

Year 7 Mathematics Curriculum Map 2019-2020

	Autumn Term	Spring Term	Summer Term
Unit Length	<p><u>Pi One</u> Unit 2 – Calculating - 4 weeks Unit 1 - Analysis and displaying data - 3 weeks Unit 3 – Expressions, functions and formulae – 4 weeks Unit 4 – Graphs – 2 weeks</p> <p><u>Theta One</u> Unit 2 – Number skills - 4 weeks Unit 1 - Analysis and displaying data - 3 weeks Unit 3 – Expressions, functions and formulae – 3 weeks Unit 4 – Decimals and measures – 3 weeks</p> <p><u>Delta One</u> Unit 2 – Number skills - 2 weeks Unit 1 - Analysis and displaying data - 2 weeks Unit 3 – Equations, functions and formulae – 3 weeks Unit 4 – Fractions – 3 weeks Unit 5 – Angles and shapes - 3 weeks</p>	<p><u>Pi One</u> Unit 5 – Factors and multiples - 3 weeks Unit 6 – Decimals and measures - 2 weeks Unit 7 – Angles and lines – 2 weeks Unit 8 – Shapes and measures - 3 weeks</p> <p><u>Theta One</u> Unit 5 – Fractions - 3 weeks Unit 6 – Probability - 3 weeks Unit 7 – Ratio and proportion – 3 weeks Unit 8 – Lines and angles - 3 weeks</p> <p><u>Delta One</u> Unit 6 – Decimals - 2 weeks Unit 7 – Equations and formulae – 3 weeks Unit 9 – Perimeter, area and volume - 4 weeks</p>	<p><u>Pi One</u> Unit 9 – Fractions, decimals and percentages - 4 weeks Unit 10 – Transformations – 2 weeks Reasoning – 3 weeks Revision – End of Term</p> <p><u>Theta One</u> Unit 9 – Sequences and graphs - 3 weeks Unit 10 – Transformations – 3 weeks Reasoning – 2 weeks Revision – End of Term</p> <p><u>Delta One</u> Unit 8 – Multiplicative reasoning - 5 weeks Unit 10 – Graphs and real life graphs – 2 weeks Revision – End of Year</p>
Assessment Objectives	<p>AO1 Use and apply standard techniques (Pi, Theta 50%, Delta 40%) AO2 Reason, interpret and communicate mathematically (Pi, Theta 25%, Delta 30%) AO3 Solve problems within mathematics and in other contexts (Pi, Theta 25%, Delta 30%)</p>		
Description of the topic and key learning outcomes.	<p><u>Pi One</u> Unit 2 – Calculating: students will be studying how to calculate positive and negative numbers using addition, subtraction, multiplying and dividing. Unit 1 - Analysis and displaying data: students will be studying how to construct</p>	<p><u>Pi One</u> Unit 5 – Factors and multiples: students will be studying how find factors and multiples. Students will then move to finding the highest common factor and lowest common multiple of two numbers.</p>	<p><u>Pi One</u> Unit 9 – Fractions, decimals and percentages: students will be studying how to simplify and find equivalent fractions. Also they will be studying how to add and subtract fractions. Furthermore, students will be learning the relationship between fractions and percentages.</p>

