

## GCSE Scheme of Work

The new GCSE will consist of 3 exam papers, each 1½ hours long. There will be one Non-Calculator Paper and two Calculator Papers

### Higher Tier

The higher tier covers all grades from 1-9. It specifically tests grades 4-9, but assumes knowledge of grades 1-3.

Work at grades 4-5 is likely to be tested as straight questions. Work at grade 6-9 is likely to have a bigger emphasis on problem solving

### Foundation Tier

The foundation tier covers all grades from 1-5

Work at grades 4-5 is likely to be tested as straight questions. Work at grades 1-3 is likely to have a bigger emphasis on problem solving

### Assessment Objectives

| Assessment Objective  | Criteria   | Higher Tier | Foundation Tier |
|---|--|-------------|-----------------|
| AO1:<br>Use and Apply Standard Techniques                     | <ul style="list-style-type: none"> <li>• Accurately recall facts, terminology and definitions (10%)</li> <li>• Use and interpret notation correctly (10%)</li> <li>• Accurately carry out routine procedures or set tasks requiring multistep solutions</li> </ul>   | 40%         | 30%             |
| AO2:<br>Reason, Interpret and Communicate Mathematically      | <ul style="list-style-type: none"> <li>• Make deductions, inferences and draw conclusions from mathematical information</li> <li>• Construct chains of reasoning to achieve a given result</li> <li>• Interpret and communicate information accurately</li> <li>• Present arguments and proofs</li> <li>• Assess the validity of an argument and critically evaluate a given way of presenting information</li> </ul>  | 30%         | 25%             |
| AO3:<br>Solve Problems with Mathematics and in Other Contexts | <ul style="list-style-type: none"> <li>• Translate problems in mathematical or non-mathematical contexts into a process or a series of mathematical processes</li> <li>• Make and use connections between different parts of mathematics</li> <li>• Interpret results in the context of the given problem</li> <li>• Evaluate methods used and results obtained</li> <li>• Evaluate solutions to identify how they may have been affected by assumptions made</li> </ul> | 30%         | 25%             |

In the pre-2015 GCSE whole questions were assigned as either AO1, AO2 or AO3. In the new GCSE marks are assigned individually to each assessment objective, therefore a single question may have marks allocated to all three assessment objectives

Note: QWC (\*) will not be flagged up on questions but will be tested through AO2 across the whole paper

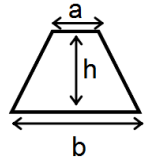
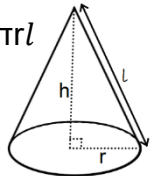
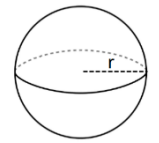
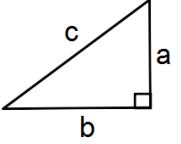
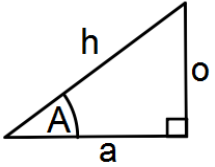
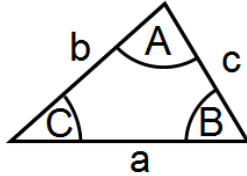
| <b><u>Intent</u></b>  | <b><u>Implementation</u></b>  | <b><u>Impact</u></b>   |
|---|---|--|
| <p>To help our young people develop, we believe it is important for them to explore their talents and enable them to experience success and fulfil their potential. To this end, we offer a Mathematical Curriculum that supports and develops all pupils of a wide ability in a variety of ways.</p> <p>We want our pupils to:</p> <ul style="list-style-type: none"> <li>• be challenged and equipped to live and work in a complex and changing world</li> <li>• be encouraged to respect others' values and work as a team</li> <li>• be able to develop a sense of unity through helping and supporting on another</li> <li>• aspire to be the best they can be</li> <li>• achieve their Mathematical potential</li> <li>• grow in self-esteem and resilience</li> </ul> | <p>Whilst recognising that young people have differing needs, gifts and talents and we aim to meet these through a variety of curriculum support and intervention strategies across all year including Gifted and Talented activities, study support and numeracy support programmes.</p> <p>Implementation and strategies for supporting progress in all years include and are not limited to:</p> <ul style="list-style-type: none"> <li>• Diagnosis, Teaching, Therapy (DTT for Year 11) Focuses materials and classroom teaching to that of the needs of the class, working as a community to support success for all</li> <li>• Lesson Sequencing (All years) helps develop pupils understanding of their own strengths and weaknesses giving pupils concise feedback and opportunities to improve weaker skills and knowledge.</li> <li>• Multiple Teaching Methods, deepening pupils understanding through concrete methods, to then develop and produce efficient Mathematicians through abstract means.</li> <li>• Variation and Minimal Differences – taking a skill from the basic and VERY slowly increasing the difficulty, discussing the differences and build knowledge more securely.</li> <li>• Interleaving –giving pupils regular revisits to topics and interleaving them in to new topics such that topics continue to develop and remain at the fore in pupils minds.</li> <li>• Problem solving and reasoning – giving pupils regular opportunities to think hard and apply skills to unfamiliar situations, applying all that they know and justifying the answers.</li> </ul> | <p>The impact of the curriculum is measured in standards achieved, progress made and personal qualities acquired. The impact of our curriculum has:</p> <ul style="list-style-type: none"> <li>• High standards: consistently performing at above national</li> <li>• Students who are able to foster and promote a positive attitude to Mathematics</li> <li>• Progress which builds incrementally year-on-year at a pace and momentum appropriate to the student</li> <li>• Teaching which is rigorous, personalised, innovative and student-centered</li> <li>• Students that are resilient, questioning, resourceful, self-sufficient and ultimately able to apply all the skills and knowledge that they have acquired to unfamiliar situations.</li> </ul> |

## Overview of New Content

| Higher Tier  | Foundation Tier   |
|--|---|
| <ul style="list-style-type: none"> <li>• Product rule for counting</li> <li>• Estimate powers and roots of any given positive number</li> <li>• Expanding three or more linear brackets</li> <li>• Composite and inverse functions</li> <li>• Gradients and areas under curves</li> <li>• Equations of tangents to a circle at a given point</li> <li>• Find solutions to equations using iteration</li> <li>• Work with iterative processes</li> <li>• Solve quadratic inequalities</li> <li>• Solve linear inequalities in two variables using set notation and graphs</li> <li>• Nth term of a quadratic sequence</li> <li>• Proof of circle theorems</li> <li>• Geometric sequences with common ratios that are surds</li> <li>• Identify turning points of quadratics by completing the square</li> </ul> | <ul style="list-style-type: none"> <li>• Calculate with and interpret standard form</li> <li>• Use inequality symbols to specify errors due to rounding or truncating</li> <li>• Simplify and manipulate algebraic expressions involving surds</li> <li>• Multiple two brackets</li> <li>• Factorise and solve quadratics</li> <li>• Use <math>y = mx + c</math> to identify parallel lines</li> <li>• Identify gradients and y-intercepts</li> <li>• Find equations of lines from points and gradients</li> <li>• Recognise, sketch and interpret graphs of linear, quadratic, cubic and the reciprocal function</li> <li>• Use graphs to solve problems involving acceleration</li> <li>• Linear simultaneous equations</li> <li>• Recognise Fibonacci type, quadratic and geometric sequences</li> <li>• Calculate compound measures including pressure</li> <li>• Understand direct and inverse proportion</li> <li>• Reverse percentages</li> <li>• Compound growth and decay problems</li> <li>• Similarity</li> <li>• Congruence of triangles</li> <li>• Enlargement with fractional scale factors</li> <li>• Volume and surface area of spheres, pyramids, cones and composite solids</li> <li>• Area and perimeter of composite shapes involving circles</li> <li>• Arc length and area of sectors</li> <li>• Calculate with exact multiple of <math>\pi</math></li> <li>• Trigonometry in right angled triangles</li> <li>• Exact values for sin, cos and tan</li> <li>• Add, subtract and multiply with vectors</li> <li>• Tree diagrams</li> <li>• Basic sampling</li> <li>• Venn diagrams</li> <li>• Consider outliers when calculating the range</li> </ul> |

