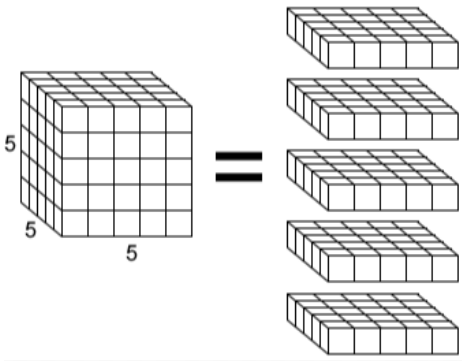
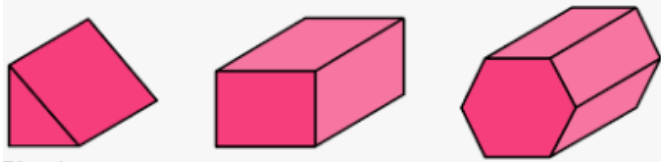
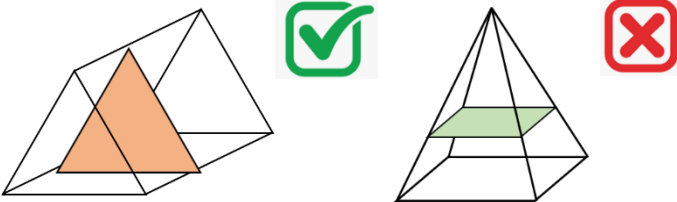


'Further volume of prisms'

The Knowledge for Progression:

- To know that volume = area of the cross-section x length
- To know that volume is the number of cube units inside the shape

Speak Like a Mathematician



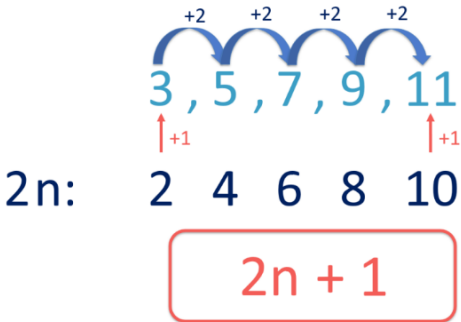
Key Word	Dual Coding	Definition
Volume		The number of cube units inside a 3D shape
Prism		A 3D shape with a uniform cross section. The cross section is a polygon
Uniform cross-section		The same face that runs through the length of a 3D shape.

'Nth term'

The Knowledge for Progression:

- To know that an arithmetic sequence is where the terms increase or decrease by the same number each time
- To know that "n" is the position of a value in the sequence
- To know that "n" is always a positive integer

Speak Like a Mathematician

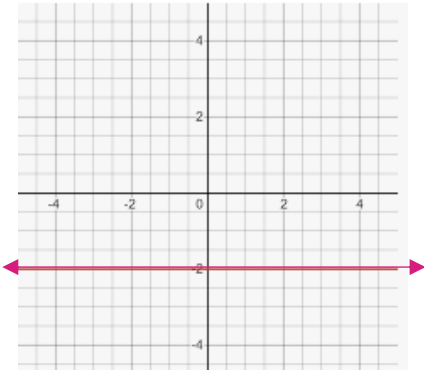
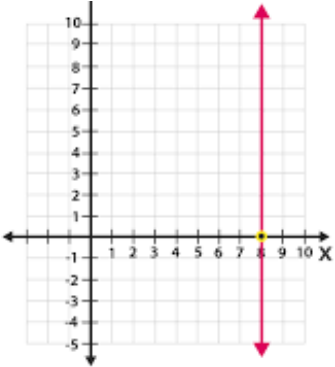
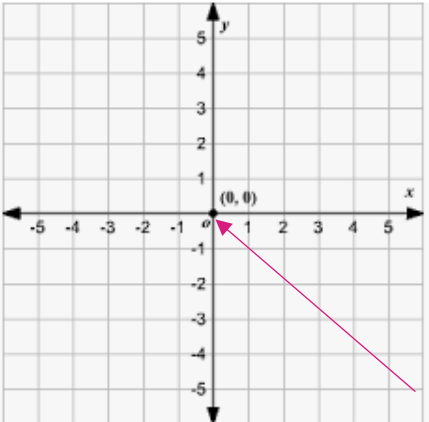
Key Word	Dual Coding	Definition
Sequence	$2, 4, 8, 16 \dots$	A set of values or diagrams that follow a pattern
Term	Term: $1 \quad 2 \quad 3 \quad 4$  Term: $1 \quad 2 \quad 3 \quad 4 \quad 5$	The position of a value or diagram in a sequence
Arithmetic sequence	$3, 7, 11, 15$ 	Terms are generated by adding or subtracting a constant amount. This can also be called an arithmetic progression.
Nth term		Relates to the rule of a sequence where 'n' represents the position of the term, starting the count of terms from the first term.

