



Subject: Maths

Year 10	
Theme	Teaching
1	Indices <ul style="list-style-type: none"> Use a calculator for all operations including powers, roots and brackets. Understand and use index notation including finding (or estimating) values of calculations involving square roots, positive, negative and fractional indices. Use indices correctly in the hierarchy of operations including with brackets. Recall and use the index laws of multiplication, division and powers of powers. Recall and use laws of fractional and negative indices. Reduce numbers to their prime base to solve problems using the index laws.
2	Indices <ul style="list-style-type: none"> Interpret and compare numbers in standard form $a \times 10^n$, where $1 \leq a < 10$ and n is a positive or negative integer. Calculate with numbers in standard form. Interpret a calculator display in standard form and know how to enter numbers in standard form.
3	Standard Form <ul style="list-style-type: none"> Interpret and compare numbers in standard form $a \times 10^n$, where $1 \leq a < 10$ and n is a positive or negative integer. Calculate with numbers in standard form. Interpret a calculator display in standard form and know how to enter numbers in standard form.
4	Trigonometric Ratios <ul style="list-style-type: none"> Identify and label adjacent, opposite, hypotenuse and theta on a right angled triangle. Recall and use the correct trigonometric ratio to find a missing side length or angle in a right angled triangle. Use the trigonometric ratios to solve problems in 2D or 3D.
5	Trigonometric Ratios <ul style="list-style-type: none"> Identify and label adjacent, opposite, hypotenuse and theta on a right angled triangle. Recall and use the correct trigonometric ratio to find a missing side length or angle in a right angled triangle. Use the trigonometric ratios to solve problems in 2D or 3D.
6	Quadratic Sequences <ul style="list-style-type: none"> Generate terms from a linear nth term rule. Find the nth term rule for a linear sequence. Identify a linear, quadratic or Fibonacci type sequence.
7	Quadratic Sequences <ul style="list-style-type: none"> Identify a geometric progression. Generate terms from a quadratic nth term rule. Find the nth term rule for a quadratic sequence.
8	Revision, Assessment and Review <p>This includes a revision lesson, 2 lessons for the assessment and a lesson to review the assessment.</p>
9	Ratio and Proportion <ul style="list-style-type: none"> Understand the link between ratio and fractions and be able to use fractions to solve ratio problems. Use and convert standard units of mass, length, time, money and other measures (including standard compound measures) using decimal quantities where appropriate. Use ratio notation, including reduction to simplest form. Divide a given quantity into two parts in a given part : part or whole ratio; apply ratio to real contexts and problems.
10	Ratio and Proportion <ul style="list-style-type: none"> Express a multiplicative relationship between two quantities as a ratio or a fraction. Understand direct proportion and its link to equivalent ratios. Solve problems involving direct and inverse proportion, understand a graphical representation of something in direct proportion. Compare lengths, areas and volumes using ratio notation; make links to similarity and scale factors.
11	Surds <ul style="list-style-type: none"> Be aware of the concept of an irrational number and understand that the use of surds allows us to maintain accuracy. Understand surd notation; including interpreting calculator display given in surd form. Be able to simplify a surd such as $\sqrt{12} = \sqrt{(4 \times 3)} = \sqrt{4} \times \sqrt{3} = 2\sqrt{3}$. Simplify expressions involving surds such as $4\sqrt{3} + \sqrt{75}$. Manipulate expressions involving surds, including expanding double brackets with surds. Rationalise the denominator of an expression. Know the exact values of $\sin\theta$, $\cos\theta$ and $\tan\theta$ when $\theta=0, 30, 45$ and 60. Know that $\sin 90^\circ = 1$ and $\cos 90^\circ = 0$.
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14	Probability <ul style="list-style-type: none"> Write a probability as a fraction, decimal or percentage. Systematically list all the possible outcomes for single events and combined events, and know how to work out the number of possible combinations for combined events. Construct and use two way tables to calculate probabilities. Construct and use frequency trees to calculate probabilities.