## The Formula Page

There will be no formula page on the exam paper.

| <b>Formula to be Learnt</b><br>These will not be given in the exam paper   |  | <b>Formula given on the Exam Paper</b><br>Will be given in question  |
|--|--|--|
| <p style="text-align: center;"><b>The Quadratic Formula</b></p> <p><math>ax^2 + bx + c = 0</math> where <math>a \neq 0</math></p> $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$   | <p style="text-align: center;"><b>Perimeter, Area, Surface Area, Volume</b></p> <p>Area of Trapezium = <math>\frac{1}{2}(a + b)h</math></p> <p>Volume of Prism<br/>= Area of cross-section x length</p>   | <p style="text-align: center;"><b>Perimeter, Area, Surface Area, Volume</b></p> <p>Curved Surface Area of Cone = <math>\pi rl</math></p> <p>Volume of Cone = <math>\frac{1}{3}\pi r^2 h</math></p>    |
| <p style="text-align: center;"><b>Circles</b></p> <p>Circumference = <math>2\pi r = \pi d</math></p> <p>Area = <math>\pi r^2</math></p>  | <p style="text-align: center;"><b>Probability</b></p> <p><math>P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)</math></p> <p><math>P(A \text{ and } B) = P(A \text{ given } B)P(B)</math></p>   | <p style="text-align: center;"><b>Surface Area of a Sphere = <math>4\pi r^2</math></b></p> <p>Volume of Sphere = <math>\frac{4}{3}\pi r^3</math></p>    |
| <p style="text-align: center;"><b>Right Angled Triangles</b></p> <p>Pythagoras Theorem</p> $a^2 + b^2 = c^2$ <p>Trigonometry</p> $\sin A = \frac{o}{h}$ $\cos A = \frac{a}{h}$ $\tan A = \frac{o}{a}$   | <p style="text-align: center;"><b>Non-Right Angled Triangles</b></p>  <p>Sine Rule</p> $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$ <p>Cosine Rule</p> $a^2 = b^2 + c^2 - 2bc \cos A$ <p>Area = <math>\frac{1}{2}ab \sin C</math></p> | <p style="text-align: center;"><b>Kinematics</b></p> <p style="text-align: center;"> <math>a</math> is constant acceleration,<br/> <math>u</math> is initial velocity,<br/> <math>v</math> is final velocity,<br/> <math>s</math> is displacement<br/> <math>t</math> is time taken                     </p> <p><math>v = u + at</math></p> <p><math>s = ut + \frac{1}{2}at^2</math></p> <p><math>v^2 = u^2 + 2as</math></p> |

| Topic Number | Topic                            | Notes   | Completed |
|--------------|----------------------------------|---|-----------|
| 1            | Integers and Place Value         | <p>Topics 1-4 to be taught in Year 9 Summer term 2 when they start the KS4 Scheme of Work</p> <p>Yellow = Both higher and Foundation<br/> Green = Higher<br/> Red = Foundation</p> <p>Blue = if time is restricted in the lead up to mocks, these topics are to be left, with a focus on the other highlighted topics. The blue topics can then be picked up after the Year 11 mocks.</p> |           |
| 2            | Angles and Bearings              |   |           |
| 3            | Coordinates and Linear Graphs    |   |           |
| 4            | Number Properties                |   |           |
| 5            | Powers, Roots and Surds          |   |           |
| 6            | Expressions and Brackets         |   |           |
| 7            | Statistics: Drawing Graphs       |   |           |
| 8            | Decimals                         |   |           |
| 9            | 2D Shapes                        |   |           |
| 10           | Fractions                        |   |           |
| 11           | Solving Equations                |   |           |
| 12           | Ratio and Proportion             |   |           |
| 13           | Triangles                        |   |           |
| 14           | Solving Quadratic Equations      |   |           |
| 15           | Statistics: Averages             |   |           |
| 16           | Sequences                        |   |           |
| 17           | Substitution and Formulae        |   |           |
| 18           | Percentages                      |   |           |
| 19           | 3D Shapes                        |   |           |
| 20           | Fractions, Decimals, Percentages |   |           |
| 21           | Construction                     |   |           |
| 22           | Probability                      |   |           |
| 23           | Measures                         |   |           |
| 24           | Transformations                  |   |           |
| 25           | Quadratic and Curved Graphs      |   |           |
| 26           | Inequalities                     |   |           |
| 27           | Proof                            |   |           |

| 1          | Integers and Place Value   | Video   | Questions   | Answers   |
|------------|--|---|---|---|
| F<br>1-3   | Understand and use place value<br>Order positive and negative integers<br>Add and subtract integers using both mental and formal written methods<br>Multiply and divide integers using both mental and formal written methods<br>Add, subtract, multiply and divide with negative numbers<br>Multiply and divide by powers of 10<br><br>Round to the nearest 10, 100 <i>etc.</i> | <a href="#">Place Value</a><br><a href="#">Order numbers</a><br><a href="#">Add &amp; Subtract</a><br><a href="#">Multiply &amp; Divide</a><br><a href="#">Negatives</a><br><a href="#">Divide powers of 10</a><br><a href="#">Multiply powers of 10</a><br><a href="#">Nearest 100</a> | <a href="#">Place Value</a><br><a href="#">Order numbers</a><br><a href="#">Add &amp; Subtract</a><br><a href="#">Multiply &amp; Divide</a><br><a href="#">Negatives</a><br><a href="#">Divide powers of 10</a><br><a href="#">Multiply powers of 10</a><br><a href="#">Nearest 100</a> | <a href="#">Place Value</a><br><a href="#">Order numbers</a><br><a href="#">Add &amp; Subtract</a><br><a href="#">Multiply &amp; Divide</a><br><a href="#">Negatives</a><br><a href="#">Divide powers of 10</a><br><a href="#">Multiply powers of 10</a><br><a href="#">Nearest 100</a> |
| 2          | Angles and Bearings  | Video   | Questions   | Answers   |
| F<br>1-3   | Name the types of angles<br>Apply the rules of angles at a point, angles on a straight line and vertically opposite angles, angles in a triangle or quadrilateral<br>Apply the rules of angles in polygons<br>Apply the rules of angles on parallel lines<br>Use bearings and scale drawings including maps  | <a href="#">Types of angles</a><br><a href="#">Angle rules</a><br><br><a href="#">Angles - polygons</a><br><a href="#">Parallel lines</a><br><a href="#">Bearings</a>   | <a href="#">Types of angles</a><br><a href="#">Angle rules</a><br><br><a href="#">Angles - polygons</a><br><a href="#">Parallel lines</a><br><a href="#">Bearings</a>   | <a href="#">Types of angles</a><br><a href="#">Angle rules</a><br><br><a href="#">Angles - polygons</a><br><a href="#">Parallel lines</a><br><a href="#">Bearings</a>   |
| F/H<br>4-5 | Know the language of tangent, arc, sector and segment  | <a href="#">Circle Parts</a>  | <a href="#">Circle Parts</a>  | <a href="#">Circle Parts</a>  |
| H<br>6-7   | Know and apply circle theorems   | <a href="#">Circle Theorems</a>   | <a href="#">Circle Theorems</a>   | <a href="#">Circle Theorems</a>   |