'Introduction to linear graphs'

The Knowledge for Progression:

- To know that a coordinate is in the form (X,Y)
- To know that straight lines are continuous

Speak Like a Mathematician

Key Word	Dual Coding	Definition
Horizontal		In a left to right direction. Parallel to the x-axis
Vertical		In a down to up direction. Parallel to the y-axis
Origin		The intersection of the y and x-axis. Taking the coordinate (0,0)

'Reflections'

The Knowledge for Progression:

- To know that a object can be reflected across a mirror line to create an image
- To know that the mirror line will be the line of symmetry between the object and the image
- To know that the image is congruent to the original shape
- To know that each vertex on the original object is the same perpendicular distance from the mirror line to its corresponding vertex on the image

Speak Like a Mathematician

Key Word		Definition
Reflect		A transformation of a object including a mirror line and creating an image
Mirror line		The line of symmetry between the object and image
Image		The shape created after a reflection
Congruent		Two or more objects that are the same in every way, except their position in space

'Measuring grouped data'

The Knowledge for Progression:

- To know that a class interval a sub-group of data that does not overlap
- To know that the modal class contains the highest frequency
- To know that the mean is an estimate because the exact values in the class are unknown
- To know that the mid-point is the middle value of the class
- To know that the range is a measure of spread and consistency

Speak Like a Mathematician

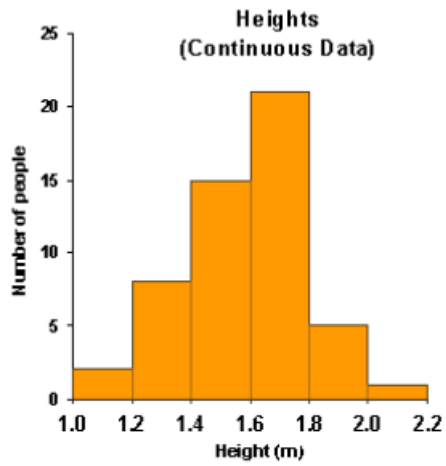
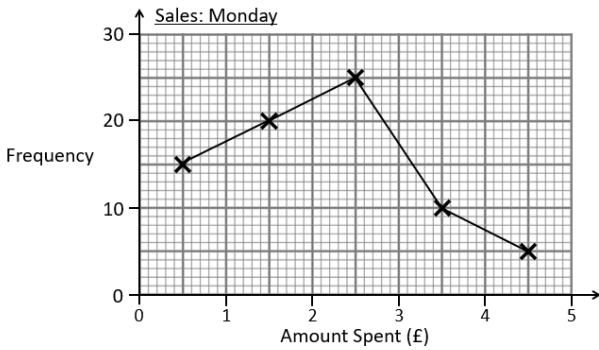
Key Word	Dual Coding	Definition																						
Frequency	<table border="1"> <thead> <tr> <th>Colour</th> <th>Tally marks</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>Black</td> <td> </td> <td>1</td> </tr> <tr> <td>Blue</td> <td> </td> <td>5</td> </tr> <tr> <td>Pink</td> <td> </td> <td>2</td> </tr> <tr> <td>White</td> <td> </td> <td>4</td> </tr> <tr> <td colspan="2"></td> <td>Total = 12</td> </tr> </tbody> </table>	Colour	Tally marks	Frequency	Black		1	Blue		5	Pink		2	White		4			Total = 12	The number of times an event occurs				
Colour	Tally marks	Frequency																						
Black		1																						
Blue		5																						
Pink		2																						
White		4																						
		Total = 12																						
Class interval	<table border="1"> <thead> <tr> <th>Grade</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>21-30</td> <td>0</td> </tr> <tr> <td>31-40</td> <td>1</td> </tr> <tr> <td>41-50</td> <td>2</td> </tr> <tr> <td>51-60</td> <td>4</td> </tr> <tr> <td>61-70</td> <td>4</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Time taken</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>$0 < t \leq 5$</td> <td>5</td> </tr> <tr> <td>$5 < t \leq 10$</td> <td>14</td> </tr> <tr> <td>$10 < t \leq 15$</td> <td>10</td> </tr> <tr> <td>$15 < t \leq 20$</td> <td>1</td> </tr> </tbody> </table>	Grade	Frequency	21-30	0	31-40	1	41-50	2	51-60	4	61-70	4	Time taken	Frequency	$0 < t \leq 5$	5	$5 < t \leq 10$	14	$10 < t \leq 15$	10	$15 < t \leq 20$	1	A sub-group of data that does not overlap
Grade	Frequency																							
21-30	0																							
31-40	1																							
41-50	2																							
51-60	4																							
61-70	4																							
Time taken	Frequency																							
$0 < t \leq 5$	5																							
$5 < t \leq 10$	14																							
$10 < t \leq 15$	10																							
$15 < t \leq 20$	1																							
Modal class	<table border="1"> <thead> <tr> <th>Time taken</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>$0 < t \leq 5$</td> <td>5</td> </tr> <tr> <td>$5 < t \leq 10$</td> <td>14</td> </tr> <tr> <td>$10 < t \leq 15$</td> <td>10</td> </tr> <tr> <td>$15 < t \leq 20$</td> <td>1</td> </tr> </tbody> </table>	Time taken	Frequency	$0 < t \leq 5$	5	$5 < t \leq 10$	14	$10 < t \leq 15$	10	$15 < t \leq 20$	1	The sub-group that contains the highest frequency												
Time taken	Frequency																							
$0 < t \leq 5$	5																							
$5 < t \leq 10$	14																							
$10 < t \leq 15$	10																							
$15 < t \leq 20$	1																							

