

Year 8 Curriculum Overview

Subject: Mathematics

Year 8 Overview:

Throughout year 8 students will develop and build upon their mathematical fluency, mathematical reason and problem solving skills through Number, Algebra, Ratio & Proportion, Geometry & Measures, Probability and Statistics.

Autumn Term

Outline of Key Learning	Hegarty Support	Lesson
<p>Factors & Multiples</p> <ul style="list-style-type: none"> a. Understand and represent calculations in different ways. b. Use factors to simplify questions c. Identify multiples d. Find HCF & LCM 	<p>146 - 148 27 33 31, 34, 36</p>	<p>Factors and Primes Multiples</p>
<p>Sequences</p> <ul style="list-style-type: none"> a. Describe and continue sequences using diagrams b. Describe and continue sequences and calculate the term to term rule c. Find n^{th} term of linear sequences d. Generate a sequence given n^{th} term e. Describe and continue Fibonacci sequences 	<p>196 197 198 198 263</p>	<p>Growing patterns Term to term rule Finding the nth term</p>
<p>Straight line Graphs</p> <ul style="list-style-type: none"> a. Plot linear functions from table of results b. Calculate the gradient of a line c. Plot equations of lines parallel to axes. Eg: $x = 3$ and $y = -2$ d. Reflect shapes in x and y - axis and $x = \pm a$ and $y = \pm a$ d. Understand gradient as a ratio 	<p>206, 207 201 - 204 205 639</p>	<p>Plotting functions Gradient Horizontal and vertical lines</p>



Percentages a. Find percentage of amounts (allow calculator for complex calculations) b. Increase and decrease an amount by a given percentage c. Calculate decimal multipliers for increase and decrease d. Calculate repeated interest e. Calculate finances involving percentages	84 – 87 88, 90 89 91 – 93 752 – 754, 759 - 762	percentage of an amount increase by a percentage decimal multipliers
Indices a. Write numbers as product of its prime factors b. Write expressions with powers c. Multiply and divide expressions with powers d. Order of operations including powers and square roots e. Simplify algebraic expressions with powers	29, 30 102 - 104 105 - 107 120 173 - 175	Prime factors Laws of indices
Developing Geometry - Area a. Calculate the area of a trapezium by splitting the shape and using formula b. Convert units of area c. Find volume of prisms	559 700, 701 570, 571	volume of prisms



Spring Term		
Outline of Key Learning	Hegarty Support	Lesson
Multiplying & dividing Fractions <ul style="list-style-type: none"> a. Multiply and divide a fraction by an integer b. Multiply a fraction by a fraction c. Divide a fraction by a fraction (multiplying by reciprocal) d. Calculate reverse fractions 	67 68, 69 70 – 72 79	multiplying a fraction by an integer multiplying fractions using area Dividing fractions
Proportional Reasoning <ul style="list-style-type: none"> a. Use ratio notation and simplify b. Write ratios as fractions/proportions c. Share an amount by a given ratio including worded problems d. Use a ratio to find a quantity where one is unknown 	329 330 332 – 334 338	Equivalent ratios fractions and proportions sharing in a given ratio
Algebraic Techniques <ul style="list-style-type: none"> a. Multiply out single brackets including $3(x + 3) + 4x$ or $-3x + 4x(x + 3)$ b. Factorising expressions to a single bracket c. Forming and solving equations and inequalities d. Change the subject up to 2-step e. Expand two brackets 	160, 161 168 – 171 176 280, 281 162, 163	solving equations
Angles in Parallel Lines <ul style="list-style-type: none"> a. - Draw parallel lines and measure all angles b. Calculate corresponding, alternate & Co-interior angles in parallel lines and quadrilaterals c. Calculate interior angles in regular polygons up to decagon d. Draw, measure & calculate bearings Compare fractions, using inequality signs 	481 – 483 562, 564, 565 492 - 496	Alternate and corresponding angles interior angles missing angles Bearings



<p>Circles</p> <ul style="list-style-type: none">a. Find the circumference and area of circlesb. Calculate radius given area or circumferencec. Find the perimeter and area of semi circles.d. Find the perimeter and area of quadrants and sectors	<p>534, 535, 539, 540</p> <p>536, 541 537, 538, 542, 543</p>	<p><u>Circumference</u></p> <p><u>perimeter of a sector</u></p> <p><u>compound shapes involving circles</u></p>
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Summer Term		
Outline of Key Learning	Hegarty Support	Lesson
<p>Frequency Tables</p> <ul style="list-style-type: none"> a. Draw and interpret dual and composite bar charts b. Collect and represent data in a frequency table c. Calculate averages from frequency tables d. Draw and interpret pie charts e. Draw pie charts for data that the total isn't a factor of 360° 	<p>402 414 – 417 427 – 429</p>	<p>frequency tables mean from frequency table median from frequency table interpreting pie charts</p>
<p>Frequency Trees</p> <ul style="list-style-type: none"> a. List outcomes of events systematically b. Draw and complete frequency trees c. Find probabilities using lists, tables d. Complete and construct two-way tables (sample space diagrams) e. Calculate expected probability, relative frequency and understand bias 	<p>670 368, 369 422 – 424 356, 357</p>	<p>Frequency trees combined events calculating probabilities relative frequency</p>
<p>Standard Index Form</p> <ul style="list-style-type: none"> a. Write ordinary numbers in standard form b. Write standard form into ordinary numbers c. Order numbers in standard form d. Convert between metric units 	<p>122, 124 123 691 - 699</p>	<p>standard form</p>
<p>Venn Diagrams</p> <ul style="list-style-type: none"> a. Complete and construct Venn diagrams b. Calculate probability from a Venn diagram c. Understand and use set notation 	<p>372, 373, 378 – 380 383, 384 374, 375</p>	<p>Venn diagrams Venn diagrams and probability set notation</p>



Loci & Construction a. Draw and measure bearings b. Calculate missing bearings with use of parallel lines c. Identify congruent triangles (ASA, SAS, SSS, RHS) d. Construct angle bisector & perpendicular bisector e. Find Loci from a point, a line and a shape f. Construct 30° , 60° , 120° , 45° or 90° angles	492, 493 494 – 496 682, 683 660, 661 674 – 679 664, 665	<u>congruent triangles</u> <u>angle bisectors</u> <u>bisectors</u>
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