Maths Year 9 Curriculum overview

The below is intended to provide parents and pupils with a simple overview of Year 8 Maths. Should you have any additional questions please do not hesitate to contact Miss Price. We strongly encourage parents to look through their child's books and talk with them about their studies. In addition to the knowledge quizzes at the end of each unit the pupils will complete 3 larger assessments which will cover the units over a term.

Learning Focus	Assessments
Number: Understanding	
Key Skills/ Knowledge: • Converting between ordinary and standard form • Order and compare standard form and ordinary numbers • Calculate problems with numbers in standard form without a calculator • Calculate problems in standard form with a calculator • Calculate with positive and negative integer indices	End of unit assessment – this will be marked, and the pupils will receive feedback in their books.
Algebra	
Key Skills/ Knowledge: • Understand and use the concepts and vocabulary of expressions, terms, equations, factors, inequalities and formulae • Rearrange formulae where the subject appears once or can be collected as a like term • Simplify and manipulate algebraic expressions by expanding products of two binomials • Form and solve linear equations with integer coefficients where the unknown appears on both sides and where the equation involves brackets (on one side or both) • Solve linear inequalities in one variable and represent the solution set on a number line • Identify and interpret gradients and intercepts of linear functions graphically and algebraically; recognise that equations of the form $y = mx + c$ correspond to straight line graphs • Draw graphs of functions in which y is given explicitly or implicitly in terms of x • Find the midpoint of a line segment • Work out the gradient and find the equation of a straight line given 2 points or given one point and the gradient • Manipulate equations so that it is possible to tell whether lines are parallel or not; show that 2 lines are parallel • Plot a graph representing a real-life problem from information given in words, in a table or as a formula; answer questions that involve interpretation and reasoning • Draw and interpret linear graphs and piece-wise linear graphs representing real-life situations.	End of unit assessment – this will be marked, and the pupils will receive feedback in their books.

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Number: Fractions and Percentages

Key Skills/ Knowledge:	End of unit assessment – this will be marked, and the pupils will receive feedback in their books.
- Solve percentage problems that involve finding the original amount - Understand simple interest and solve problems - Understand compound interest and solve problems - Solve a range of problems involving a range of skills and contexts	

Ratio and Proportion

Key Skills/ Knowledge:	End of unit assessment – this will be marked, and the pupils will receive feedback in their books.
- Use compound units such as speed, density and pressure to solve problems, including average speed calculations and plot graphs - Change freely between related standard units - Solve problems involving direct and inverse proportion by graphical and algebraic approaches - Translate them into algebraic formulae and by using graphs	

Geometry: Similarity and Shape

Key Skills/ Knowledge:	End of unit assessment – this will be marked, and the pupils will receive feedback in their books.
- Apply a combination of transformations to basic shape - Understand the term invariance for points and shapes - Understand and complete column vector calculations - Understand and use the basic congruence criteria for triangles - Prove similarity of triangles and of other plane figures and identify shapes that are similar - Use a straight edge and compasses to complete standard constructions - Draw circles or part circles given the radius or diameter. - Use the standard constructions to construct loci - Describe regions satisfying several conditions - Understand and use trigonometric relationships in right-angled triangles	

Geometry: Angles

Key Skills/ Knowledge:	End of unit assessment – this will be marked, and the pupils will receive feedback in their books.
- Recall and use the eight points of the compass and their equivalent three figure bearings - Use, measure and draw bearings including on scale drawings - Solve problems involving angles and bearings including equations involving parallel lines	

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Geometry: Area, Perimeter and Volume	
<u>Key Skills/ Knowledge:</u> • Recall and use the formula for circumference of a circle including being able to find the radius/diameter when given the circumference • Recall and use the formula for area of a circle including being able to find the radius/diameter when given the area • Work out the area and perimeter of semi-circles, quarter circles and compound shapes • Use the formula for volume and surface area of a cylinder - all required dimensions given, not working backwards • Introduce and use Pythagoras' Theorem in 2D	End of unit assessment – this will be marked, and the pupils will receive feedback in their books.
Data	
<u>Key Skills/ Knowledge:</u> • Calculate an estimate of the mean, the interval containing the median and modal class for a grouped frequency table • Analyse and compare the distributions of data using graphical distributions and suitable measures of spread and average, including commenting on outliers • Construct and interpret frequency tables and bar charts for grouped continuous data • Complete a frequency tree and use a frequency tree to compare frequencies of outcomes • Design, use and complete two-way tables • Understand and use a Venn diagram consisting of a universal set and at most two sets, which may or not intersect including shading areas and solving problems • Construct and use Venn diagrams to solve problems involving probability including set notation i.e., P(A) P(A') P(A∪B) P(A∩B)	End of unit assessment – this will be marked, and the pupils will receive feedback in their books.