Sandbach School Maths Curriculum

Year 11 Maths Curriculum Sequence

Intent: The curriculum will further develop student's ability to interpret and model situations mathematically and develop their use of formal mathematical skills in preparation for external examinations.

HT1 Gradients & lines	HT1 Non-linear graphs & using graphs	HT2 Expanding & factorising	HT2 Changing the subject & functions	HT3 Multiplicative reasoning	HT3 Geometric reasoning	HT3 Algebraic reasoning	HT4 Transforming & constructing	HT4 Listing & describing	HT4 Show that ….	HT5/6 Revision & examinations
Prior Knowledge: -Plot straight line graphs -Interpret y=mx+c -Equations of lines parallel to the axis	**Prior Knowledge:** -Real life graphs -Conversion graphs -Reflect shapes in given lines	**Prior Knowledge:** Expand & factorise with a single bracket/binomial.	**Prior Knowledge:** -Solve linear equations/inequalities -Change the subject of a simple formula	**Prior Knowledge:** -Use scale factors -Ratio problems	**Prior Knowledge:** -Simple angle properties -Interior/exterior angles -Pythagoras' theorem & trig ratios	**Prior Knowledge:** -Find the rule for the nth term of linear/quadratic sequences. -Solve simultaneous equations.	**Prior Knowledge:** -The 4 single transformations -Identifying transformations -Standard constructions using a ruler & protractor.	**Prior Knowledge:** -Sample spaces & probability -Venn diagrams -Comparing distributions -Interpreting scatter diagrams	**Prior Knowledge:** This module brings together all of the aspects covered prior.	**Prior Knowledge:**
National Curriculum Links **Pupils will:** -Plot & interpret graphs. -Interpret the gradient of a straight line as a rate of change. -Use the form y=mx+c to identify parallel & perpendicular lines. -Find approximate solutions to two simultaneous equations in two variables using a graph.	**National Curriculum Links** **Pupils will:** -Recognise, sketch & interpret graphs of linear functions, quadratic functions, cubic functions, the reciprocal and exponential function. -Find approximate solutions using a graph. -Recognise and use the equation of a circle with a centre at the origin.	**National Curriculum Links** **Pupils will:** -Know the difference between an equation & an identity; factorise quadratic expressions, including the difference of two squares. -Solve quadratic equations algebraically by factorising, completing the square and by using the quadratic formula. -Identify & interpret roots; deduce roots algebraically and turning points by completing the square.	**National Curriculum Links** **Pupils will:** -Translate simple situations or procedures into algebraic expressions or formulae; derive an equation, solve the solution and interpret the solution. -Where appropriate, interpret simple expressions as functions with inputs & outputs; interpret the reverse process as the 'inverse function'; interpret the succession of two functions as a 'composite function'.	**National Curriculum Links** **Pupils will:** -Compare lengths, areas & volumes using ratio notation and/or scale factors. -Construct & interpret equations that describe direct & inverse proportion. -Understand that X is inversely proportional to Y is equivalent to X is proportional to 1/Y	**National Curriculum Links** **Pupils will:** -Reason deductively in geometry, number & algebra, including using geometrical constructions. -Apply & prove the standard circle theorems concerning angles, radii, tangents & chords.	**National Curriculum Links** **Pupils will:** -Deduce expressions to calculate the nth term of linear and quadratic sequences. -Solve linear/quadratic inequalities in one or two variables, represent the solution set on a number line.	**National Curriculum Links** **Pupils will:** -Interpret & use fractional & negative scale factors for enlargements. -Describe the changes & invariance achieved by combinations of rotations, reflections & translations. -Sketch translations & reflections of the graph of a given function.	**National Curriculum Links** **Pupils will:** -Calculate the probability of independent & dependent combined events, using tree diagrams & other representations. -Calculate & interpret conditional probabilities through representation using expected frequencies. -Apply systematic listing strategies, including use of the product rule for counting.	**National Curriculum Links** **Pupils will:** "Show that" is used to encourage students to communicate in a clear mathematical fashion, and this skill should be transferred to their writing of solutions to any type of question.	**National Curriculum Links** **Pupils will:** **Revision & examinations**
This leads to: A level Maths – Finding the equation of a line (or perpendicular) when given 2 points.	**This leads to:** A level Maths – Graphs of more complex functions such a transformed trig functions.	**This leads to:** A level Maths – More complex completing the square problems, algebraic division, factor/remainder theorem.	**This leads to:** A level Maths – Graphing inverse functions, new notation such as domain/range.	**This leads to:** A level Maths – More complex ratio problems.	**This leads to:** A level Maths – Ambiguous case for sine rule, solving trig equations featuring transformations.	**This leads to:** A level Maths – Arithmetic/Geometric sequences & series also finding the range of solutions for more complex quadratic inequalities.	**This leads to:** A level maths – Applying transformations to functions and then sketching.	**This leads to:** A level maths – Further work on conditional probability as well as independent and mutually exclusive events.	**This leads to:** A level maths – New types of proof such as contradiction, deduction & exhaustion.	**This leads to:**
This links to: Science – Plotting results and analysing data. Business studies – Identifying trends.	**This links to:** Science / Business studies – conversion graphs either units of length etc or currency.	**This links to:** Science – Accurately using formulae to find outcomes.	**This links to:** Science – Rearranging and working between known formulae to find the required answer.	**This links to:** Geography –Using scales when map reading. Technology – Scale drawings.	**This links to:** Geography – Using a clinometer to gauge the distance of objects.	**This links to:** Science – Using various formulae and manipulating to find the required outcome.	**This links to:** Art / Technology – Knowing the importance of congruence to accurately scale up drawings.	**This links to:** Business studies – Analysis of profit & loss plans, cash flows and various other representations of data.	**This links to:** Science / English – Being able to give an hypothesis and give evidenced reasoning to back up your opinion.	**This links to:**