| 3          | Coordinates and Linear Graphs  | Video   | Questions  | Answers   |
|------------|--|---|--|---|
| F<br>1-3   | Work with coordinates in all four quadrants<br>Solve geometric problems on coordinate axes<br>Plot graphs of linear equations<br><br>Identify gradients and y-intercepts from both graphs and equations<br>Use distance tables and timetables  | <a href="#">Coordinates</a><br><a href="#">Coords (shapes)</a><br><a href="#">Linear Graphs</a><br><br><a href="#">Gradient of line</a><br><a href="#">Distance Table</a><br><a href="#">Timetables</a> | <a href="#">Co-ordinates</a><br><a href="#">Co-ord Shape</a><br><a href="#">Linear Graph</a><br><br><a href="#">Gradient of line</a><br><a href="#">Distance table</a><br><a href="#">Timetables</a> | <a href="#">Co-ordinates</a><br><a href="#">Co-ord Shape</a><br><a href="#">Draw Linear graph</a><br><a href="#">Gradient of line</a><br><a href="#">Distance table</a><br><a href="#">Timetables</a> |
| F/H<br>4-5 | Find midpoints between coordinates<br>Find the equation of a line<br>Speed, distance and time graphs<br>Plot and use conversion graphs   | <a href="#">Mid-point</a><br><a href="#">Eq of a line</a><br><a href="#">SDT</a><br><a href="#">Plot Conversion</a><br><a href="#">Use conversion</a>   | <a href="#">Mid-point</a><br><a href="#">Eq of a line</a><br><a href="#">SDT</a><br><a href="#">Plot conversion</a><br><a href="#">Use conversion</a>  | <a href="#">Mid-point</a><br><a href="#">Eq of a line</a><br><a href="#">SDT</a><br>See teacher<br>See teacher  |
| H<br>6-7   | Use the form $y = mx + c$ to identify perpendicular lines<br>Interpret gradients of and areas under linear graphs in real life contexts, including distance-time graphs, velocity-time graphs and in financial contexts  | <a href="#">Perpendicular</a><br>xxxx   | <a href="#">Perpendicular</a><br>xxxx  | <a href="#">Perpendicular</a><br>xxxx   |
| 4          | Number Properties  | Video   | Questions  | Answers   |
| F<br>1-3   | Prime number, Factors and multiples of a given number<br>Calculate prime factorisation for a given number(1)<br>Find the highest common factor and lowest common multiple using lists(2)<br>Find the highest common factors and lowest common multiple using prime factorisation (3)           | <a href="#">Prime, Fact, Mult</a><br><a href="#">Prime</a><br><a href="#">Factors(1)</a><br><a href="#">LCM(2) HCF(2)</a><br><a href="#">LCM HCF using prime(3)</a>                                     | <a href="#">Prime, Fact, Mult</a><br><br><a href="#">Prime factors, LCM, HCF questions (123)</a>   | <a href="#">Prime, Fact, Mult</a><br><br><a href="#">Prime factors, HCF, LCM questions (123)</a>  |
| 5          | Powers, Roots and Surds  | Video   | Questions  | Answers   |
| F<br>1-3   | Understand and apply BODMAS<br>Use positive integer powers and associated real roots<br><br>Know what a reciprocal is<br>Writing using indices know and apply the laws of indices:<br>Convert between standard and ordinary form<br>Calculate with standard form with and without a calculator | <a href="#">BODMAS</a><br><a href="#">Squaring</a><br><a href="#">Roots</a><br>xxxx<br><a href="#">Indices</a><br><a href="#">Standard form</a>   | <a href="#">BODMAS</a><br><a href="#">Squares &amp; roots</a><br><br>xxxx<br><a href="#">Indices</a><br><a href="#">Standard form</a>  | <a href="#">BODMAS</a><br><a href="#">Squares &amp; roots</a><br><br>xxxx<br><a href="#">Indices</a><br><a href="#">Standard form</a>   |
| F/H        | Know how to use the power buttons on a calculator  | <a href="#">BODMAS</a>  | <a href="#">BODMAS</a>   | <a href="#">BODMAS</a>  |

|            |  |  |   |   |
|------------|--|--|---|---|
| 4-5        | Calculate with BODMAS on a calculator<br>Calculate with roots and integer indices<br>Calculate negative indices  | <a href="#">Squaring</a><br><a href="#">Roots</a><br><a href="#">Negative indices</a>  | <a href="#">Squares &amp; roots</a><br><br><a href="#">Negative and fraction Indices</a>  | <a href="#">Squares &amp; roots</a><br><br><a href="#">Negative and fraction Indices</a>  |
| H<br>6-7   | Calculate fractional indices   | <a href="#">Fraction indices</a>   | <a href="#">Negative and fraction Indices</a>   | <a href="#">Negative and fraction Indices</a>   |
| H<br>8-9   | Estimate powers and roots of any given positive number<br>Simplify surds<br>Add and subtract surds<br>Rationalise denominators   | <a href="#">Intro Surds</a><br><a href="#">Add Sub surds</a><br><a href="#">Rationalise Denominators</a>   | <a href="#">Surds all</a>   | <a href="#">Surds all</a>   |
| <b>6</b>   | <b>Expressions and Brackets</b>  | <b>Video</b>   | <b>Questions</b>  | <b>Answers</b>  |
| F<br>1-3   | Introduce Algebraic notation - simplify expressions<br>Multiply out a single bracket<br>Factorise single brackets  | <a href="#">Algebra notation</a><br><a href="#">Expand bracket</a><br><a href="#">Factorising</a>  | <a href="#">Algebra notation</a><br><a href="#">Expand bracket</a><br><a href="#">Factorising</a>   | <a href="#">Algebra notation</a><br><a href="#">Expand bracket</a><br><a href="#">Factorising</a>   |
| F/H<br>4-5 | Find the product of two linear brackets<br>Factorise quadratics of the form $x^2 \pm bx \pm c$ , and difference of two squares   | <a href="#">Double bracket</a><br><a href="#">Factorise double</a>   | <a href="#">Double bracket</a><br><a href="#">Factorise double</a>  | <a href="#">Double bracket</a><br><a href="#">Factorise double</a>  |
| H<br>6-7   | Find the product of more than two linear brackets<br>Factorise quadratics of the form $ax^2 \pm bx \pm c$  | <a href="#">Three brackets</a><br><a href="#">Factorise double</a>   | <a href="#">Three brackets</a><br><a href="#">Factorise double</a>  | <a href="#">Three brackets</a><br><a href="#">Factorise double</a>  |
| H<br>8-9   | Simplify algebraic fractions<br><br>Add and subtract algebraic fractions   | <a href="#">Simplify fractions</a><br><a href="#">Add and sub</a>  | <a href="#">Simplify fractions</a><br><a href="#">Add and sub</a>   | <a href="#">Simplify Fractions</a><br><br><a href="#">Add and sub</a>   |
| <b>7</b>   | <b>Statistics: Drawing Graphs</b>  | <b>Video</b>   | <b>Questions</b>  | <b>Answers</b>  |
| F<br>1-3   | Know the difference between discrete and continuous data<br>Interpret and construct frequency tables<br>Interpret and construct pictograms<br><br>Interpret, construct and compare bar charts<br><br>Interpret, construct and compare pie charts<br><br>Interpret and construct scattergraphs<br>Recognise correlation | <a href="#">Types of data</a><br>xxxx<br><a href="#">Pictograms 1</a><br><a href="#">Pictograms 2</a><br><a href="#">Bar Charts 1</a><br><a href="#">Bar Charts 2</a><br><a href="#">Pie Charts 1</a><br><a href="#">Pie Charts 2</a><br><a href="#">Scattergraphs 1</a><br><a href="#">Scattergraphs 2</a><br><a href="#">Scattergraphs 3</a> | <a href="#">Types of data</a><br>xxxx<br><a href="#">Bar Charts and Pictograms</a><br><br><a href="#">Pie Charts 1</a><br><a href="#">Pie Charts 2</a><br><a href="#">Scattergraphs (all)</a> | <a href="#">Types of data</a><br>xxxx<br><a href="#">Bar Charts and Pictograms</a><br><br><a href="#">Pie Charts 1</a><br><a href="#">Pie Charts 2</a><br><a href="#">Scattergraphs (all)</a> |
| F/H<br>4-5 | Understand basic sampling techniques and analyse bias  | <a href="#">Random Samples</a>   | <a href="#">Random Samples</a><br><a href="#">Line Graphs</a>   | See teacher   |



