Year 7 Curriculum Overview [2021-2022]
Subject – Maths

	Knowledge & Understanding			Literacy Skills	Employability Skills [if any]	Assessment Opportunities
	Composites	**Components** [includes understanding of KEY concepts & subject specific vocab]	**Formal Retrieval** [if any]	**Opportunities for developing literacy skills**		
HT1	**<u>Exploring Sequences</u>** (Week 1&2)	• Describe and continue a sequence diagrammatically • Explore special sequences & recognising the differences between types of sequences (e.g. linear and non-linear) • Predict, check and explain the next term or the missing term in a sequence • Recognise sequences in tabular and graphical form • Continue linear and non-linear sequences	• Flashback 4 – once per week • Mathsbox skills check 10 questions – once per week • Mathsbox skills check 20 questions HWK – once a week	• Key words – learned and understood • Encourage use of subject language • Questioning • Pupil explanations and reasoning	• Financial management – predicting financial models • Nuclear engineers – prediction of radioactive models	• Baseline Assessment (Week 1 – 2)
	<u>Understand and use algebraic notation</u> (Week 3 – 5)	• Find the output of a function machine including algebraic examples • Use inverse operations to find the input given the output including algebraic examples • Form and simplify algebraic expressions • Substitute values into expressions • Generate sequences given a rule • Represent one and two step functions graphically				• End of block formative assessment
	<u>Equality and equivalence</u> (Week 6 – 7)	• Understand the meaning of equality • Solve one-step equations using the four operations • Understand like and unlike terms. • Explore the meaning of equivalence • Collecting like terms, and understand identities				• End of block formative assessment

HT2	**<u>Place Value</u>** (Weeks 1 – 3)	• Recognise the place value of any number in an integer up to 1billion • Understand and write numbers up to 1billion • Work out intervals and position integers on a number line • Round integers to powers of ten • Compare two numbers using inequality signs • Order a list of integers • Calculate the range and median of a set of numbers • Understand place value in decimals • Position decimals on a number line • Compare and order any number up to 1 billion **<u>Ext:</u>** • **Round to significant figures** • **Explore 10, 100, 1000 as powers of ten etc** • **Write positive integers in A x 10^n and convert to standard form** • **Investigate negative powers of ten** • **Write decimals in standard form**	• Flashback 4 – once per week • Mathsbox skills check 10 questions – once per week • Mathsbox skills check 20 questions HWK – once a week	• Key words – learned and understood • Encourage use of subject language • Questioning • Pupil explanations and reasoning	• Life skills • Money management	• End of block formative assessment
	<u>Fractions, decimals and percentages</u> (Weeks 4 – 6)	• Represent tenths and hundredths as diagrams and on number lines. • Interchange fractional and decimal number lines • Convert between fractions, decimals and percentages • Understand the meaning of a percentage • Use & interpret pie charts • Represent fractions as diagrams and on a number line • Identify and use simple equivalent fractions • Understand fractions as division **<u>Ext:</u> Explore fractions above one, decimals and percentages**				• Summative end of term assessment

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HT3	**Solving problems with addition & subtractions** (Weeks 1 &2)	• To use mental strategies for addition and subtraction • Use formal methods of addition and subtraction for integers and decimals, including choosing the most appropriate strategy. • Solve problems in the context of perimeter, money & finance, frequency trees, tables and timetables. Also bar charts and line graphs. • **Ext Add and subtract numbers given in standard form**	• Flashback 4 – once per week • Mathsbox skills check 10 questions – once per week • Mathsbox skills check 20 questions HWK – once a week	• Key words – learned and understood • Encourage use of subject language • Questioning • Pupil explanations and reasoning	• Number skills involved in many areas of different work.	• End of block formative assessment
	Solving problems with multiplication and division (Weeks 3 to 5)	• To multiply by 10, 100 and 100 • To multiply by 0.1 and 0.01 • To convert metric units • Use mental and formal methods of multiplication and division • Find the HCF and LCM of small numbers • Begin to understand and use order of operations • Solve problems using areas of triangles, rectangles and parallelograms • Solve problems using the men **Ext Solve problems using the area of trapezia and Explore multiplication and division in algebraic expressions**				• End of block formative assessment

