Mathematics: Year 8

Intent:

At Brayton Academy, we recognise the importance of mathematics as a life skill in society and industry, as well as a beautiful and elegant subject in its own right.

We have carefully sequenced the foundational skills to be consistently developed throughout pupils' time at school, to provide students with the fluency they need to tackle problems confidently.

Our curriculum is grounded in using assessment to identify where students are and builds up knowledge securely to ensure no gaps are left. Our expectations are very high; we expect pupils to take pride in their work, to complete homework to a high standard, bring a positive attitude to the classroom and always strive to be their best. This goes hand-in-hand with helping students to develop a love of learning maths by supporting them to be successful at every step through expert teaching. We believe that all students have the potential to learn maths to a high level when we take this approach.

- Create an atmosphere where ALL students feel comfortable to give their all to learning maths without being scared of making mistakes
- Open ALL students' eyes to the real world transferable skills that maths equips them with and the opportunities that arise from this
- Encourage ALL students to further develop their resilience skills with a determined mind-set when approaching new material and problem-solving tasks
- Eliminate any fear of maths through meeting ALL students at their level and supporting them to be successful

Implementation:

In year 8 maths staff continue to carefully and gradually build up pupils' knowledge in preparation for GCSE, with constant revision a key cornerstone of our practice. The focus is still on ensuring pupils have the time and space to explore and solidify new concepts fully. However, differentiation of the curriculum means that by the end of year 8 pupils in higher sets will (through study of extension material within each topic) have covered the majority of material pertaining to foundation GCSE and be ready to begin studying the higher course in year 9.

Throughout the year pupils will be set homework on the Hegarty Maths platform that will revise content they have already studied, rather than focusing on what they are currently looking at in class. This gives them another opportunity to ensure that previously studied material is retained.

The following table lists core skills only. These are the concepts all pupils are expected to master. Some students will go on to study related extension material.

Term	Year 8		
	Topic	**Knowledge**	**Skills/Assessment**
Term 1	**Scatter graphs**	Understand how to plot and read scatter graphs, including their limitations	All topics begin with an initial assessment, and prior knowledge gaps are filled in before moving on to new content. Pupils complete a revision quiz part-way through each half term to be marked by their teacher. This will allow gaps to be closed before the end of half-term assessment. At the end of each half-term there will be an assessment on all of the topics pupils have studied in that block.
	Pythagoras	Find any missing side in a right-angled triangle using Pythagoras' theorem	
	Measures	Make sensible estimates of real-life measures, perform metric/metric and metric/imperial conversions, use the formula for speed	
	Statistical measures	Calculate averages from ungrouped data tables, calculate quartiles of data, draw and interpret box plots, simple pie charts	
	Equations	Solve 2-step equations including those involving brackets, represent simple problems as equations and solve	
	Volume	Calculate the volume of prisms with the following cross-sections: rectangle, triangle, trapezium, parallelogram	
	Circumference and area	Use the formulae to calculate circumference and area for circles	
Term 2	**Sequences**	Use term-to-term and position-to-term rules to find numbers in sequences, understand nth term rule terminology, link to linear graphs	All topics begin with an initial assessment, and prior knowledge gaps are filled in before moving on to new content. Pupils complete a revision quiz part-way through each half term to be marked by their teacher. This will allow gaps to be closed before the end of half-term assessment. At the end of each half-term there will be an assessment on all of the topics pupils have studied in that block.
	Transformations	Rotations, reflections and translations	
	Standard form	Convert between numbers written in standard and ordinary form, multiply and divide numbers written in standard form	
	Constructions and loci	Accurately construct triangles, angle bisectors, and perpendicular bisectors of lines	
	Graphs	Use linear graphs to solve simultaneous equations, understand how the gradient and y-intercept of a line links to its equation	
	Percentages	Perform percentage increases/decreases with and without a calculator, write the percentage by which a number has increased or decreased	
Term 3	**Inequalities**	Understand the representation of inequalities on a number-line, solve inequalities including those with unknowns on both sides	All topics begin with an initial assessment, and prior knowledge gaps are filled in before moving on to new content. Pupils complete a revision quiz part-way through each half term to be marked by their teacher. This will allow gaps to be closed before the end of half-term assessment. At the end of each half-term there will be an assessment on all of the topics pupils have studied in that block.
	2D representation of 3D shapes	Understand and use plans and elevations	
	Ratio and proportion	Understand the relationship between ratio and fraction notation, solve problems by combining ratios, best-buy and recipe proportion questions	
	Probability	Two-way tables, frequency trees, calculate missing probabilities, understand when to add probabilities and when to multiply	
	Quadratic graphs	Use a table of values to plot quadratic graphs, solve simultaneous equations involving a quadratic graphically, identify roots and turning points on a graph	
	Real life graphs	Distance-time graphs, conversions graphs, cost graphs	