|            |   |   |  |  |
|------------|---|---|--|--|
|            | Interpret and construct tables and line graphs for time series data<br><br>Draw lines of best fit<br>Interpolate and extrapolate using lines of best fit and know the limitations of this   | <a href="#">Line Graphs</a><br><br><a href="#">Line of Best Fit</a><br>xxxxx  | <a href="#">Scattergraphs (all)</a>  | <a href="#">Line Graphs</a><br><a href="#">Scattergraphs (all)</a>   |
| H 6-7      | Carry out a stratified sample   | <a href="#">Stratified Sample</a>   | <a href="#">Stratified Sample</a>  | <a href="#">Stratified Sample</a>  |
| H 8-9      | Interpret and construct histograms  | <a href="#">Histograms 1</a><br><a href="#">Histograms 2</a><br><a href="#">Histograms 3</a>  | <a href="#">Histograms (all)</a>   | <a href="#">Histograms (all)</a>   |
| <b>8</b>   | <b>Decimals</b>   | <b>Video</b>  | <b>Questions</b>   | <b>Answers</b>   |
| F<br>1-3   | Order decimals<br>Understand and use place value within the context of decimals<br>Add, subtract, multiply and divide with decimals<br>Using a given calculation to derive other calculations (e.g: $23 \times 14 = 322$ , so $2.3 \times 1.4 = 3.22$ )<br><br>Round numbers to a given number of decimal places<br><br>Round numbers to a given number of significant figures<br><br>Use estimation to check answers and approximate the answers to calculations | <a href="#">Ordering Decs</a><br><br><a href="#">Add Decs</a><br><a href="#">Subtracting Decs</a><br><a href="#">Multiplying Decs</a><br><a href="#">Dividing Decs 1</a><br><a href="#">Dividing Decs 2</a><br><a href="#">Round to Decimal Places</a><br><a href="#">Round to Sig Figs</a><br><a href="#">Estimation</a> | <a href="#">Ordering Decs</a><br><br><a href="#">Add and Subtract Decimals</a><br><a href="#">Multiply and Divide Decimals</a><br><br><a href="#">Round to decimal places</a><br><a href="#">Round to Sig Figs</a><br><br><a href="#">Estimation</a> | <a href="#">Ordering Decs</a><br><br><a href="#">Add and Subtract Decimals</a><br><a href="#">Multiply and Divide Decimals</a><br><br><a href="#">Round to decimal places</a><br><a href="#">Round to Sig Figs</a><br><br><a href="#">Estimation</a> |
| F/H<br>4-5 | Use inequality notation to specify simple error intervals due to truncation or rounding<br>Introduction to upper and lower bounds   | <a href="#">Bounds</a>  | <a href="#">Bounds (all)</a>   | <a href="#">Bounds (all)</a>   |
| H 8-9      | Carry out calculations involving upper and lower bounds   | <a href="#">Bounds (calcs)</a>  | <a href="#">Bounds (all)</a>   | <a href="#">Bounds (all)</a>   |
| <b>9</b>   | <b>2D Shapes</b>  | <b>Video</b>  | <b>Questions</b>   | <b>Answers</b>   |
| F<br>1-3   | Derive and apply the properties of special types of triangles<br>Derive and apply the properties of special types of quadrilaterals<br>Calculate the perimeter of 2D shapes<br>Calculate the area of rectangles, triangles and parallelograms   | <a href="#">Triangles</a><br><a href="#">Quadrilaterals</a><br><a href="#">Perimeter</a>  | <a href="#">Triangles</a><br><a href="#">Quadrilaterals</a><br><a href="#">Perimeter</a><br><a href="#">Area Rectangle</a><br><a href="#">Area Para</a>  | <a href="#">Triangles</a><br><a href="#">Quadrilaterals</a><br><a href="#">Perimeter</a><br><a href="#">Area Rectangle</a><br><a href="#">Area Para</a>  |

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|            | <p>Calculate the area of trapeziums</p> <p>Calculate the circumference of a circle</p> <p>Calculate the area of a circle</p> <p>Calculate the area of composite shapes</p>   | <a href="#">Area Rectangle, Parallelogram, Triangle</a><br><a href="#">Trapezium</a><br><a href="#">Circumference</a><br><a href="#">Area Circles</a><br><a href="#">Composite Shapes</a>  | <a href="#">Area Triangle</a><br><a href="#">Area Trapezium</a><br><a href="#">Circumference</a><br><a href="#">Area Circles</a><br><a href="#">Composite Shapes</a>  | <a href="#">Area Triangle</a><br><a href="#">Area Trapezium</a><br><a href="#">Circumference</a><br><a href="#">Area Circles</a><br><a href="#">Composite Shapes</a>   |
| F/H<br>4-5 | <p>Give answers to circle problems in terms of <math>\pi</math> and understand this is more accurate than rounding</p> <p>Calculate arc lengths, angles and areas of sectors of circles</p> <p>Reverse area or circumference problems involving circles, semicircles and quarter circles</p>   | <a href="#">Arcs</a><br><a href="#">Sectors</a><br><a href="#">Circumference</a><br><a href="#">Area Circles</a>   | <a href="#">Arcs</a><br><a href="#">Sectors</a><br><a href="#">Circumference</a><br><a href="#">Area Circles</a>  | <a href="#">Arcs</a><br><a href="#">Sectors</a><br><a href="#">Circumference</a><br><a href="#">Area Circles</a>   |
| <b>10</b>  | <b>Fractions</b>   | <b>Video</b>   | <b>Questions</b>  | <b>Answers</b>   |
| F<br>1-3   | <p>Compare and order fractions</p> <p>Work out equivalent fractions</p> <p>Simplify fractions</p> <p>Express one number as a fraction of another</p> <p>Convert between proper fractions and mixed numbers</p> <p>Add, subtract, multiply and divide proper fractions, improper fraction and mixed numbers</p> <p>Find fractions of a given quantity</p> | <a href="#">Order Fractions</a><br><a href="#">Equivalent</a><br><a href="#">Simplifying</a><br><a href="#">Expressing</a><br><a href="#">Improper-&gt;Mixed</a><br><a href="#">Mixed-&gt;Improper</a><br><a href="#">Add and subtract</a><br><a href="#">Multiply Fractions</a><br><a href="#">Divide Fractions</a><br><a href="#">Frac of Amount</a> | <a href="#">Order fractions</a><br><a href="#">Equivalent</a><br><a href="#">Simplifying</a><br><a href="#">Expressing</a><br><a href="#">Mixed &amp; improper</a><br><br><a href="#">Add and subtract</a><br><br><a href="#">Multiply and Divide</a><br><br><a href="#">Frac of amount</a> | <a href="#">Ordering</a><br><a href="#">Equivalent</a><br><a href="#">Simplifying</a><br><a href="#">Expressing</a><br><a href="#">Mixed &amp; Improper</a><br><br><a href="#">Add and subtract</a><br><br><a href="#">Multiply and Divide</a><br><br><a href="#">Frac of amount</a> |
| <b>11</b>  | <b>Solving Equations</b>   | <b>Video</b>   | <b>Questions</b>  | <b>Answers</b>   |
| F<br>1-3   | <p>Use function machines</p> <p>Solve equations using flow charts</p> <p>Solve linear equations with the unknown on one side of the equation</p>   | <p>xxxx</p> <p>xxxx</p> <p><a href="#">Solving eq 1 side</a></p>   | <p>xxxx</p> <p>xxxx</p> <p>xxxx</p> <p><a href="#">Solve Eq 1 and 2</a></p>   | <p>xxxx</p> <p>xxxx</p> <p>xxxx</p> <p><a href="#">Solve eq 1 &amp; 2</a></p>  |
| F/H<br>4-5 | Solve linear equations with one unknown on both sides of the equation  | <a href="#">Solve eq 2 sides</a>   | <a href="#">Solve Eq 1 and 2</a>  | <a href="#">Solve eq 1 &amp; 2</a>   |

