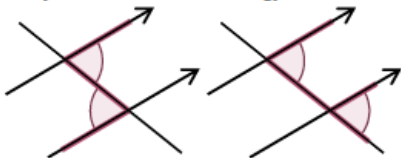


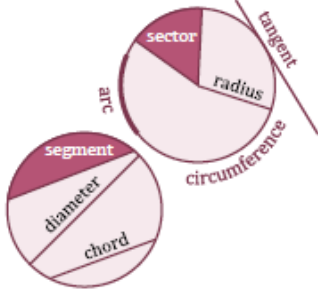
Year 7 - Maths

Assessment is by two 45 minute papers each term.

When	Topic	Areas that parents can help with										
Autumn 1	Place value and rounding, adding and subtracting, multiply and divide, indices, expand and factorise, algebraic fractions.	<p>Expanding brackets A4</p> $p(q + r) = pq + pr$ $\rightarrow 5(x - 2y) = 5x - 10y$ $(x + a)(x + b) = x^2 + ax + bx + ab$ $\rightarrow (2x - 3)(x + 5)$ $= 2x^2 - 3x + 10x - 15$ $= 2x^2 + 7x - 15$ <p>Reverse of expanding is factorising - putting an expression into brackets.</p> <hr/> <p>Laws of indices A4</p> <p>For any value a:</p> $a^x \times a^y = a^{x+y}$ $\frac{a^x}{a^y} = a^{x-y}$ $(a^x)^y = a^{xy}$ $\rightarrow \left(\frac{2pq^4}{p^3q}\right)^3 = \frac{8p^3q^{12}}{p^9q^3} = \frac{8q^9}{p^6} \text{ or } 8q^9p^{-6}$										
Autumn 2	Angles in lines and shapes. Triangles and quadrilaterals. Congruence and similarity. Handling data, averages and frequency diagrams.	<p>Averages S4</p> <p>Mode: most frequently occurring Median: put the data in numerical order, then choose the middle one Mean = $\frac{\text{total of items of data}}{\text{number of items of data}}$</p> <hr/> <p>Angle facts</p> <p>Equal angles in parallel lines: always use correct terminology...</p>  <p>Alternate angles Corresponding angles</p>										
Spring 1	Fractions, decimals and percentages. Formulae and functions, expanding and factorising.	<p>Calculating with fractions N8</p> <p>Adding or subtracting fractions; use a common denominator...</p> $\rightarrow \frac{4}{5} - \frac{1}{3} = \frac{12}{15} - \frac{5}{15} = \frac{7}{15}$ <p>Multiplying fractions; multiply numerators and denominators...</p> $\rightarrow \frac{4}{7} \times \frac{2}{3} = \frac{8}{21}$ <p>Dividing fractions; "flip" the second fraction, then multiply...</p> $\rightarrow \frac{2}{7} \div \frac{5}{6} = \frac{2}{7} \times \frac{6}{5} = \frac{12}{35}$ <hr/> <p>Fractions, decimals N10</p> <p>Fraction is numerator \div denominator</p> $\rightarrow \frac{5}{8} = 5 \div 8 = 0.625$ <p>Use place values to change decimals to fractions. Simplify where possible.</p> $\rightarrow 0.45 = \frac{45}{100} = \frac{9}{20}$ <p>Learn the most frequently used ones:</p> <table border="1" data-bbox="667 1848 997 1915"> <tbody> <tr> <td>$\frac{1}{2}$</td> <td>$\frac{1}{4}$</td> <td>$\frac{1}{10}$</td> <td>$\frac{1}{5}$</td> <td>$\frac{3}{4}$</td> </tr> <tr> <td>0.5</td> <td>0.25</td> <td>0.1</td> <td>0.2</td> <td>0.75</td> </tr> </tbody> </table>	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{10}$	$\frac{1}{5}$	$\frac{3}{4}$	0.5	0.25	0.1	0.2	0.75
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0.5	0.25	0.1	0.2	0.75								



