

Year 10 Foundation Big Picture – Maths

Autumn 1 7 weeks	Autumn 2 7 weeks	Spring 1 7 weeks
<p>Content F1 Solving equations and Rearranging formulae F2 Linear Graphs F3 Linear Simultaneous Equations F4 Volume 2</p>	<p>Content F5 Compound Measures F6 Quadratics - graphical F7 Quadratics - algebraic F8 Further graphs</p>	<p>Content F9 Probability 2 F10 Statistics 2</p>
<p>Assessment Objectives This is the knowledge, application and skills assessed by the Big Test:</p> <ul style="list-style-type: none"> • Solve linear equations in one unknown algebraically • Rearrange formulae to change the subject in a geometrical context • Change the subject of a formula involving the use of square roots and squares • Solve linear equations with the unknown on both sides of the equation • Calculate the radius or diameter when Sector area or Arc length is given • Plot and read coordinates in all four quadrants • Draw, label and scale axes • Plot straight line graphs • Recognise, sketch and interpret straight line graphs • Find approximate solutions using a graph • Find the coordinates of the midpoint of a line segment • Use real life graphs: ready reckoner graphs, conversion graphs, fuel bills graphs, fixed charge and cost per unit • Identify and interpret gradients and intercepts of straight-line graphs • Identify and interpret gradient from an equation $y = mx + c$ • Plot and draw graphs of straight lines in the form $ax + by = c$ 	<p>Assessment Objectives This is the knowledge, application and skills assessed by the Big Test:</p> <ul style="list-style-type: none"> • Interpret distance–time graphs, and calculate: the speed of individual sections, total distance and total time • Change between standard units e.g. time, mass, length, money, volume, area • Change between compound units e.g. speed, rates of pay, prices • Work out time intervals for graph scales • Change between standard units and compound units e.g. density and pressure • Recognise, sketch and interpret graphs of quadratic functions • Identify roots, intercepts and turning points of a quadratic function • Find approximate solutions using a graph • Identify the line of symmetry of a quadratic graph • Find roots of a quadratic algebraically by factorisation • Recognise and sketch cubic graphs and the reciprocal graph • Plot and interpret reciprocal graphs • Recognise and interpret graphs that illustrate direct and inverse proportion 	<p>Assessment Objectives This is the knowledge, application and skills assessed by the Big Test:</p> <ul style="list-style-type: none"> • Apply systematic listing strategies • Describe probability using the probability scale, tables and frequency trees • Apply ideas of randomness, fairness and equally likely events to calculate expected outcomes of multiple future experiments • Calculate expected outcomes • Mutually exclusive events sum to one • Experimental and theoretical probability • Use Venn diagrams and appropriate notation • Probability space/sample space diagrams • Find a missing probability from a list or table including algebraic terms • Unbiased samples and effects of increasing sample size • Probability tree diagrams for independent and dependent events • Calculate the probability of independent and dependent combined events • Sets and combinations of sets using Venn diagrams • Draw and Interpret frequency tables, bar charts, composite bar charts, pie charts, pictograms, vertical line charts, stem and leaf (including back-to-back stem and leaf)