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|           | Solve linear simultaneous equations algebraically<br>Solve linear simultaneous equations graphically  | <a href="#">Simultan algebra Graphically</a>  | <a href="#">Simultan algebra Graphically</a>  | <a href="#">Simultan algebra Graphically</a>  |
| H 6-7     | Find approximate solutions to equations using trial and improvement   | <a href="#">Trial and Improve</a>   | <a href="#">Trial and Improve</a>   | <a href="#">Trial and Improve</a>   |
| H 8-9     | Find approximate solutions to equations numerically using iteration   | <a href="#">Iteration</a>   | <a href="#">Iteration</a>   | <a href="#">Iteration</a>   |
| <b>12</b> | <b>Ratio and Proportion</b>   | <b>Video</b>  | <b>Questions</b>  | <b>Answers</b>  |
| F 1-3     | Simplify ratio<br>Divide a quantity into a give ratio Use proportion to solve problems  | <a href="#">Simplify ratio Divide ratio Proportion</a>  | <a href="#">Simplify ratio Divide ratio Proportion</a>  | <a href="#">Simplify ratio Divide ratio Proportion</a>  |
| F/H 4-5   | Understand the basic concept of direct and inverse proportion<br><br>Express ratios as linear functions (e.g: there are twice as many girls as boys can be expressed as 2:1 or $y = 2x$ , where $y$ is the number of girls and $x$ is the number of boys)   | <a href="#">Direct proportion Inverse proportion</a><br>xxxx  | <a href="#">Direct proportion Inverse proportion</a><br>xxxx  | <a href="#">Direct proportion Inverse proportion</a><br>xxxx  |
| H 6-7     | Interpret equations which describe direct and inverse proportion<br>Recognise and interpret graphs that illustrate direct and inverse proportion<br>Construct and solve problems involving direct and inverse proportion,<br>Construct and solve direct and inverse proportion problems involving squares, cube and roots   | <a href="#">Direct proportion Inverse proportion</a>  | <a href="#">Direct proportion Inverseproportion</a>   | <a href="#">Direct proportion Inverseproportion</a>   |
| <b>13</b> | <b>Triangles</b>  | <b>Video</b>  | <b>Questions</b>  | <b>Answers</b>  |
| F/H 4-5   | Know and use the formula for Pythagoras' Theorem<br>Know and use the formula for trigonometric ratios (sin, cos, tan)<br><br>Apply Pythagoras and trigonometry in right angle triangles and other shapes containing right angles triangles to find missing lengths and angles<br>Angles of depression and elevation<br>Know the exact values of $\sin\theta$ and $\cos\theta$ for $\theta = 0^\circ, 30^\circ, 45^\circ, 60^\circ$ and $90^\circ$<br>Know the exact values for $\tan\theta$ for $\theta = 0^\circ, 30^\circ, 45^\circ$ and $60^\circ$ | <a href="#">Pythagoras 1 Trig (sides) Trig (angles) Pythagoras 2</a><br>xxxx<br><a href="#">Trig Exact Values</a> | <a href="#">Pythagoras 1</a><br><br><a href="#">Pythagoras 1 &amp; 2</a><br>xxxx<br><a href="#">Trig Exact Values</a> | <a href="#">Pythagoras 1</a><br><br><a href="#">Pythagoras 1 &amp; 2</a><br>xxxx<br><a href="#">Trig Exact Values</a> |
| H 6-7     | Know and apply the sine rule<br>Know and apply the cosine rule<br><br>Know and apply the formula for area of triangles using $\frac{1}{2}ab\sin C$  | <a href="#">Sine rule (sides) Cos rule (sides) Cos rule (angles) Area of Triangle</a>                             | <a href="#">Sine, Cosine, Area</a>  | <a href="#">Sine, Cosine, Area</a>  |
| H 8-9     | Apply Pythagoras and trigonometry in 3D shapes containing right angles triangles to find missing lengths and angles   | <a href="#">3D Pythagoras 3D Trig</a>   | <a href="#">3D Pythagoras 3D Trig</a>   | <a href="#">3D Pythagoras 3D Trig</a>   |

| 14         | Solving Quadratic Equations  | Video   | Questions   | Answers   |
|------------|--|---|---|---|
| F/H<br>4-5 | Solve quadratic equations by factorisation   | <a href="#">Solve (Factorise)</a>   | <a href="#">Solve (Factorise)</a>   | <a href="#">Solve (Factorise)</a>   |
| H 6-7      | Solve quadratics using the quadratic formula   | <a href="#">Solve (Formula)</a>   | <a href="#">Solve (Formula)</a>   | <a href="#">Solve (Formula)</a>   |
| H<br>8-9   | Solve quadratic equations by completing the square<br>Use the completed square to find turning points on graphs<br>Solve quadratic equations that require rearrangement first<br>Solve simultaneous equations where one or both equations are quadratic<br>Solve equations involving algebraic fractions, which may lead to quadratics | <a href="#">Complete Square</a><br><br><a href="#">Non Linear Simultaneous Quads from fracs</a> | <a href="#">Complete Square</a><br><br><a href="#">Non Linear Simultaneous Quads from fracs</a> | <a href="#">Complete Square</a><br><br><a href="#">Non Linear Simultaneous</a><br>See teacher |
| 15         | Statistics: Averages   | Video   | Questions   | Answers   |