Year 7 - Maths

Spring 2	Working in 2D, measuring lengths and angles, area and transformations.	<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p>Transformations G7, G8</p> <ul style="list-style-type: none"> Reflection <ul style="list-style-type: none"> • Line of reflection Translation <ul style="list-style-type: none"> • Vector </div> <div style="width: 30%;"> <p>Rotation <ul style="list-style-type: none"> • Centre of rotation • Angle of rotation • Clockwise or anticlockwise </p> </div> <div style="width: 30%;"> <p>Enlargement <ul style="list-style-type: none"> • Centre of enlargement • Scale factor (if SF < 1 the shape will get smaller). </p> </div> </div>
Summer 1	Probability experiments and theory. Mutually exclusive events. Measures and accuracy. Estimation and calculator methods.	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Standard units N13</p> <hr/> <p>1 tonne = 1 000 kilograms 1 kilogram = 1 000 grams</p> <hr/> <p>1 kilometre = 1 000 metres 1 metre = 100 centimetres = 1 000 millimetres 1 centimetre = 10 millimetres</p> <hr/> <p>1 day = 24 hours 1 hour = 60 minutes = 3 600 seconds 1 minute = 60 seconds</p> </div> <div style="width: 45%;"> <p>Probability P8, P</p> $p = \frac{n(\text{equally likely favourable outcomes})}{n(\text{equally likely possible outcomes})}$ <p> $p = 0$ impossible $0 < p < 0.5$ unlikely $p = 0.5$ evens $0.5 < p < 1$ likely $p = 1$ certain </p> </div> </div>
Summer 2	Solving linear equations, quadratic equations, simultaneous equations, inequalities, circles, circle theorms, construction and loci.	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Parts of a circle G9</p>  </div> <div style="width: 45%;"> <p>Simultaneous equations A19</p> <p>→ Solve $\begin{cases} 2x + 3y = 11 \\ 3x - 5y = 7 \end{cases}$</p> <p>Multiply to match a term in x or y</p> $\begin{cases} 10x + 15y = 55 \\ 9x - 15y = 21 \end{cases}$ <p>Add or subtract to cancel...</p> $19x = 76, \text{ so } x = 4$ <p>Finally, substitute and solve...</p> $2 \times 4 + 3y = 11, \text{ so } y = 1$ </div> </div>

Additional Information

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HOME KEY STAGE 3/4 KEY STAGE 5 GCSE TAKEAWAY A-LEVEL TAKEAWAYS T

Foundation 1 revision

1	Place Value	Video	Answers
2	Ordering Numbers	Video	Answers
3	Reading Scales	Video	Answers
4	Negative Numbers	Video	Answers
5	Fractions of an Amount	Video	Answers

Click on the name for questions, for example **Ordering Numbers**.

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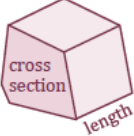
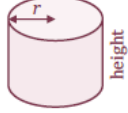
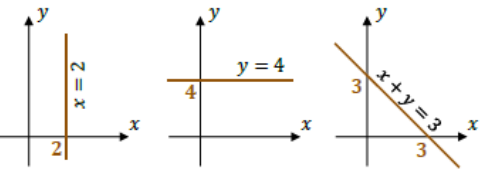

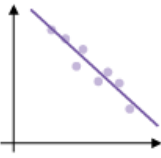
Click on **Answers** for how you should have written your answers.

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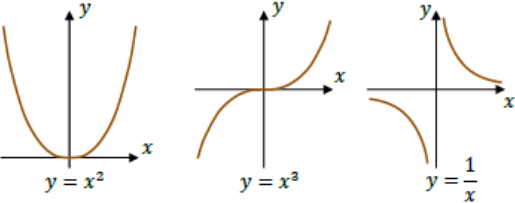
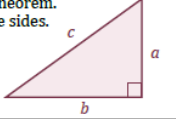
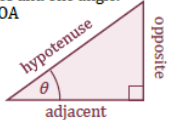
Year 8 - Maths

Assessment is by two 45 minute papers each term.