'Presentation of continuous and grouped data'

The Knowledge for Progression:

- To know that the bars in a bar chart will touch for continuous data
- To know that the midpoint is used when plotting a frequency polygon
- To know that points on a frequency polygon is construct are joined with straight lines

Speak Like a Mathematician

Key Word	Dual Coding	Definition														
Bar chart	 <p>The bar chart displays the distribution of heights. The x-axis represents height in meters, with major ticks every 0.2 units from 1.0 to 2.2. The y-axis represents the number of people, with major ticks every 5 units from 0 to 25. The bars are orange and touch each other at their boundaries, indicating continuous data. The highest frequency is in the 1.6-1.8 m range, with 21 people.</p> <table border="1"><caption>Heights (Continuous Data)</caption><thead><tr><th>Height (m)</th><th>Number of people</th></tr></thead><tbody><tr><td>1.0-1.2</td><td>2</td></tr><tr><td>1.2-1.4</td><td>8</td></tr><tr><td>1.4-1.6</td><td>15</td></tr><tr><td>1.6-1.8</td><td>21</td></tr><tr><td>1.8-2.0</td><td>5</td></tr><tr><td>2.0-2.2</td><td>1</td></tr></tbody></table>	Height (m)	Number of people	1.0-1.2	2	1.2-1.4	8	1.4-1.6	15	1.6-1.8	21	1.8-2.0	5	2.0-2.2	1	A way of presenting data. The bars touch to represent continuous data
Height (m)	Number of people															
1.0-1.2	2															
1.2-1.4	8															
1.4-1.6	15															
1.6-1.8	21															
1.8-2.0	5															
2.0-2.2	1															
Frequency polygon	 <p>The frequency polygon shows the distribution of sales on Monday. The x-axis represents the amount spent in pounds, with major ticks every 1 unit from 0 to 5. The y-axis represents frequency, with major ticks every 10 units from 0 to 30. The points are marked with 'x' and connected by straight lines. The highest frequency is at the 2.5-3.0 pound range, with a frequency of 25.</p> <table border="1"><caption>Sales: Monday</caption><thead><tr><th>Amount Spent (£)</th><th>Frequency</th></tr></thead><tbody><tr><td>0.5-1.0</td><td>15</td></tr><tr><td>1.0-1.5</td><td>20</td></tr><tr><td>1.5-2.0</td><td>25</td></tr><tr><td>2.0-2.5</td><td>10</td></tr><tr><td>2.5-3.0</td><td>5</td></tr></tbody></table>	Amount Spent (£)	Frequency	0.5-1.0	15	1.0-1.5	20	1.5-2.0	25	2.0-2.5	10	2.5-3.0	5	A way of presenting grouped data, frequency points are plotted at mid-class value		
Amount Spent (£)	Frequency															
0.5-1.0	15															
1.0-1.5	20															
1.5-2.0	25															
2.0-2.5	10															
2.5-3.0	5															