D shape
- To know that lengths are measured in linear units

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Key Word	Dual Coding	Definition
Perimeter		The sum of the lengths around a 2D shape

'Mean'

The Knowledge for Progression:

- To know that the mean is the sum of quantities in a data set divided by the total number of quantities in the set

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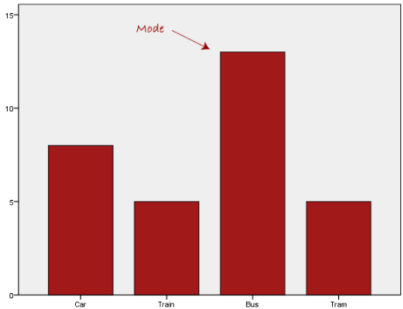
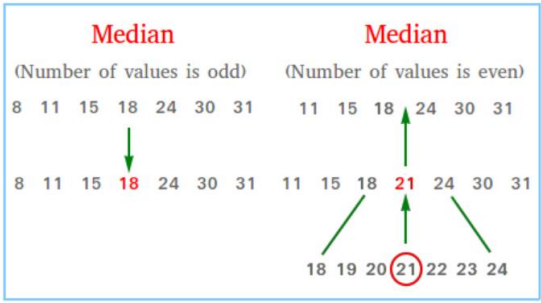
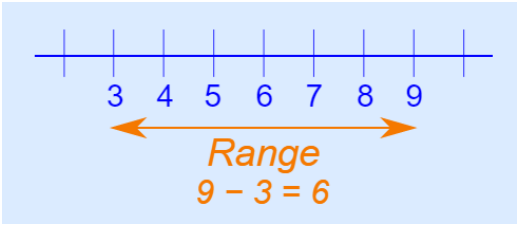
Key Word	Dual Coding	Definition
Mean	<p>$7 + 4 + 5 + 3 + 4 + 7 = 30$</p> <p>There are 6 quantities</p> <p>The sum of quantities</p> <p>$30 \div 6 = 5$</p> <p>The mean = 5</p>	The sum of quantities divided by the number of quantities

'Mode, median and range'

The Knowledge for Progression:

- To know that the mode/modal means the most common item of data (this does not need to be numerical).
- To know that the median is the middle item of ordered data.
- To know that the range is a measure of spread. It is the difference between the largest and smallest items of data.

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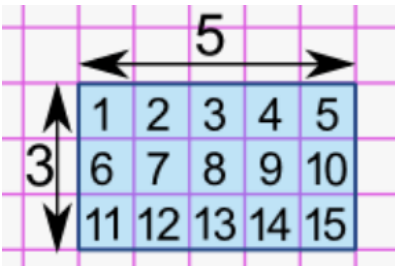
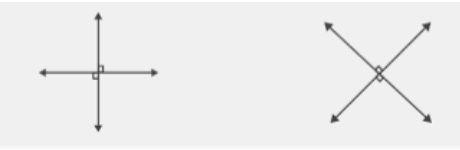
Key Word	Dual Coding	Definition
Mode		The most common item in a data set
Median		The middle item in an ordered data set
Range		A measure of spread within a data set

'Area'

The Knowledge for Progression:

- To know that area is the number of square units inside a 2D shape
- To know that area is measured in square units e.g. mm², cm², m²
- To know that the perpendicular height is the height that meets the base at a 90° angle.
- To know that the area of a square, rectangle, rhombus and parallelogram is *base* × *perpendicular height*
- To know that the area of a triangle is $\frac{\text{Base} \times \text{perpendicular height}}{2}$

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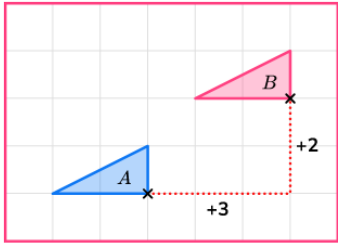
Key Word	Dual Coding	Definition
Area		The number of square units inside a 2D shape
Perpendicular		Where lines cross or meet at a 90° angle

'Translations'

The Knowledge for Progression:

- To know that a translation is horizontal and vertical movement of a shape
- To know that a column vector describes a movement e.g. ADD VECTOR
- To know that the top value of a column vector represents the horizontal movement
- To know that the bottom value of a column vector represents the vertical movement
- To know that movements up and down are represented by a positive value
- To know that movements left and down are represented by a negative value

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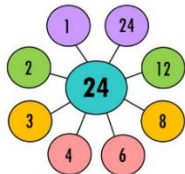
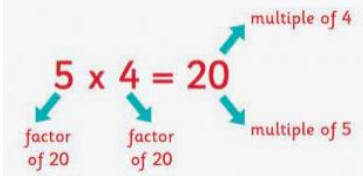
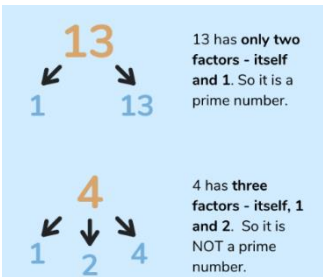
Key Word	Dual Coding	Definition
Translate		To translate means to move every point of an object in the same direction
Column vector	$\begin{pmatrix} 3 \\ 2 \end{pmatrix} \text{ is } \begin{pmatrix} 3 \text{ right} \\ 2 \text{ up} \end{pmatrix}$	Describes the movement of a translation