15	Review Week <p>This will be spent catching reviewing any gaps from the topics studied up to this point.</p>
16	Cumulative Frequency and Box Plots <ul style="list-style-type: none"> Work out the cumulative frequency from a grouped frequency table. Draw a cumulative frequency graph/curve from a grouped frequency table. Use a cumulative frequency graph/curve to estimate the median. Use a cumulative frequency graph/curve to estimate the interquartile range. Draw a box plot. Interpret a box plot and know that each section represents 25% of the data. Compare two data sets from cumulative frequency graphs/curves and box plots and make reasoned conclusions.
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18	Similarity and Congruence <ul style="list-style-type: none"> Be able to identify congruent shapes, and to show that two shapes are congruent. Be able to produce a congruent shape by reflecting, rotating, or translating a shape and understand why it is congruent. Be able to produce similar shapes by enlargement – including with a negative or fractional scale factor, and explain why these shapes are similar. Solve problems involving similar shapes where the scale factor is known or can be found. Compare lengths, areas and volumes using ratio notation. Apply the concepts of congruence and similarity, including the relationships between lengths, area and volume of similar objects.
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Year 10	
Theme	Teaching
20	Solving Quadratics by Factorising <ul style="list-style-type: none"> Know the difference between linear and quadratic, and an expression and equation. Expand the product of two linear brackets. Factorise a quadratic expression of the form $x^2 + bx + c$. Factorise the difference of two squares. Factorise a quadratic expression of the form $ax^2 + bx + c$. Solve any quadratic equation $ax^2 + bx + c = 0$ by factorising. Form and/or rearrange a quadratic in order to solve it.
21	Solving Quadratics by Factorising <ul style="list-style-type: none"> Know the difference between linear and quadratic, and an expression and equation. Expand the product of two linear brackets. Factorise a quadratic expression of the form $x^2 + bx + c$. Factorise the difference of two squares. Factorise a quadratic expression of the form $ax^2 + bx + c$. Solve any quadratic equation $ax^2 + bx + c = 0$ by factorising. Form and/or rearrange a quadratic in order to solve it.
22	Revision, Assessment and Review <p>This includes a revision lesson, 2 lessons for the assessment and a lesson to review the assessment.</p>
23	Compound Units and Real Life Graphs <ul style="list-style-type: none"> Understand and manipulate units and compound units. Understand and know the difference between scalar and vector quantities. Draw and interpret real-life graphs. Calculate the gradient of a straight line and know what this represents on a real-life graph. Calculate the area under a straight line and know what this represents on a real-life graph.
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25	Review Week <p>This will be spent catching reviewing any gaps from the topics studied up to this point.</p>
26	Circle Theorems <ul style="list-style-type: none"> Identify alternate and corresponding angles and know they are equal. Use knowledge of alternate and corresponding angles to calculate missing angles in geometrical diagrams. Use the fact that angles in a triangle total 180° to work out the total of the angles in any polygon. Establish the size of an interior angle and an exterior angle in a regular polygon. Know the total of the exterior angles in any polygon. Identify when a circle theorem can be used to find missing angles in a geometrical problem. Apply and prove the standard circle theorems concerning angles, radii, tangents and chords. Know when to use circle theorems to prove geometrical problems.
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28	Quadratic Functions <ul style="list-style-type: none"> Generate and plot coordinates for any linear function. Solve an equation in the form $ym+xc$ graphically or otherwise. Recognise that $ym+xc$ corresponds to a linear graph and know how the parts of this equation determine the line. Be able to find the equation of any straight line. Understand the gradients of parallel and perpendicular lines. Draw a quadratic graph inc graphs with a negative coefficient of x^2. Find approximate solutions to quadratic equations using a graph. Deduce roots of quadratic functions algebraically. Be able to use a quadratic graph to find roots and turning points (minimum and maximum points).
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31	Surface Area and Volume <ul style="list-style-type: none"> Know and understand units for volume, area and length. Use standard formulae to solve problems involving areas of parallelograms, triangles, trapeziums and compound shapes. Calculate area and circumference of circles. Find the length of an arc and the area of a sector. Calculate the volume of any prism. Calculate the volume of spheres, pyramids and cones - including frustums. Calculate the surface area of any prism. Calculate the surface area of spheres, pyramids and cones. Find the surface area and volume of composite solids. Solve problems involving area/volume of enlarged shapes.