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| F<br>1-3       | Calculate the mean, median, mode and range<br>Compare data using the mean, median, mode and range<br>Calculate the mean, median, mode and range from a frequency table  | <a href="#">Calc Averages</a><br>xxxx _<br><a href="#">Averages table</a>  | <a href="#">Calc Averages</a><br>xxxx _<br><a href="#">Averages table</a>  | <a href="#">Calc averages</a><br>xxxx _<br><a href="#">Averages table</a>  |
| F/H<br>4-5     | Calculate the estimated mean, median and modal group from a grouped frequency table   | <a href="#">Calc mean</a><br><a href="#">Calc median</a>   | <a href="#">Calc mean</a><br><a href="#">Calc median</a>   | <a href="#">Calc mean</a><br><a href="#">Calc median</a>   |
| H<br>8-9       | Interpret and construct cumulative frequency graphs<br><br>Interpret and construct box plots<br>Compare data using box plots<br><br>Calculate quartiles and the interquartile range   | <a href="#">Frequency graph</a> _<br><a href="#">Box plots</a><br><a href="#">Compare box plot</a><br>xxxx   | <a href="#">Frequency graph</a><br><br><a href="#">Box plots</a><br><a href="#">Compare box plot</a><br>xxxx   | <a href="#">Frequency graph</a><br><br><a href="#">Box plots</a><br><a href="#">Compare box plot</a><br>xxxx   |
| <b>16</b>      | <b>Sequences</b>  | <b>Video</b>   | <b>Questions</b>   | <b>Answers</b>   |
| F<br>1-3       | Generate terms of a sequence from a term-to-term rule<br>Generate terms of a sequence from nth term<br>Recognise and use sequences of triangle, square and cube numbers<br><br>Recognise and use sequences with simple arithmetic progressions<br>Calculate the nth term of a linear sequence | <a href="#">Term to term</a><br><a href="#">nth Term</a><br><a href="#">Triangle numbers</a><br><a href="#">Arithmetic progression</a><br><a href="#">nth Term</a> | <a href="#">Term to term</a><br><a href="#">nth term</a><br><a href="#">Triangle numbers</a><br><br><a href="#">Arithmetic progression</a><br><a href="#">nth term</a> | <a href="#">Term to term</a><br><a href="#">nth term</a><br><a href="#">Triangle numbers</a><br><br><a href="#">Arithmetic progression</a><br><a href="#">nth term</a> |
| F/H<br>4-5     | Recognise and use Fibonacci type sequences<br>Recognise and use quadratic sequences<br>Recognise and use simple geometric progressions ( $r^n$ , where n is an integer and r is a positive rational number)   | xxxx<br><a href="#">Quadratic</a><br>xxxx  | xxxx<br><a href="#">Quadratic</a><br>xxxx  | xxxx<br><a href="#">Quadratic</a><br>xxxx  |
| H<br>6-7       | Understand the notation of iterative sequences ( $U_{n+1}$ , $U_n$ etc)<br>Use iterative sequences  | <a href="#">Iteration</a>  | <a href="#">Iteration</a>  | <a href="#">Iteration</a>  |
| H<br>8-9       | Recognise and use geometric progressions ( $r^n$ , where n is an integer and r is a surd)<br>Calculate the nth term of a quadratic sequence   | xxxx<br><br><a href="#">Quadratic</a>  | xxxx<br><br><a href="#">Quadratic</a>  | xxxx<br><br><a href="#">Quadratic</a>  |
| <b>17</b>      | <b>Substitution and Formulae</b>  | <b>Video</b>   | <b>Questions</b>   | <b>Answers</b>   |
| F<br>1-3       | Substitute numerical values into expressions and formulae   | <a href="#">Substitution</a>   | <a href="#">Substitution</a>   | <a href="#">Substitution</a>   |
| F/<br>H<br>4-5 | Form formulae from word problems Rearrange simple formulae  | <a href="#">Rearrange</a>  | <a href="#">Rearrange</a>  | <a href="#">Rearrange</a>  |

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| 6-7<br>H<br>8-9 | Rearrange complex formulae, where the subject appears more than once   | <a href="#">Hard Rearrange</a>  | <a href="#">Hard Rearrange</a>  | <a href="#">Hard Rearrange</a>  |
|                 | Use function notation, $f(x)$ , $g(x)$ , $f^{-1}(x)$<br>Calculate inverse functions, $f^{-1}(x)$<br>Calculate composite functions $fg(x)$  | xxxx <a href="#">Inverse Functions</a><br><a href="#">Composite Functions</a>   | xxxx <a href="#">Inverse/Composite Functions</a>  | xxxx <a href="#">Inverse/Composite Functions</a>  |
| <b>18</b>       | <b>Percentages</b>   | <b>Video</b>  | <b>Questions</b>  | <b>Answers</b>  |
| F<br>1-3        | Express one quantity as a percentage of another (both non-calculator and calculator methods)<br>Finding percentages of amounts (both non-calculator and calculator methods)<br>Calculate percentage increase and decrease<br>Calculate percentage change | <a href="#">Express as %</a><br><br><a href="#">% Non Calc</a><br><a href="#">% Calc</a><br><a href="#">% Inc/Dec</a><br><a href="#">% Change</a> | <a href="#">Express as %</a><br><br><a href="#">% Non Calc</a><br><a href="#">% Calc</a><br><a href="#">% Inc/Dec</a><br><a href="#">% Change</a> | <a href="#">Express as %</a><br><br><a href="#">% Non Calc</a><br><a href="#">% Calc</a><br><a href="#">% Inc/Dec</a><br><a href="#">% Change</a> |

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|            | Calculate original quantities after a percentage change<br>Calculate simple interest   | <a href="#">% Reverse</a><br>xxxx  | <a href="#">% Reverse</a><br>xxxx  | <a href="#">% Reverse</a><br>xxxx  |
| F/H<br>4-5 | Calculate compound interest<br>Solve compound percentage increase problems<br>Solve compound percentages decrease problems   | <a href="#">Compound Percentages</a>   | <a href="#">Compound Percentages</a>   | <a href="#">Compound Percentages</a>   |
| <b>19</b>  | <b>3D Shapes</b>   | <b>Video</b>   | <b>Questions</b>   | <b>Answers</b>   |
| F<br>1-3   | Identify properties of the faces surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres<br>Draw nets of 3D shapes<br>Interpret and construct plans and elevations of 3D shapes<br>Calculate the volume of a cuboid<br>Calculate the volume of a prism<br>Calculate the surface area of a cuboid<br>Calculate the surface area of a prism | <a href="#">Properties</a><br><br><a href="#">Nets</a><br><a href="#">Plans and elev</a><br><a href="#">Volume cuboid</a><br><a href="#">Volume prism</a><br><a href="#">SA cuboid</a><br><a href="#">SA prism</a>     | <a href="#">Properties</a><br><br><a href="#">Nets</a><br><a href="#">Plans and elev</a><br><a href="#">Volume cuboid</a><br><a href="#">Volume prism</a><br><a href="#">SA cuboid</a><br><a href="#">SA prism</a> | <a href="#">Properties</a><br><br><a href="#">Nets</a><br><a href="#">Plans and elev</a><br><a href="#">Volume cuboid</a><br><a href="#">Volume prism</a><br><a href="#">SA cuboid</a><br><a href="#">SA prism</a> |
| F/H<br>4-5 | Calculate the volume and surface area of a cylinder<br>Calculate the volume and surface area of pyramids, cones, spheres and frustums<br><br>Calculate volume and surface area of composite solids<br>Solve reverse volume problems, leading to finding the radius or height from a given volume   | <a href="#">V &amp; SA cylinders</a><br><a href="#">Volume pyramid</a><br><a href="#">Volume cone</a><br><a href="#">Volume sphere</a><br><a href="#">SA cone</a><br><a href="#">SA sphere</a><br>xxxx<br>xxxx<br>xxxx | <a href="#">V &amp; SA cylinders</a><br><a href="#">Volume pyramid</a><br><a href="#">Volume cone</a><br><a href="#">Volume sphere</a><br><a href="#">SA cone</a><br><a href="#">SA sphere</a><br>xxxx<br>xxxx     | <a href="#">V &amp; SA cylinders</a><br><a href="#">Volume pyramid</a><br><a href="#">Volume cone</a><br><a href="#">Volume sphere</a><br>See teacher<br>See teacher<br>xxxx<br>xxxx                               |
| <b>20</b>  | <b>Fractions, Decimal, Percentages</b>   | <b>Video</b>   | <b>Questions</b>   | <b>Answers</b>   |
| F<br>1-3   | Know common fractions, percentage and decimal conversions<br>Convert between percentages and decimals<br>Convert between percentages and fractions<br>Convert between fractions and terminating decimals   | <a href="#">Common FDP</a><br><br><a href="#">FDP</a>  | <a href="#">Common FDP</a><br><br><a href="#">FDP</a>  | <a href="#">Common FDP</a><br><br><a href="#">FDP</a>  |
| F/H<br>4-5 | Compare and order fractions, decimals and percentages  | <a href="#">Ordering</a>   | <a href="#">Ordering</a>   | <a href="#">Ordering</a>   |
| H<br>6-7   | Convert between fractions and recurring decimals   | <a href="#">Recurring</a>  | <a href="#">Recurring</a>  | <a href="#">Recurring</a>  |
| <b>21</b>  | <b>Construction</b>  | <b>Video</b>   | <b>Questions</b>   | <b>Answers</b>   |
| F<br>1-3   | Use standard conventions for labelling and referring to the sides and angles of a triangle<br>Draw diagrams from written descriptions  | xxxx<br>xxxx   | xxxx<br>xxxx   | xxxx<br>xxxx   |