When	Topic	Areas that parents can help with										
Autumn 1	Ratio and proportion, Percentage change. Factors powers and roots.	<p>Division using ratio R5</p> <p>Use a ratio for unequal sharing → Divide £480 in the ratio 7 : 5 $7 + 5 = 12$, then $£480 \div 12 = £40$ $7 \times £40 = £280$, $5 \times £40 = £200$ (check: $£280 + £200 = £480$ ✓)</p> <p>Ratio and fractions R8</p> <p>Link between ratios and fractions → Boys to girls in ratio 2 : 3 $\frac{2}{5}$ are boys, $\frac{3}{5}$ are girls.</p> <p>Percentages R9</p> <p>y percent of $x = \frac{y}{100} \times x$ → Increase £58 by 26%. $\frac{26}{100} \times £58 = £15.08$ $£58 + £15.08 = £73.08$</p> <p>y as a percentage of $x = \frac{y}{x} \times 100\%$ → The population of a town increases from 3 500 to 4 620. Find the percentage increase. $\frac{1120}{3500} \times 100\% = 32\%$ Note: fraction = $\frac{\text{increase}}{\text{original}}$</p> <p>Learn the most frequently used ones:</p> <table border="1" data-bbox="778 891 1050 958"> <tr> <td>$\frac{1}{2}$</td> <td>$\frac{1}{4}$</td> <td>$\frac{1}{10}$</td> <td>$\frac{1}{5}$</td> <td>$\frac{1}{100}$</td> </tr> <tr> <td>50%</td> <td>25%</td> <td>10%</td> <td>20%</td> <td>1%</td> </tr> </table>	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{10}$	$\frac{1}{5}$	$\frac{1}{100}$	50%	25%	10%	20%	1%
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Autumn 2	Graphs of a straight line and curve. Working in 3D, volume of a prism, surface area.	  <p>Volume of cylinder = $\pi r^2 \times \text{height}$ Volume of prism = area of cross section \times length</p> <p>Standard graphs A12</p> 										
Spring 1	Averages and spread. Scatter graphs and correlation. Calculating with roots and indices, exact calculations and standard form.	<p>Standard form N9</p> <p>Standard form numbers are of the form $a \times 10^n$, where $1 \leq a < 10$ and n is an integer.</p> <p>Correlation S6</p> <p>Positive correlation</p>  <p>Negative correlation</p> 										



Year 8 - Maths

<p>Spring 2</p>	<p>Quadratic functions, sketching functions and real life graphs.</p>	
<p>Summer 1</p>	<p>Pythagoras' Theorem, Trigonometry, vectors. Sets, tree diagrams.</p>	<p>Right angled triangles</p> <p>Pythagoras Theorem. Links all three sides. No angles. $a^2 + b^2 = c^2$</p>  <p>Trigonometry. Links two sides and one angle. SOH CAH TOA</p>  <p>$\sin \theta = \frac{\text{opp}}{\text{hyp}}$ $\cos \theta = \frac{\text{adj}}{\text{hyp}}$ $\tan \theta = \frac{\text{opp}}{\text{adj}}$</p> <p>Use "2ndF" or "SHIFT" key to find a missing angle</p>
<p>Summer 2</p>	<p>Sequences, compound units, direct and indirect proportion. Examinations in the Sports Hall.</p>	<p><i>n</i>th term of an arithmetic (linear) sequence is $an + d$ → <i>n</i>th term of 5,8,11,14,... is $3n+2$ (always increases by 3; first term is $3 \times 1 + 2 = 5$.) Geometric sequence; multiply each term by a constant ratio → 3, 6, 12, 24, ... (ratio is 2) Fibonacci sequence; make the next term by adding the previous two ... → 2, 4, 6, 10, 16, 26, 42, ...</p>

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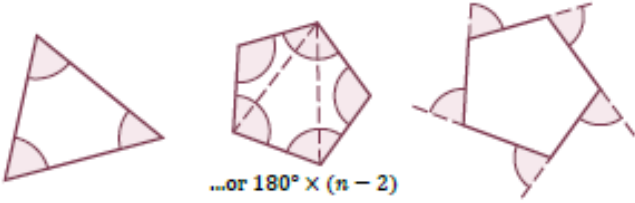
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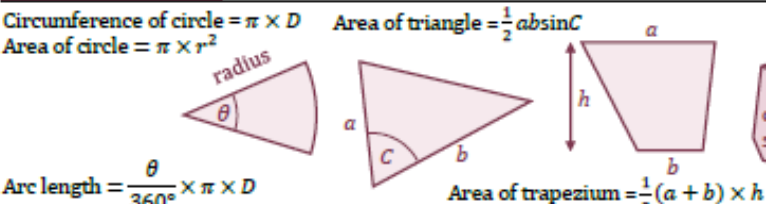
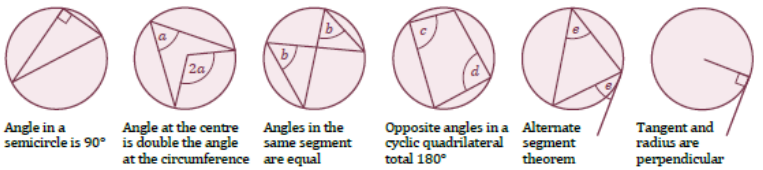
Year 9 - Maths

Assessment is by two 45 minute papers each term.

