Curriculum Overview

Maths Year 7

	HT1	HT2	HT3	HT4	HT5	HT6
Topics	• Sequences • Understand and use Algebraic notation. • Equality and equivalence	• Place value and ordering integers and decimals • Fraction, decimals and percentages equivalence.	• Solving problems with addition and subtraction. • Solving problems with multiplication and division. • Fractions And percentages of amounts.	• Operations and equations of direct numbers. • Addition and subtraction of fractions	• Constructing, measuring and using geometric notation. • Developing geometric reasoning.	• Developing Number sense. • Sets and probability • Prime numbers and proof.

Key Knowledge						
Sequences – Describe and continue sequences. Predict and check next term(s). Sequences in a table and graphically Linear and non-linear sequences. Continue linear sequences Continue non-linear sequences. Explain the term-to-term rule Find missing terms (H) **Understand and use Algebraic notation-** Given a numerical input, find the output of a single function machine. Use inverse operations to find the input given the output. Use diagrams and letters to generalise number operations. Use diagrams and letters with single function machines. **Equality and equivalence-** Understand the meaning of equality. Understand and use fact families, numerically and algebraically. Solve one-step linear equations involving +/– /×/÷. Understand the meaning of like and unlike terms.	**Place value and ordering integers and decimals –** Recognise the place value of any number in an integer up to one billion. Understand and write integers up to one billion in words and figures. Work out intervals on a number line. Compare two numbers using =, ≠, , ≤, ≥. Ord3er a list of integers. Find the range/median of a set of numbers. Understand place value for decimals. **Fraction, decimals and percentages equivalence-** Represent tenths and hundredths as diagrams and number line. Interchange between fractional and decimal number lines. Convert between fractions and decimals. Understand the meaning of percentages using the hundred square. Convert fluently between simple fractions, decimals and percentages.	**Solving problems with addition and subtraction-** Properties of addition and subtraction. Mental strategies for addition and subtraction. Use formal methods for addition' subtraction of decimals and integers. Choose the most appropriate method; mental strategies, formal written or calculator. Solve problems in the context of perimeter. Solving financial maths problems. Solve problems involving tables/timetables/frequency tree/bar and line charts. **Solving problems with multiplication and division-** Properties of multiplications and division. Understand and use factors and multiples. Multiply and divide integers and decimals by powers of 10. Convert metric units**. Fractions And percentages of amounts –** Find a fraction of a given amount. Use a given fraction to find the whole and/or other fractions. Find percentages of a given amount using mental methods. Find a percentage of a given amount using a calculator.	**Operations and equations of direct numbers –** Understand and use representations of directed numbers Order directed numbers using lines and appropriate symbols. Preform calculations that cross zero. Add/Subtract/Divide/Multiply directed numbers. Evaluate algebraic expressions with directed numbers. **Addition and subtraction of fractions -** Understand representation of fractions. Convert between mixed numbers and fractions Add and subtract unit fractions with the same denominator. Add subtract fractions from integers expressing the answer as a single fraction.	**Constructing, measuring and using geometric notation –** Measure angles up to 180. Draw angles up to 180. Draw and measure angles between 180 and 360. Identify perpendicular and parallel lines. Recognise types of triangles. Recognise types of quadrilateral. Identify polygons up to a decagon. Interpret simple pie charts using a protractor. **Developing geometric reasoning-** Understanding and use the sum of angles at a point. Understand and use the sum of angles on a straight line. Understand and use the equality of vertically opposite angles. Know and apply the sum of angles in a triangle. Know and apply the sum of angles in a quadrilateral. Solve angle problems using properties of tringles and quadrilaterals.	**Developing Number sense –** Know and use mental addition and subtraction strategies for integers. Know and use mental multiplication and division strategies for integers. Known and use mental multiplication and division strategies for integers. Know and use mental arithmetic strategies for decimals. Know and use mental arithmetic strategies for fraction. Use factors to simply calculations. **Sets and probability –** Identify and represent sets. Interpret and create Venn diagrams. Understand and use the intersection of sets. Understand and use the union of sets. Know and use the vocabulary of probability. Generate sample space for single events. Calculate the probability of a single event **Prime numbers and proof-** Find and use multiples. Identify factors of numbers and expressions.

						Recognise and identify prime expressions Recognise and identify prime numbers. Find common factors of a set of numbers including the HCF. Find common multiple of a set of numbers including the LCM. Write a number as a product of its prime factors.
Assessment Opportunities (F&S)	Self assessment Peer Assessment Teacher Feedback Improvement Time Topic based test	Self assessment Peer Assessment Teacher Feedback Improvement Time Topic based test	Self assessment Peer Assessment Teacher Feedback Improvement Time Topic based test	Self assessment Peer Assessment Teacher Feedback Improvement Time Topic based test	Self assessment Peer Assessment Teacher Feedback Improvement Time Topic based test	Self assessment Peer Assessment Teacher Feedback Improvement Time Topic based test

CEIAG	Elevator manufacturers use formulas to calculate the speed of a lift and the maximum weight/ number of people that can use a lift at any one time	Product developers often conduct surveys where they offer a free sample and request feedback. They collate this information and use it to further develop a product or decide on a price point.	Brokers work with money which is represented as a decimal. They buy and sell shares, using both positive and negative decimals. They also need a knowledge of percentages to calculate profit and loss.		Engineers create accurate 3D plans of constructions to show design ideas to clients. Air-conditioning engineers need to consider the properties of 3D shapes and how these will effect air flow.	Plumbers use rounding and approximation to estimate the cost of a job and provide a quote to customers. They use a range of calculations to find the amount of materials needed and the cost of materials.
Cultural Capital	Develop logical problem-solving skills with the use of algebra Patterns in art	Mondrian Fractions art work Use percentages in real life context such as tax and best buys Look at percentages and fractions by considering different groups within society e.g. percentage of the population that follows a religion, has a disability etc.	Create formulas that relate to real life (e.g. converting currency or temperature and calculating bills) Use division to calculate costs per person- apply this to running cost of a home, trips out etc.	RACES covering all areas of maths including calculations and Shape.	Understanding maps and scales calculating distances of real journeys. School visit- Construction using angles. Develop the ability to follow a step by step logical problem-solving process by solving missing angle problems	Consider financial data e.g. highest lowest and average UK salary. Compare with the cost of living and discuss living in poverty.
Cross-Curricular Links	Link to art - patterns	Link to Construction – Planning and making	Link to History- Calculating % change in population over time	Link to science- data from experiments	Link to sport- marking out a pitch	Link to nutrition– Calculating with calories