

Year 7 Curriculum Map : Mathematics

	Autumn	Spring	Summer
Assessment Objectives	AO1 Use and apply standard techniques (Support/Core 50%, Core/Depth 40%) AO2 Reason, interpret and communicate mathematically (Support/Core 25%, Core/Depth 30%) AO3 Solve problems within mathematics and in other contexts (Support/Core 25%, Core/Depth 30%)		
Unit Length	Topic: <ol style="list-style-type: none"> 1. Number Skills 2. Analysing and displaying data 3. Expressions and functions 4. Decimals and measure 	Topic: <ol style="list-style-type: none"> 1. Fractions and Percentages 2. Probability 3. Ratio and Proportion 4. Lines and angles 	Topic: <ol style="list-style-type: none"> 1. Sequences and graphs 2. Transformations 3. Data project 4. Reasoning lesson sequence
Key Learning Outcomes	<p><u>Unit One – Number skills</u></p> <ol style="list-style-type: none"> 1. students will be studying how to calculate positive and negative numbers using addition, subtraction, multiplying and dividing. (S/C) 2. students will be studying the properties of numbers and how to calculate directed numbers using all four operations. (C/D) <p style="text-align: center; color: red;">Intentional monitoring</p> <p><u>Unit two – Expressions and functions</u></p> <ol style="list-style-type: none"> 3. students will be introduced to algebra using functions machines in order to enable them to write and simplify expressions. (S/C) 4. students will be focusing on writing expressions and formulae. Also students will be studying how to expand and factorise expressions. (C/D) <p style="text-align: center; color: red;">Progress assessment, feedback, reteach and DIRT.</p> <p><u>Unit three – Analysing and displaying data</u></p>	<p><u>Unit five – Fractions and percentages</u></p> <ol style="list-style-type: none"> 9. 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. (S/C) 10. 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. (C/D) <p style="text-align: center; color: red;">Intentional monitoring</p> <p><u>Unit six - Probability</u></p> <ol style="list-style-type: none"> 11. students will be studying the language of probability and how to calculate it. (S/C) 12. students will be studying the and/or rule related to probability and will look at experimental probability and the differences with theoretical probability (C/D) <p style="text-align: center; color: red;">Progress assessment, feedback, reteach and DIRT.</p> <p><u>Unit seven – Ratio and proportion</u></p>	<p><u>Unit nine – Sequences and graphs</u></p> <ol style="list-style-type: none"> 17. students will be identifying pattern sequences. Students will be using the knowledge of patterns to draw straight line graphs. (S/C) 18. students will be establishing the nth term of number sequences. Also students will be using the knowledge of patterns to draw straight line graphs. (C/D) <p style="text-align: center; color: red;">Intentional monitoring</p> <p><u>Unit ten - Transformations</u></p> <ol style="list-style-type: none"> 19. Students will be taught how to rotate, reflect and translate shapes. (S/C) 20. students will be taught to rotate, reflect and translate shapes, and then to understand enlargement and scale factors (C/D) <p style="text-align: center; color: red;">Progress assessment, feedback, reteach and DIRT.</p> <p><u>Data project</u></p>

	<p>5. students will be studying how to construct and interpret; tables, pictograms, bar charts, grouped data and averages. (S/C)</p> <p>6. students will be studying how to draw, interpret and compare; two way tables, line graphs, scatter graphs, pie charts, grouped data and averages. (C/D)</p> <p style="text-align: center;">Intentional monitoring</p> <p><u>Unit four – Decimals and measures</u></p> <p>7. students will be studying how to calculate positive decimal numbers using addition, subtraction, multiplying and dividing. (S/C)</p> <p>8. 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. (C/D)</p> <p style="text-align: center;">Progress assessment, feedback, reteach and DIRT.</p>	<p>13. 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. (S/C)</p> <p>14. 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. (C/D)</p> <p style="text-align: center;">Intentional monitoring</p> <p><u>Unit eight – Lines and angles</u></p> <p>15. students will be taught angle facts and how to measure and draw angles. (S/C)</p> <p>16. 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. (C/D)</p> <p style="text-align: center;">Progress assessment, feedback, reteach and DIRT.</p>	<p>21. students will be studying how to calculate positive and negative numbers using addition, subtraction, multiplying and dividing. (S/C)</p> <p>22. students will be studying the properties of numbers and how to calculate directed numbers using all four operations. (C/D)</p> <p style="text-align: center;">Intentional monitoring</p> <p><u>Reasoning lesson sequence</u></p> <p>23. students will be studying how to calculate positive and negative numbers using addition, subtraction, multiplying and dividing. (S/C)</p> <p>24. students will be studying the properties of numbers and how to calculate directed numbers using all four operations. (C/D)</p> <p style="text-align: center;">Progress assessment, feedback, reteach and DIRT.</p>
<p>Prior knowledge</p>	<p>KS2: identify common factors, common multiples and prime numbers use their knowledge of the order of operations to carry out calculations involving the 4 operations solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why solve problems involving addition, subtraction, multiplication and division use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</p>	<p>KS2: They use and understand the terms factor, multiple and prime, square and cube numbers. Pupils interpret non-integer answers to division by expressing results in different ways according to the context, including with remainders, as fractions, as decimals or by rounding. Pupils' knowledge of the properties of shapes is extended at this stage to symmetrical and non-symmetrical polygons and polyhedral. Pupils extend their use of the properties of shapes. They should be able to describe the properties of 2-D and 3-D shapes using accurate language, including lengths of lines and acute and obtuse for angles greater or lesser than a right angle.</p> <p>Pupils connect decimals and rounding to drawing and measuring straight lines in centimetres, in a variety of context</p>	<p>KS2: Pupils connect their work on angles, fractions and percentages to the interpretation of pie charts. Pupils both encounter and draw graphs relating 2 variables, arising from their own enquiry and in other subjects. They should connect conversion from kilometres to miles in measurement to its graphical representation. Pupils know when it is appropriate to find the mean of a data set. Pupils connect their work on angles, fractions and percentages to the interpretation of pie charts. Pupils both encounter and draw graphs relating 2 variables, arising from their own enquiry and in other subjects. They should connect conversion from kilometres to miles in measurement to its graphical representation. Pupils know when it is appropriate to find the mean of a data set</p>

CEIAG Specific careers links	<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 	<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 	<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
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>	<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>	<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>
Cross curricular links	<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. 		
Useful websites/videos	<p>https://www.bbc.co.uk/bitesize/subjects/zqhs34j</p> <p>https://hegartymaths.com/</p> <p>https://corbettmaths.com/</p>		
Wider Reading	<ul style="list-style-type: none"> • Research the history of algebra. Where did the word algebra derive from? Which civilizations introduced algebra? Who were the early pioneers? • 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? • Research Greek Mathematician Pythagoras of Samos. Investigate some careers where Pythagoras and trigonometry skills could be required. • Investigate where averages are used in everyday life. What jobs might require you to work with averages. • Investigate quadratic graphs. What do they look like? Where might quadratic graphs be used in real life? 		
Literacy Programme	<ul style="list-style-type: none"> • Decode it NOW • Guided practice/model answers • Sentence Starters • Writing strategies 	<ul style="list-style-type: none"> • Decode it NOW • Guided practice/model answers • Sentence Starters • Writing strategies 	<ul style="list-style-type: none"> • Decode it NOW • Guided practice/model answers • Sentence Starters • Writing strategies
Independent Learning Tasks	Hegarty maths tasks Knowledge organisers	Hegarty maths tasks Knowledge organisers	Hegarty maths tasks Knowledge organisers