Harwich and Dovercourt High School

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Year 7 Curriculum Information - Mathematics

Dates	Key topics	Topic detail
Autumn term 1st half term	Number calculations, Algebraic manipulation and data collection.	Number calculations: we will look at the basic skills used within mathematics such as place value, four operations, rounding and using a calculator. Algebraic manipulation: this will include an introduction to algebra, simplifying, expanding, factorising and substitution. Data collection: students will be looking at ways of collecting data and take into consideration other factors that my effect data collection. Students will also need to be able to interpret collected data and draw conclusions.
Autumn term 2nd half term Spring term 1st half term	Geometric reasoning, number properties and transformations.	Geometric reasoning: this will be the first time students look shape, mainly focusing angles and finding missing angles in a shape or a diagram. Number properties: this chapter will look at negative numbers, factors, multiples, primes and square numbers. Transformations: Students will focus on the 4 main transformations: translation, reflection, rotation and enlargement.
	• Solving equations and representing data.	Solving equations: students will be applying and building upon their previous algebraic skills that they have learnt. They will begin by soling a basic equation and build this up to setting up and solving equations, using brackets and having unknowns on both sides. Representing data: Students will look at ways of representing data including: bar charts, line graphs, pictograms, pie charts, tally charts etc. students will learn how to draw, interpret and compare different data representations.
Spring term 2nd half term	Fractions decimals and percentages.	Fractions, decimals and percentages: students will begin by looking at what a fraction, decimal and a percentage is. They will develop skills to enable them to convert between them and use them to compare proportions and probabilities. Students will also look at finding a percentage or fraction of an amount and use these to solve problems.

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Summer term 1st half term Summer term 2nd half term	Summary statistics, ratio and proportion, measures, construction and loci.	Summary statistics: students will look at collected data and find different averages to help interpret the data. These averages include: mean, mode and median. They will also work on finding the range of a set of data and they will use this to compare 2 or more sets of data. They will also have the opportunity to find the mean, mode and median from an ungrouped and grouped frequency table. Ratio and proportion: students will be able to share and amount into a ratio, simplify a ratio and use a ratio to solve functional problems. Students will also learn how to solve problems involving proportion including finding the best value for money. Construction and loci: using a compass and protractor students will look at constructing triangle, angles and bisectors. They will also use this equipment to identify a path or area to help solve a problem.
	• Graphing equations, trigonometry, and probability.	Graphing equations: students will use skills of substitutions to graph simple equations in the format of y = mx + c. prior to this they will be plotting coordinates, identifying the x and y axis and showing a line parallel to the x or y axis. Trigonometry: students will be looking at properties of triangles and how this relates to other shape properties. Students may look at Pythagoras' theorem but will have to fully understand the fundamentals first. Probability: students will begin by looking at using words to describe a probability them build this up to using a number line. Students will fully understand why probability adds up to 1 and begin to use fractions, decimals and percentages to show a probability. They will also be able to find a probability of an event happening or not happening when given a probability or a set of data.

This year we will be building in much more functionality and real life problem solving into our Mathematics lessons. This will help students to see the real life application of what they are learning and in turn will help them to fully understand the concepts being taught. Students will be expected to complete revision homework to encourage independent learning and they will be tested on this every 2 weeks.