'Factors, multiples and primes'

The Knowledge for Progression:

- To know that a multiple is a repeated multiplication of a value
- To know that the lowest common multiple (LCM) is the lowest multiple that is common in two or more values
- To know that a factor is a value that divides without a remainder
- To know that the highest common factor (HCF) is the highest factor that is common in two or more value
- To know that a prime number is an integer with only two factors, one and itself
- To know the prime numbers up to 19
- To know that prime factor decomposition is expressing any number as a product of its prime factors

Speak Like a Mathematician

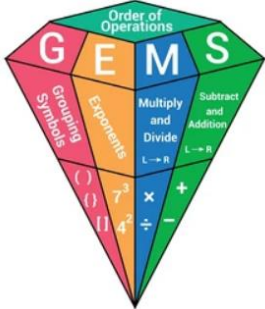
Key Word	Dual Coding	Definition
Factor		A value that divides without remainder
Multiple		Repeated multiplication of a value
Prime		An integer with only two factors, one and itself

'Order of operations'

The Knowledge for Progression:

- To know the order of the operations is the order in which different mathematical operations are applied in a calculation
- To know that division and multiplication hold the same value and you work them out in the order they appear.
- To know that addition and subtraction hold the same value and you work them out in the order they appear in the question.

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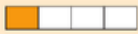


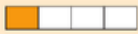


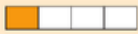

Key Word	Dual Coding	Definition
Order of operations	 <p>The diagram is a diamond shape divided into four colored sections. At the top, it says 'Order of Operations'. The sections are: G (Grouping Symbols) in pink, E (Exponents) in orange, M (Multiply and Divide) in blue, and S (Subtract and Addition) in green. Below each letter are symbols and directions: G has parentheses and brackets; E has powers of 2, 3, 4; M has multiplication (x) and division (÷) symbols; S has subtraction (-) and addition (+) symbols. Arrows indicate the direction of calculation: L → R for M and S, and R → L for G and E.</p>	The order in which different mathematical operations are applied in a calculation

'Fractions, decimals, and percentages'

The Knowledge for Progression:

- To know that the place value of the decimal gives the denominator of the fraction
- To know that a fraction shows a division
- To know that 100% and 1 whole are equivalent

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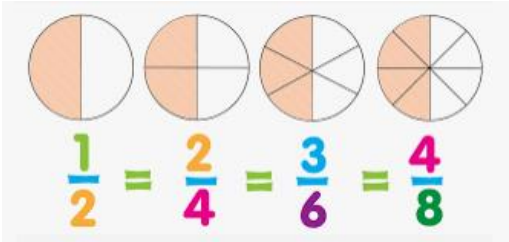
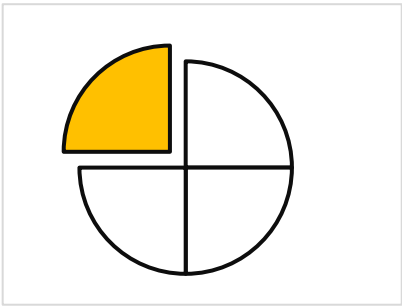
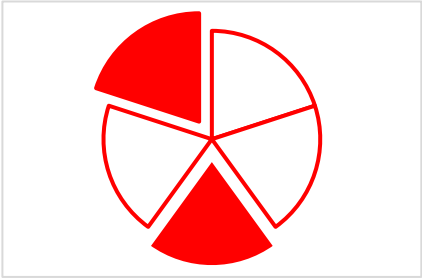
Key Word	Dual Coding				Definition													
Equivalent	<table border="1"><thead><tr><th>Fraction</th><th>Decimal</th><th>Percentage</th><th>Image</th></tr></thead><tbody><tr><td>$\frac{1}{2}$</td><td>0.5</td><td>50%</td><td></td></tr><tr><td>$\frac{1}{4}$</td><td>0.25</td><td>25%</td><td></td></tr><tr><td>$\frac{3}{4}$</td><td>0.75</td><td>75%</td><td></td></tr></tbody></table>	Fraction	Decimal	Percentage	Image	$\frac{1}{2}$	0.5	50%		$\frac{1}{4}$	0.25	25%		$\frac{3}{4}$	0.75	75%		Same in value but in a different form
Fraction	Decimal	Percentage	Image															
$\frac{1}{2}$	0.5	50%																
$\frac{1}{4}$	0.25	25%																
$\frac{3}{4}$	0.75	75%																

'Fractions'

The Knowledge for Progression:

- To know that a fraction is 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

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Key Word	Dual Coding	Definition
Fraction		A numerical value that is not an integer; representing how many parts of a whole we have
Numerator	 $\frac{1}{4}$	<p>The number above the line in a fraction.</p> <p>Represents the number of equal parts of the whole</p>
Denominator	 $\frac{2}{5}$	<p>The number below the line in a fraction.</p> <p>Total of parts that make up the whole</p>
Reciprocal	$\frac{3}{4} \times \frac{4}{3} = 1$	<p>The multiplicative inverse of any non-zero number.</p> <p>Any non-zero number multiplied by its reciprocal is equal to 1</p>