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|            | <p>Measure line segments and angles in geometric figures<br/>Measure and draw angles</p> <p>Construct triangles using a protractor (SAS and ASA)</p>   | <p><a href="#">Measure and draw angles</a><br/><a href="#">Construct SAS</a><br/><a href="#">Construct ASA</a></p>   | <p><a href="#">Measure and draw angles</a><br/><a href="#">Construct triangle</a></p>                          | <p><a href="#">Measure and draw angles</a><br/><a href="#">Construct triangle</a></p>                          |
| F/H<br>4-5 | <p>Construct triangles using a compass (SSS)<br/>Construct a perpendicular bisector of a line<br/>Construct a perpendicular to a line from a point<br/>Construct a perpendicular to a line through a point on the line<br/>Construct an angle bisector<br/>Solve loci problems</p> | <p><a href="#">Construct SSS</a><br/><a href="#">Perp Bisector</a><br/><a href="#">Point to Line</a><br/><a href="#">Point on Line</a><br/><a href="#">Angle Bisector</a><br/><a href="#">Loci 1</a><br/><a href="#">Loci 2</a><br/><a href="#">Loci 3</a></p> | <p><a href="#">Construct triangle</a><br/><a href="#">Constructions</a></p> <p><a href="#">Loci</a></p>        | <p><a href="#">Construct triangle</a><br/><a href="#">Constructions</a></p> <p><a href="#">Loci</a></p>        |
| <b>22</b>  | <b>Probability</b>   | <b>Video</b>   | <b>Questions</b>   | <b>Answers</b>   |
| F<br>1-3   | <p>Use the probability scale<br/>List outcomes of events and combined events (e.g: listing possible combinations from a menu)<br/>Calculate basic theoretical probabilities<br/>Calculate missing probabilities for mutually exclusive events</p>                                  | <p><a href="#">Prob scale</a><br/><a href="#">Listing outcomes</a><br/><a href="#">Basic prob</a><br/>xxxx</p>   | <p><a href="#">Prob scale</a><br/><a href="#">Listing outcomes</a><br/><a href="#">Basic prob</a><br/>xxxx</p> | <p><a href="#">Prob scale</a><br/><a href="#">Listing outcomes</a><br/><a href="#">Basic prob</a><br/>xxxx</p> |



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|            | Complete two ways tables and calculate probabilities from them<br>Calculate experimental probabilities<br>Complete sample space diagrams and use them to calculate probabilities<br>Sort data into venn diagrams<br>Draw and use frequency trees (like a probability tree but with frequencies on the braches rather than probabilities) | <a href="#">Two way tables</a><br><a href="#">Experimental</a><br><a href="#">Sample space</a><br><a href="#">Venn diagrams</a><br>XXXX   | <a href="#">Two way tables</a><br><a href="#">Experimental</a><br><a href="#">Sample space</a><br><a href="#">Venn diagrams</a><br>XXXX   | <a href="#">Two way tables</a><br><a href="#">Experimental</a><br><a href="#">Sample space</a><br><a href="#">Venn diagrams</a><br>XXXX   |
| F/H<br>4-5 | Use simple tree diagrams where all branches are the same<br>Use more complex trees diagrams where branches represent different situations  | <a href="#">Tree diagrams</a>   | <a href="#">Tree diagrams</a>   | <a href="#">Tree diagrams</a>   |
| H<br>6-7   | Calculate probabilities using venn diagrams<br>Carry out '&' and 'or' probability questions<br>Calculate combinations and permutations   | <a href="#">Venn diagrams</a><br><a href="#">Or rule</a><br>XXXX  | <a href="#">Venn diagrams</a><br><a href="#">Or rule</a><br>XXXX  | <a href="#">Venn diagrams</a><br><a href="#">Or rule</a><br>XXXX  |
| H<br>8-9   | Calculate conditional probabilities including with the use of tree diagrams  | <a href="#">Conditional prob</a>  | <a href="#">Conditional prob</a>  | <a href="#">Conditional prob</a>  |
| <b>23</b>  | <b>Measures</b>  | <b>Video</b>  | <b>Questions</b>  | <b>Answers</b>  |
| F<br>1-3   | Read scales<br>Use standard units of mass, length, time, money<br>Convert between related standard metric units (time, length, area, capacity, mass, volume)   | <a href="#">Reading Scales</a><br><a href="#">Units</a><br><a href="#">Metric Lengths</a><br><a href="#">Metric Weight</a><br><a href="#">Metric Capacity</a><br><a href="#">Timetables</a> | <a href="#">Reading Scales</a><br><a href="#">Units</a><br><a href="#">Metric Lengths</a><br><a href="#">Metric Weight</a><br><a href="#">Metric Capacity</a><br><a href="#">Timetables</a> | <a href="#">Reading Scales</a><br><a href="#">Units</a><br><a href="#">Metric lengths</a><br><a href="#">Metric Weight</a><br><a href="#">Metric Capacity</a><br><a href="#">Timetables</a> |
| F/H<br>4-5 | Use standard units of speed<br>Convert between units of speed<br>Use standard units of density and pressure<br>Convert between standard units of density and pressure  | <a href="#">Speed,</a><br><a href="#">Distance, Time</a><br><a href="#">Density</a><br><a href="#">Pressure</a>   | <a href="#">Speed, Distance,</a><br><a href="#">Time</a><br><a href="#">Density</a><br><a href="#">Pressure</a>   | <a href="#">Speed, Distance,</a><br><a href="#">Time</a><br><a href="#">Density</a><br><a href="#">Pressure</a>   |
| H<br>8-9   | Use of the formula for kinematics relating displacement, initial and final velocity, acceleration and time<br>$v = u + at$<br>$s = ut + \frac{1}{2}at^2$<br>$v^2 = u^2 + 2as$  | XXXX  | XXXX  | XXXX  |
| <b>24</b>  | <b>Transformations</b>   | <b>Video</b>  | <b>Questions</b>  | <b>Answers</b>  |
| F<br>1-3   | Understand reflection symmetry<br>Understand rotational symmetry<br>Carry out and describe rotations on and off the coordinate axis<br>Carry out and describe reflections on and off the coordinate axis<br>Carry out and describe translations on and off the coordinate axis   | <a href="#">Ref symmetry</a><br><a href="#">Rota symmetry</a><br><a href="#">Rotations</a><br><a href="#">Reflections 1</a><br><a href="#">Reflections 2</a>                                | <a href="#">Ref symmetry</a><br><a href="#">Rota symmetry</a><br><a href="#">Rotations</a><br><a href="#">Reflections 1</a><br><a href="#">Reflections 2</a>                                | <a href="#">Ref symmetry</a><br><a href="#">Rota symmetry</a><br><a href="#">Rotations</a><br><a href="#">Reflections 1</a><br><a href="#">Reflections 2</a>                                |