32	Surface Area and Volume <ul style="list-style-type: none"> Know and understand units for volume, area and length. Use standard formulae to solve problems involving areas of parallelograms, triangles, trapeziums and compound shapes. Calculate area and circumference of circles. Find the length of an arc and the area of a sector. Calculate the volume of any prism. Calculate the volume of spheres, pyramids and cones - including frustums. Calculate the surface area of any prism. Calculate the surface area of spheres, pyramids and cones. Find the surface area and volume of composite solids. Solve problems involving area/volume of enlarged shapes.
33	Conditional Probability <ul style="list-style-type: none"> Compare relative frequencies from samples of different sizes. Find the probability of an event happening using relative frequency. Estimate the number of times an event will occur, given the probability and the number of trials - both for experimental and theoretical probabilities. Combine probabilities by multiplying them together for simple experiments. Draw a probability tree diagram based on given information, and use this to find probability and expected number of outcomes. Understand conditional probabilities and decide if two events are independent - knowing the difference between selection with and without replacement. Calculate the probability of independent and dependent combined events. Use a two-way table or tree diagram to calculate conditional probability. Know how to place elements in Venn diagrams with 2 sets, according to their properties. Understand the notation for intersection and union, and which regions these statements apply to in a Venn diagram. Use set notation to find probabilities from a Venn diagram. Calculate conditional probabilities from a Venn diagram.
34	Conditional Probability <ul style="list-style-type: none"> Compare relative frequencies from samples of different sizes. Find the probability of an event happening using relative frequency. Estimate the number of times an event will occur, given the probability and the number of trials - both for experimental and theoretical probabilities. Combine probabilities by multiplying them together for simple experiments. Draw a probability tree diagram based on given information, and use this to find probability and expected number of outcomes. Understand conditional probabilities and decide if two events are independent - knowing the difference between selection with and without replacement. Calculate the probability of independent and dependent combined events. Use a two-way table or tree diagram to calculate conditional probability. Know how to place elements in Venn diagrams with 2 sets, according to their properties. Understand the notation for intersection and union, and which regions these statements apply to in a Venn diagram. Use set notation to find probabilities from a Venn diagram. Calculate conditional probabilities from a Venn diagram.
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36	Mock Exams
37	Mock Exams
38	Simplifying Algebraic Fractions <ul style="list-style-type: none"> Manipulate any expression by simplifying (including with indices), expanding brackets or factorising. Simplify and algebraic fraction such as $(2x^3y^4/42xy^2)$ by cancelling common factors. Simplify an algebraic fraction where one or both of the numerator/denominator need factorising in order to find the common factors. Calculate with algebraic fractions. Solve fractional equations, both linear and quadratic.
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Subject: Maths

Year 11		Year 12	
Theme	Teaching	Theme	Teaching
1	Accuracy and Bounds	20	Ratio and Proportion inc. algebraic proportion
2	Surd's/Indices/Standard Form recap	21	Functions
3	Histograms, Cumulative Frequency and Box Plots	22	Real Life Graphs
4	Histograms, Cumulative Frequency and Box Plots	23	Mock Exams
5	Solving quadratic equations by factoringising, completing the square and the quadratic formula.	24	Iteration and simultaneous equations
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7	Solving quadratic equations by factoringising, completing the square and the quadratic formula.	26	Vectors
8	Revision and review: Venn diagrams and set theory, angles and circle theorems	27	Vectors
9	FDP - reverse % & compound interest inc. exponential growth and decay	28	Transformations of graphs, equations of circles and other graphs
10	FDP - reverse % & compound interest inc. exponential growth and decay	29	Transformations of graphs, equations of circles and other graphs
11	Constructions and Loci	30	Revision and Review
12	Mock Exams & Review	31	Revision and Review
13	Mock Exams & Review	32	Revision and Review
14	Plotting quadratic and cubic graphs, solving quadratics (inequalities) and simultaneous equations graphically. Finding turning points and sketching quadratics	33	Revision and Review
15	Plotting quadratic and cubic graphs, solving quadratics (inequalities) and simultaneous equations graphically. Finding turning points and sketching quadratics	34	Revision and Review
16	Sine and cosine rule and area of triangle using trigonometry	35	Revision and Review
17	Sine and cosine rule and area of triangle using trigonometry	36	
18	Sine and cosine rule and area of triangle using trigonometry	37	
19	Ratio and Proportion inc. algebraic proportion	38	
		39	