



**Year 10 Overview:**

In year 10 students apply the knowledge learnt in previous years and apply to worded and multi-concept problems. Algebra and Ratio & Proportion are common topics throughout.

**Autumn Term**

Outline of Key Learning	Hegarty Codes	Lesson
<p><b>Perimeter &amp; Area (8a)</b></p> <ul style="list-style-type: none"> <li>a. Find the area and perimeter of parallelograms and trapezia</li> <li>b. Find the area and perimeter of compound shapes</li> <li>c. Calculate areas and perimeters of compound shapes made from triangles and rectangles</li> <li>d. Estimate surface areas by rounding measurements to 1 significant figure</li> <li>e. Find the surface area of a prism</li> </ul>	<p>549-554,559 555 557-8  584, 130 585</p>	<p><a href="#">Area and Perimeter</a>  <a href="#">Volume and Surface Area</a></p>
<p><b>3D forms &amp; Volume (8b)</b></p> <ul style="list-style-type: none"> <li>a. Calculate volumes of right prisms and shapes made from cubes and cuboids</li> <li>b. Convert between metric volume measures</li> <li>c. Convert between metric measures of volume and capacity e.g. 1ml = 1cm<sup>3</sup></li> </ul>	<p>570-571 702, 703</p>	<p><a href="#">Volume</a></p>
<p><b>Probability (13a, 13b)</b></p> <ul style="list-style-type: none"> <li>a. Write probabilities in words or fractions, decimals and percentages</li> <li>b. List all outcomes for single events systematically</li> <li>c. Work out probabilities from frequency tables and from two-way tables</li> <li>d. Find a missing probability from a list or table including algebraic terms</li> <li>e. Work out probabilities from Venn diagrams</li> <li>f. Use union and intersection notation</li> <li>g. Compare experimental data and theoretical probabilities</li> <li>h. Use tree diagrams to calculate the probability of two independent events</li> </ul>	<p>350 – 353 670  380 – 385 380 355 – 357 361 - 363</p>	<p><a href="#">Probability 1</a>  <a href="#">Probability 2</a>  <a href="#">Probability 3</a></p>



<b>Spring Term</b>		
<b>Outline of Key Learning</b>	<b>Hegarty Code</b>	<b>Lesson Link</b>
<b>Statistics (7a, 7b)</b> <ul style="list-style-type: none"><li>a. Understand sample and population</li><li>b. Calculate the mean, mode, median and range for discrete data</li><li>c. Can interpret and find a range of averages from a (discrete) frequency table, from grouped data frequency table, from a bar chart, and from stem and leaf diagrams</li><li>d. Recognise the advantages and disadvantages between measures of average</li></ul>	394 404-10  414-17 413	<a href="#">Sampling</a>  <a href="#">Data Collection</a>  <a href="#">Averages</a>
<b>Ratio &amp; Proportion (11a, 11b)</b> <ul style="list-style-type: none"><li>a. Share a quantity in a given ratio including three-part ratios</li><li>b. Solve a ratio problem in context: use a ratio to find one quantity when the other is known, use a ratio to compare a scale model to a real-life object and use a ratio to convert between measures and currencies</li><li>c. Write lengths, areas and volumes of two shapes as ratios in simplest form</li><li>d. Solve proportion problems using the unitary method</li><li>e. Solve word problems involving direct and inverse proportion</li><li>f. Work out which product is the better buy</li></ul>	332-4, 328  330-1  339-42  763-7	<a href="#">Ratio 1</a>  <a href="#">Ratio 2 and Best Buy</a>  <a href="#">Direct and Inverse Proportion</a>
<b>Graphs (9a, 9b)</b> <ul style="list-style-type: none"><li>a. Draw straight line graphs for real-life situations, conversion graphs, fuel bills graphs, fixed charge and cost per unit</li><li>b. Draw distance–time graphs and velocity–time graphs</li><li>c. Work out time intervals for graph scales</li><li>d. Plot and draw graphs of straight lines of the form <math>y = mx + c</math> using a table of values;</li><li>e. Sketch a graph of a linear function, using the gradient and y-intercept</li><li>f. Find the equation of a straight line from a graph</li></ul>	206,207,210  716,874,875   201-2	<a href="#">Real Life Graphs</a>  <a href="#">Straight line graphs</a>



<p><b>Multiplicative reasoning (14)</b></p> <ul style="list-style-type: none"><li>a. Understand and use compound measures: density, pressure and speed</li><li>b. calculate average speed, distance, time – in miles per hour as well as metric measures</li><li>c. use kinematics formulae to calculate speed, acceleration (with formula provided and variables defined in the question)</li><li>d. Find the original amount given the final amount after a percentage increase or decrease;</li><li>e. Use compound interest</li></ul>	<p>698-9, 702-4 716-20, 724</p> <p>918</p> <p>88-90, 96</p> <p>94</p>	<p><a href="#">Compound Measures / Kinematics formulas</a></p> <p><a href="#">Reverse Percentages</a></p> <p><a href="#">Compound Interest</a></p>
<p><b>Transformations (10a, 10b)</b></p> <ul style="list-style-type: none"><li>a. Rotate a shape about the origin or any other point on a coordinate grid</li><li>b. Find the centre of rotation, angle and direction of rotation and describe rotations</li><li>c. Translate a given shape by a vector</li><li>d. Transform 2D shapes using single reflections</li><li>e. Enlarge a given shape using (0, 0) as the centre of enlargement, and enlarge shapes with a centre other than (0, 0)</li><li>f. Find the centre of enlargement by drawing</li></ul>	<p>648</p> <p>637-8</p> <p>639-41</p> <p>642-3</p>	<p><a href="#">Translations</a></p> <p><a href="#">Rotation and Enlargement</a></p> <p><a href="#">Reflection</a></p>

Summer Term		
Outline of Key Learning	Hegarty	Lesson
<p><b>Similarity (19a)</b></p> <ul style="list-style-type: none"> <li>a. Identify shapes which are similar; including all circles or all regular polygons with equal number of sides</li> <li>b. Identify the scale factor of an enlargement of a shape as the ratio of the lengths of two corresponding sides</li> <li>c. Solve problems to find missing lengths in similar shapes</li> </ul>	<p>608-61</p> <p>643-46</p>	<p><a href="#">Similarity</a></p> <p><a href="#">Similar Shapes and Missing Lengths</a></p>
<p><b>Pythagoras &amp; Trigonometry (12)</b></p> <ul style="list-style-type: none"> <li>a. Apply Pythagoras' Theorem with a triangle drawn on a coordinate grid</li> <li>b. Calculate the length of a line segment AB given pairs of points</li> <li>c. Understand, use and recall the trigonometric ratios sine, cosine and tan, and apply them to find angles and lengths in general triangles in 2D figures</li> <li>d. Use the trigonometric ratios to solve 2D problems</li> <li>e. Know the exact values of <math>\sin \theta</math> and <math>\cos \theta</math> for <math>\theta = 0^\circ, 30^\circ, 45^\circ, 60^\circ</math> and <math>90^\circ</math>; know the exact value of <math>\tan \theta</math> for <math>\theta = 0^\circ, 30^\circ, 45^\circ</math> and <math>60^\circ</math></li> </ul>	<p>501</p> <p>508-512</p> <p>306</p>	<p><a href="#">Pythagoras' Theorem 2</a></p> <p><a href="#">Trig - Lengths</a></p> <p><a href="#">Trig - Angles</a></p> <p><a href="#">Trig – Exact values</a></p>