|            |  |   |  |  |
|------------|--|---|--|--|
|            | Describe translations as 2D vectors<br><br>Recognise congruent shapes<br><br>Draw tessellations  | <a href="#">Reflections 3</a><br><a href="#">Translation vector</a><br><a href="#">Translation descr</a><br><a href="#">Congruent shapes</a><br><a href="#">Tessellations</a> | <a href="#">Reflections 3</a><br><a href="#">Translation</a><br><br><a href="#">Congruent shape</a><br><br><a href="#">Tessellations</a>                           | <a href="#">Reflections 3</a><br><a href="#">Translation</a><br><br><a href="#">Congruent shape</a><br><br><a href="#">Tessellations</a>                           |
| F/H<br>4-5 | Carry out enlargements with integer scale factors on and off the coordinate axis and with and without a centre of enlargement<br>Carry out enlargements with fractional scale factors on and off the coordinate axis and with and without a centre of enlargement<br>Use basic congruence criteria for triangles (SSS, SAS, ASA, RHS)<br>Apply the concepts of congruence and similarity with regards to length in similar shapes<br><br>Use diagrammatic and column representations of vectors<br>Apply addition and subtraction of vectors and multiplication of vectors by a scalar | <a href="#">Enlargement</a><br><br><a href="#">Fraction S.F</a><br><br><a href="#">Congruent triangle</a><br><a href="#">Congruent lengths</a><br><br>xxxx<br>xxxx            | <a href="#">Enlargement</a><br><br><a href="#">Fraction S.F</a><br><br><a href="#">Congruent triangle</a><br><a href="#">Congruent lengths</a><br><br>xxxx<br>xxxx | <a href="#">Enlargement</a><br><br><a href="#">Fraction S.F</a><br><br><a href="#">Congruent triangle</a><br><a href="#">Congruent lengths</a><br><br>xxxx<br>xxxx |
| H<br>6-7   | Carry out enlargements with negative scale factors on the coordinate axis and with a centre of enlargement<br>Describe the changes and invariance achieved by combinations of rotations, reflections and translations<br>Apply ratios between areas and volumes in similar shapes problems   | <a href="#">Negative S.F</a><br><br>xxxx<br><br><a href="#">Similar shapes</a>  | <a href="#">Negative S.F</a><br><br>xxxx<br><br><a href="#">Similar shapes</a>   | <a href="#">Negative S.F</a><br><br>xxxx<br><br><a href="#">Similar shapes</a>   |
| H 8-9      | Solve problems involving vectors   | <a href="#">Vectors</a>   | <a href="#">Vectors</a>  | <a href="#">Vectors</a>  |
| <b>25</b>  | <b>Quadratic and Curved Graphs</b>   | <b>Video</b>  | <b>Questions</b>   | <b>Answers</b>   |
| F 1-3      | Plot graphs of quadratic functions   | <a href="#">Plot quadratics</a>   | <a href="#">Plot Quadratics</a>  | See teacher  |
| F/H<br>4-5 | Identify roots, intercepts and turning points of quadratic functions from their graph<br>Sketch linear, quadratic, cubic and reciprocal graphs   | xxxx<br><br><a href="#">Cubic graphs</a><br><a href="#">Reciprocal Graphs</a>   | xxxx<br><br><a href="#">Cubic Graphs</a><br><a href="#">Reciprocal Graphs</a>  | xxxx<br><br><a href="#">Cubic Graphs</a><br><a href="#">Reciprocal Graphs</a>  |
| H<br>6-7   | Recognise, sketch and interpret graphs of exponential functions<br>Plot and interpret exponential graphs in real contexts<br>Recognise and use the equations of the circle with centre at the origin   | <a href="#">Exponential Graphs</a><br><a href="#">Equation of circle</a>  | <a href="#">Exponential Graphs</a><br><a href="#">Equation of circle</a>   | <a href="#">Exponential Graphs</a><br><a href="#">Equation of circle</a>   |

|            |   |  |   |   |
|------------|---|--|---|---|
|            | Recognise, sketch and interpret graphs of trigonometric functions (sin, cos and tan)<br><br>Sketch translations, reflections and stretches of given functions   | <a href="#">Sine Graph</a><br><a href="#">Cos Graph</a><br><a href="#">Tan Graph</a><br><a href="#">Transform Graphs</a>       | <a href="#">Trig Graphs (all)</a><br><br><a href="#">Transform graphs</a> | <a href="#">Trig Graphs (all)</a><br><br><a href="#">Transform graphs</a> |
| H<br>8-9   | Calculate gradients of curved graphs<br>Calculate or estimate the area under graphs<br>Interpret gradients of and areas under curved graphs in the context of distance-time graphs, velocity-time graphs and in financial contexts<br>Find the equations of a tangent to a circle at a given point<br>Interpret the gradient at a point on a curve as the instantaneous rate of change; apply the concepts of average and instantaneous rates of change (gradients of chords and tangents) in numerical, algebraic and graphical contexts | xxxx<br>xxxx<br>xxxx<br><br><a href="#">Eqn Tangent</a><br>xxxx  | xxxx<br>xxxx<br>xxxx<br><br><a href="#">Eqn Tangent</a><br>xxxx           | xxxx<br>xxxx<br>xxxx<br><br><a href="#">Eqn Tangent</a><br>xxxx           |
| <b>26</b>  | <b>Inequalities</b>   | <b>Video</b>   | <b>Questions</b>  | <b>Answers</b>  |
| F 1-3      | Use the symbols =, ≠, <, >, ≤ and ≥   | <a href="#">Inequalities</a>   | <a href="#">Inequalities 1-5</a>  | <a href="#">Inequalities 1-5</a>  |
| F/H<br>4-5 | Solve linear inequalities in one variable<br><br>Represent inequalities on number lines   | <a href="#">Solve Inequalities</a><br><a href="#">Number Line</a>  | <a href="#">Inequalities 1-5</a><br><br><a href="#">Number Line</a>       | <a href="#">Inequalities 1-5</a><br><br><a href="#">Number Line</a>       |
| H<br>8-9   | Solve quadratic inequalities in one variable<br>Represent inequalities using set notation<br>Represent inequalities on a graph  | <a href="#">Quadratic</a><br>xxxx<br><a href="#">Graphical 1</a><br><a href="#">Graphical 2</a><br><a href="#">Graphical 3</a> | <a href="#">Quadratic</a><br>xxxx<br><a href="#">Graphical (all)</a>      | <a href="#">Quadratic</a><br>xxxx<br><a href="#">Graphical (all)</a>      |
| <b>27</b>  | <b>Proof</b>  | <b>Video</b>   | <b>Questions</b>  | <b>Answers</b>  |
| F/H<br>4-5 | Argue mathematically to show algebraic expressions are equivalent<br>Use algebra to support and construct arguments   |  |   |   |
| H<br>6-7   | Carry out algebraic proofs  | <a href="#">Proof</a>  | <a href="#">Proof</a>   | See teacher   |