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<ul style="list-style-type: none"> Find the equation of a straight line from a graph Use $y = mx + c$ to identify parallel lines Find the equation of a line through two given points or -through one point with a given gradient Know that the gradient of a straight line is interpreted as a rate of change Identify and interpret the gradient from an equation $ax + by = c$ Solve two simultaneous equations in two variables (linear/linear) algebraically Find approximate solutions using a graph Derive two simultaneous equations, solve the equation and interpret the solution Know and apply formulae to calculate volume of cuboids and other right prisms (including cylinders) Find the volume of spheres, pyramids, cones and composite solids <p><u>Unit test (marked by teacher)</u> Unit test F2</p> <p><u>Unit tests (Self-assessment)</u> Unit tests F1, F3, F4</p> <p><u>Feedforward and Intervention</u> Students to complete the questions where they made errors (in purple pen)</p>	<p><u>Unit test (marked by teacher)</u> Unit test F5</p> <p><u>Unit tests (Self-assessment)</u> Unit tests F6, F8</p> <p><u>Feedforward and Intervention</u> Students to complete the questions where they made errors (in purple pen)</p>	<ul style="list-style-type: none"> Mean, mode, median, modal class Range and outliers Compare the mean, median, mode and range (as appropriate) of two distributions using bar charts, dual bar charts, pictograms and back-to-back stem and leaf Recognise the advantages and disadvantages between measures of average Scatter graphs - recognise correlation Recognise types of data: primary secondary, quantitative and qualitative Understand sample and population Listing combinations Sampling - infer properties of populations or distributions from a sample, while knowing the limitations of sampling Interpret and construct tables and line graphs for time series data Scatter graphs - draw estimated lines of best fit; make predictions; interpolate and extrapolate apparent trends while knowing the dangers of doing so <p><u>Big test PPE (marked by teacher)</u> PPE Big Test 1</p> <p><u>Unit tests (Self-assessment)</u> Unit tests F8, F9</p> <p><u>Feedforward and Intervention</u> Students to complete the questions where they made errors (in purple pen)</p>
<p>ATL Data capture</p>	<p>PPE and ATL data</p>	<p>PPE data ATL Data capture</p>
<p>Spring 2 5 weeks</p>	<p>Summer 1 6 weeks</p>	<p>Summer 2 7 weeks</p>

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Content	Content	Content
F10* Standard form F11 Ratio 2 F12 Growth & Decay	F13 Pythagoras Review F14 Bearings and Scale Drawings	EOY 10 Revision programme (Year 9 and Year 10 Review)
Assessment Objectives This is the knowledge, application and skills assessed by the Big Test: <ul style="list-style-type: none"> • Convert large and small numbers into standard form and vice versa • Add and subtract numbers in standard form • Multiply and divide numbers in standard form • Use a calculator in standard form calculations • Simplify ratios • Divide a quantity into a given ratio • Write ratios as fractions • Compare lengths, areas and volumes using ratio notation and scale factors • Solve ratio problems involving the change of a ratio within a question • Relate ratios to fractions and to linear functions • Set up, solve and interpret the answers in growth and decay problems, including compound interest • Identify the interest rate in compound interest questions • Set up, solve and interpret the answers in growth and decay problems 	Assessment Objectives This is the knowledge, application and skills assessed by the Big Test: <ul style="list-style-type: none"> • Calculate with roots, and with integer indices • Leave answers in surd form • Given 3 sides of a triangle, justify if it is right-angled or not • Apply Pythagoras' Theorem with a triangle drawn on a coordinate grid • Calculate the length of a line segment AB given pairs of points • Interpret maps and scale drawings • Estimate lengths using a scale diagram • Make an accurate scale drawing from a diagram • Know and use compass directions • Use three-figure bearings to specify direction • Mark on a diagram the position of point B given its bearing from point A • Give a bearing between the points on a map or scaled plan • Given the bearing of a point A from point B, work out the bearing of B from A • Use accurate drawing to solve bearings problems • Solve locus problems including bearings 	Assessment Objectives This is the knowledge, application and skills assessed by the Big Test: <ul style="list-style-type: none"> • EOY Revision programme- Revision of key topics • Preparation for UL tests and exam papers
<u>Unit test (marked by teacher)</u> Unit test F11	<u>Unit test (marked by teacher)</u> Unit test F13	<u>EOY PPE test (marked by teacher)</u> EOY PPE Paper 1 and Paper 2
<u>Unit tests (Self-assessment)</u> Unit tests F10*, F12	<u>Unit tests (Self-assessment)</u> Unit test F14	<u>Unit tests (Self-assessment)</u> n/a
<u>Feedforward and Intervention</u>	<u>Feedforward and Intervention</u> Students to complete the questions where they made errors	<u>Feedforward and Intervention</u>

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Students to complete the questions where they made errors (in purple pen)	(in purple pen)	Students to complete the questions where they made errors (in purple pen)
ATL data	ATL Data capture	PPE data PPE and ATL data