	<p>and interpret; tables, pictograms, bar charts, grouped data and averages.</p> <p>Unit 3 – Expressions, functions and formulae: students will be introduced to algebra using functions machines in order to enable them to write and simplify expressions.</p> <p>Unit 4 – Graphs: students will be studying how to plot and read coordinates. Also they will use their prior knowledge of functions machines to draw straight line graphs.</p>	<p>Unit 6 – Decimals and measures: students will be studying how to estimate, add and subtract decimals. Also students will learn how to convert measures using metric and imperial units.</p> <p>Unit 7 – Angles and lines: students will be taught angle facts and how to measure and draw angles.</p> <p>Unit 8 – Shapes and measures: students will be studying properties of shapes and regular polygons. Also students will then move onto finding the area and perimeter of shapes using the properties that they have learnt.</p>	<p>Unit 10 – Transformations: students will be taught how to rotate, reflect and translate shapes.</p>
	<p><u>Theta One</u></p> <p>Unit 1 - Analysis and displaying data: students will be studying how to interpret and compare bar charts, line graphs, grouped data and averages.</p> <p>Unit 2 – Number skills: students will be studying the properties of numbers and how to calculate directed numbers using all four operations.</p> <p>Unit 3 – Expressions, functions and formulae: students will be studying algebra and focusing on writing expressions and formulae. Also students will be studying how to simplify expressions and substitution.</p> <p>Unit 4 – Decimals and measures: students will learn how to convert measures using metric and imperial units. Also they will be focusing on how to calculate area and perimeter linking to metric and imperial units.</p>	<p><u>Theta One</u></p> <p>Unit 5 - Fractions: students will be studying how to simplify and find equivalent fractions. Also they will be studying how to find fractions and percentages of an amount.</p> <p>Unit 6 – Probability: students will be studying the language of probability and how to calculate it.</p> <p>Unit 7 – Ratio and proportion: students will be studying how to write and simplify ratios. Also students will then move onto calculating direct proportion and establishing a link between proportion, fractions and percentages.</p> <p>Unit 8 – Lines and angles: students will be taught angle facts and how to measure and draw angles. Also students will be focusing on constructing triangles and finding angles in triangles and quadrilaterals.</p>	<p><u>Theta One</u></p> <p>Unit 9 – Sequences and graphs: students will be identifying pattern sequences and moving onto establish the nth term of number sequences. Also students will be using the knowledge of patterns to draw straight line graphs.</p> <p>Unit 10 – Transformations: students will be taught how to rotate, reflect, translate and enlarge shapes.</p>

	<p>Delta One</p> <p>Unit 1 - Analysis and displaying data: students will be studying how to draw, interpret and compare; two way tables, line graphs, scatter graphs, pie charts, grouped data and averages.</p> <p>Unit 2 – Number skills: - students will be studying the properties of numbers and how to calculate directed numbers using all four operations.</p> <p>Unit 3 – Expressions, functions and formulae: students will be focusing on writing expressions and formulae. Also students will be studying how to expand and factorise expressions.</p> <p>Unit 4 – Fractions: students will be studying how to calculate with fractions using all four operations. Students will then move onto looking at the relationship between fractions, decimals and percentages.</p>	<p>Delta One</p> <p>Unit 5 – Angles and shapes: students will be studying how to calculate angles using angle facts and parallel lines. Also students will then move onto finding angles in triangles, quadrilaterals and regular polygons.</p> <p>Unit 6 – Decimals: students will be studying how to estimate and calculate decimals using all four operations.</p> <p>Unit 7 – Equations: students will be studying how to solve one step and two step equations moving onto more complex equations.</p> <p>Unit 9 – Perimeter, area and volume: students will be finding the perimeter and area of the following; triangles, parallelograms, trapeziums and compound shapes. Students will then move onto studying properties of 3D shapes and calculating the area and surface area of them.</p>	<p>Delta One</p> <p>Unit 8 – Multiplicative reasoning: students will be studying conversions between imperial and metric units. Also students will focus on how to write, simplify and share ratios in amounts. Students will then move onto calculating direct proportion and solving proportion problems.</p> <p>Unit 9 – Perimeter, area and volume: students will be finding the perimeter and area of the following; triangles, parallelograms, trapeziums and compound shapes. Students will then move onto studying properties of 3D shapes and calculating the area and surface area of them.</p> <p>Unit 10 – Sequences and graphs: students will be establishing the nth term of number sequences. Also students will be using the knowledge of patterns to draw straight line graphs.</p>
Assessment objectives and skills being taught	AO1, AO2 & AO3	AO1, AO2 & AO3	AO1, AO2 & AO3
Milestone assessments	<p>w/c 16th October</p> <p>Milestone assessment on all work covered since September (Units 1 and 2)</p> <p>w/c 11th December</p> <p>Milestone assessment on all work covered since September (Units 1 to 4)</p>	<p>w/c 12th February</p> <p>Milestone assessment on all work covered since September (Units 1 to 6)</p> <p>w/c 19th March</p> <p>Milestone assessment on all work covered since September (Units 1 to 7)</p>	<p>w/c 25th June</p> <p>Milestone assessment on all work covered over the course of the year (Unit 1-8)</p>