	<u>Fractions & percentages of amounts</u> (Week 6)	• Find a fraction of a given amount • Use a fraction to find a whole/ fraction of another amount • Find a percentage of an amount using mental and calculator strategies • **<u>Ext</u> Solve problems with fractions greater than one and percentages greater than 100%**				• End of block formative assessment
HT4	**<u>Four operations with directed number</u>** (Weeks 1 to 3)	• Order directed numbers, both in contextualised and abstract situations • Revisit four operations to include directed number • Use a calculator with directed number • Evaluate algebraic expressions with directed number • Solve two-step equations (with and without a calculator) • Continue to use the order of operations, including directed number **<u>Ext</u>** • **Understand that positive numbers have more than one square root** • **Explore higher powers and roots**	• Flashback 4 – once per week • Mathsbox skills check 10 questions – once per week • Mathsbox skills check 20 questions HWK – once a week	• Key words – learned and understood • Encourage use of subject language • Questioning • Pupil explanations and reasoning		• End of block formative assessment
	<u>Addition and subtraction of fractions</u> (Weeks 4 to 6)	• Understand representations of fractions • Convert mixed numbers and improper fractions • Understand and use equivalent fractions • Add and subtract fractions with the same and a different denominator • Add and subtract a combination of fractions and decimals • Add and subtract improper fractions & mixed numbers • **<u>Ext</u> Add and subtract simple algebraic fractions**				Summative end of term assessment

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HT5	**<u>Constructing measuring and using geometric notation.</u>** (Weeks 1 -3)	• Understand angles as a measure of turn • Classify, measure and draw angles between 0 and 360 degrees • Identify parallel and perpendicular lines • Recognise properties and types of shapes. E.g. Triangles and quadrilaterals • Identify polygons up to Decagons. • Construct triangles using a compass (SSS, SAS, ASA) cvc • Interpret and draw pie charts. • **<u>Ext:</u> Construct perpendicular and angle bisectors and understand and construct loci.**	• Flashback 4 – once per week • Mathsbox skills check 10 questions – once per week • Mathsbox skills check 20 questions HWK – once a week	• Key words – learned and understood • Encourage use of subject language • Questioning • Pupil explanations and reasoning	• Engineering and architecture and planning	• End of block formative assessment
	<u>Geometric reasoning.</u> (Weeks 4-5)	• Understand and use the sum of angles around a point and on a straight line. • Understand and use the equality of vertically opposite angles. • Know and apply the sum of angles in a triangle and in a quadrilateral. Use this skill and apply to problem solving questions. • Find and apply the sum of angles in a polygons. • Investigate and use angles in parallel sides. • Use known facts to obtain simple proofs.				• End of block formative assessment

	<u>Developing number sense.</u> (Weeks 6)	• Know and use mental addition, subtraction, division and multiplication strategies for integers. • Know and use mental arithmetic strategies for fractions and decimals. • Use factors to simplify calculations.				• End of block formative assessment
HT6	**<u>Developing number sense.</u>** (Weeks 1-2)	• Use factors to simplify calculations. • Use estimation as a method for checking mental calculations. • Use known algebraic and number facts to derive other facts. • Know when to use a mental strategy, written method or a calculator.	• Flashback 4 – once per week • Mathsbox skills check 10 questions – once per week • Mathsbox skills check 20 questions HWK – once a week	• Key words – learned and understood • Encourage use of subject language • Questioning Pupil explanations and reasoning		Summative end of term assessment
	<u>Sets and probability.</u> (Weeks 3-4)	• Identify and represent sets. • Interpret and create Venn diagrams • Understand and use the intersection of sets and the union of sets. • Understand and use the complement of a set. • Know and use the vocabulary of probability and understand the probability scale. • Understand probabilities add up to 1 and calculate the probability of a single event.				
	<u>Prime numbers and proof.</u> (Weeks 5-6)	• Find and use multiples. • Find factors of numbers and expressions. • Recognise prime, square and triangular numbers. • Find common multiples and factors including HCF and LCM. • Write a number as a product of prime factors. • Find the HCF and LCM of a set of numbers using a Venn diagram. • Make and test conjectures. Then use counterexamples to disapprove a conjecture.				