When	Topic	Areas that parents can help with
Autumn 1	Place value and rounding, adding and subtracting, multiply and divide, indices, expand and factorise, algebraic fractions.	<p>Difference of two squares A4</p> $a^2 - b^2 = (a + b)(a - b)$ <p>→ $x^2 - 25 = (x + 5)(x - 5)$</p> <p>Rearrange a formula A5</p> <p>The subject of a formula is the term on its own. Rearrange to</p> <p>→ Make x the subject of</p> $2x + ay = y - bx$ $2x + bx = y - ay$ $x(2 + b) = y - ay$ $x = \frac{y - ay}{2 + b}$
Autumn 2	Angles in lines and polygons. Congruence and similarity. Handling data, averages and frequency diagrams.	<p>Similar shapes G19</p> <p>Ratios in similar shapes and solids:</p> <ul style="list-style-type: none"> • Length/perimeter $1:n$ $a:b$ • Area $1:n^2$ $a^2:b^2$ • Volume $1:n^3$ $a^3:b^3$ <hr/> <p>Interior angles in a triangle total 180° Use this for the interior angles of any polygon... Exterior angles always total 360°</p>  <p style="text-align: center;">...or $180^\circ \times (n - 2)$</p>
Spring 1	Fractions, decimals and percentages. Formulae and functions, expanding and factorising. Equivalence in algebra.	<p>Recurring decimals N10</p> <p>Make a recurring decimal a fraction:</p> <p>→ $n = 0.2\dot{3}\dot{6}$</p> <p>(two digits are in the recurring pattern, so multiply by 100)</p> $100n = 23.\dot{6}$ <p>(this is the same as $23.6\dot{3}\dot{6}$)</p> $99n = 23.6\dot{3}\dot{6} - 0.2\dot{3}\dot{6} = 23.4$ $n = \frac{23.4}{99} = \frac{234}{990} = \frac{13}{55}$ <hr/> <p>Equations and identities A3</p> <p>An equation is true for some particular value of x...</p> <p>→ $2x + 1 = 7$ is true if $x = 3$</p> <p>...but an identity is true for every value of x</p> <p>→ $(x + a)^2 \equiv x^2 + 2ax + a^2$</p> <p>(note the use of the symbol \equiv)</p>



Year 9 - Maths

<p>Spring 2</p>	<p>Working in 2D, measuring lengths and angles, area and transformations.</p>	<p>Areas and volumes</p> <p>Circumference of circle = $\pi \times D$ Area of circle = $\pi \times r^2$</p> <p>Area of triangle = $\frac{1}{2} ab \sin C$</p> <p>Arc length = $\frac{\theta}{360^\circ} \times \pi \times D$</p> <p>Area of trapezium = $\frac{1}{2} (a + b) \times h$</p> 
<p>Summer 1</p>	<p>Probability theory. Mutually exclusive events. Measures and accuracy. Estimation and calculator methods.</p>	<p>Probability rules P8, P9</p> <p>Multiply for independent events $\rightarrow P(6 \text{ on dice and H on coin})$ $\frac{1}{6} \times \frac{1}{2} = \frac{1}{12}$</p> <p>Add for mutually exclusive events $\rightarrow P(5 \text{ or } 6 \text{ on dice})$ $\frac{1}{6} + \frac{1}{6} = \frac{2}{6}$</p> <p>Apply these rules to tree diagrams.</p> <p>Error intervals N15</p> <p>Find the range of numbers that will round to a given value: $\rightarrow x = 5.83$ (2 decimal places) $5.825 \leq x < 5.835$ $\rightarrow y = 46$ (2 significant figures) $45.5 \leq y < 46.5$</p> <p>Note use of \leq and $<$, and that the last significant figure of each is 5.</p>
<p>Summer 2</p>	<p>Solving linear, quadratic and simultaneous equations. Inequalities, circles, circle theorems, construction and loci.</p>	<p>Circle theorems G10</p>  <p>Angle in a semicircle is 90°</p> <p>Angle at the centre is double the angle at the circumference</p> <p>Angles in the same segment are equal</p> <p>Opposite angles in a cyclic quadrilateral total 180°</p> <p>Alternate segment theorem</p> <p>Tangent and radius are perpendicular</p>

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