Wider reading	Research the history of algebra. Where did the word algebra derive from? Which civilizations introduced algebra? Who were the early pioneers?	<p><u>Pi/Theta students:</u> Investigate Egyptian fractions. What are they? How did they work? Are they still used anywhere today? What are the benefits and drawbacks of Egyptian fractions? Investigate misleading graphs. Where can they be seen? Why would the media use misleading charts or graphs?</p> <p><u>Delta students:</u> Research Greek Mathematician Pythagoras of Samos. Investigate some careers where Pythagoras and trigonometry skills could be required.</p>	<p><u>Pi/Theta students:</u> Investigate where averages are used in everyday life. What jobs might require you to work with averages.</p> <p><u>Delta students:</u> Investigate quadratic graphs. What do they look like? Where might quadratic graphs be used in real life?</p>
Literacy programme	<p><u>Pi/Theta</u> Definition and spelling tests. Modelling explaining answers in full sentences. Spelling tests and definition tests.</p>	<p><u>Delta</u></p> <ul style="list-style-type: none"> - glossary/keyword bank - spelling tests and definition tests. - breaking down problem solving questions. - explain answers in full sentences 	
Independent Learning Tasks	Knowledge organiser revision Weekly homework		
Cross-Curriculum	<p>Art & Design and Maths</p> <ul style="list-style-type: none"> • Symmetrical art can be analysed and the number of lines of symmetry can be found. Also, the order of rotational symmetry can be studied. • Ratio is used to mix paints. For example, to make purple, you mix 3 parts red to 7 parts blue. • You could also explore the Art through mathematics section on the NCETM website. <p>English and Maths</p> <ul style="list-style-type: none"> • Spelling mathematical vocabulary correctly and using it in the correct context. • Mastery of maths is advanced by children being able to explain their mathematical thinking to others and to justify methods and conclusions. • English skills can be used to clearly interpret and discuss results you get from collecting data in maths lessons. • Solving comprehension questions from maths comprehension cards. <p>Design & Technology and Maths</p> <ul style="list-style-type: none"> • Reading Scales. • Measuring ingredients and working out proportions. • Using ratios in recipes. <p>Geography and Maths</p> <ul style="list-style-type: none"> • Collecting and representing data from field trips or for weather investigations. • Grid references and coordinates. • Using scales on Ordnance Survey maps to establish the correct distance between two points. 		

	<p>Computing and Maths</p> <ul style="list-style-type: none"> • Angles and direction which can be drawn and measured using floor robots and apps too. • Information can be represented in Excel and calculations using formula can be done on the data here too. • Logic is used in programming as is problem solving. <p>Foreign Languages and Maths</p> <ul style="list-style-type: none"> • Numbers can be used to do sums or times tables in French. • Asking what time it is in another language. <p>Music and Maths</p> <ul style="list-style-type: none"> • Time and speed can be represented by tempo which is the number of beats per minute (BPM). • Equivalent fractions can be shown using musical notation where a different type of note is worth a different fraction of a whole beat. <p>History and Maths</p> <ul style="list-style-type: none"> • Historical timelines can be used as a basis for finding the difference in dates. • Historical dates can also be utilised for sequencing events. <p>Physical Education and Maths</p> <ul style="list-style-type: none"> • Time, distance and speed of races can be incorporated into Maths sessions to enable children • Averages (Mean, Mode and Median) can be used to assess and athlete's performance.
RRSA	<p>Article 2 – Non discrimination Article 12 – Respect for the views of the child Article 13 – Freedom of expression Article 14 – Freedom of thought, belief and religion Article 15 – Freedom of association Article 16 – Right to privacy Article 23 – Right to a full life if child with disability Article 28 – Right to education Article 29 – Goals of education Article 42 – Knowledge of rights</p>
CEI	<p>The specific value of maths as a required or preferred subject for particular careers, e.g.:</p> <ul style="list-style-type: none"> • Engineers and engineering technicians • Surveyors and surveying technicians • Systems analysts • Actuaries • Accountants • Operational researchers • Chemists • Software engineers • Statisticians