

SUBJECT:	Maths	YEAR GROUP:	Year 7
PURPOSE OF STUDY			
<p>Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject</p>			
THE NATIONAL CURRICULUM FOR MATHS AIMS TO ENSURE THAT ALL PUPILS:		NATIONAL CURRICULUM LINKS	
<p>The national curriculum for mathematics aims to ensure that all pupils:</p> <ul style="list-style-type: none"> • become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately. • reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language • can solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions. 		<p>Science: Use of graphs to display data; Use of algebraic formula in chemistry and physics; Use of addition, subtraction, multiplication and division.</p> <p>Humanities: Use of graphs to display data; Interpretation of data in graphs, table and charts.</p> <p>English: Use of inference in worded problems; Retrieval of relevant information.</p> <p>Art: Use of shapes and angles in artists work.</p>	
TOPICS COVERED:			
<ul style="list-style-type: none"> • Sequences • Understanding algebraic notation • Equality & equivalence • Place value & ordering integers & decimals 			

- Fraction, decimal & percentage equivalence
- Solving problems with addition & subtraction
- Solving problems with multiplication & division
- Fractions & percentages of amounts
- Operations & equations with directed number
- Addition and subtraction of fractions
- Constructing, measuring & using geometric notion
- Developing geometric reasoning
- Developing number sense
- Sets & probability
- Prime numbers & proof

INTENT OF SUBJECT:

The study of maths throughout year 7 will build on the pupils learning from KS2 and equip them with the skills needed to become fluent in the areas of maths they require for their journey through each year of school and a goal of completing examinations in the subject at the end of KS4. The maths curriculum also aims to develop a love of the subject and allow pupils to understand the real-life applications of the skills they learn so they are able to continue to use them in their lives beyond school. This will be done through the study of: Algebraic thinking; Place value & proportion; Applications of number; Directed number; Fractional thinking; Lines & angles; Reasoning with number.

SKILLS OVERVIEW BY HALF TERM:

AUTUMN ONE

- Describe and continue a sequence
- Predict and check the next term of a sequence
- Represent sequences in a variety of forms
- Recognise the difference between linear and non linear sequences.
- Explain the term-to-term rule of numerical sequences in words.
- Understand and use a variety of function machines
- Substitute values into a variety of expressions
- Generate sequences given an algebraic rule
- Understand and use fact families
- Simplify algebraic expressions

AUTUMN TWO

- Recognising place value
- Understand and write integers in words and figures
- Understand and use number lines
- Rounding integers
- Ordering
- Finding range
- Finding median
- Compare and order numbers
- Using powers
- Writing decimals

<ul style="list-style-type: none"> • Solve linear equations 	<ul style="list-style-type: none"> • Convert between fractions, decimals and percentages • Use and interpret pie charts • Identify and use simple equivalent fractions • Understand fractions as division
SPRING ONE	SPRING TWO
<ul style="list-style-type: none"> • Use addition and subtraction for a range of number types • Mental strategies • Choosing the most appropriate method: mental, formal, written • Solve problems in the context of perimeter • Solve financial math problems. • Solve problems involving tables and timetables. • Understand and use frequency trees, bar charts and line charts • Use multiplication and division for a variety of number types • Understand and use factors and multiples • Understand and use order of operations • Solve problems using the area of rectangles and parallelograms • Solve problems using the area of triangles • Solve problems using the area of trapezia • Solve problems using the mean • Find fractions and percentages of given amounts 	<ul style="list-style-type: none"> • Use and understand a directed numbers • Order directed numbers using lines and appropriate symbols • Perform calculations that cross zero • Add, subtract, multiply and divide directed numbers • Use a calculator • Evaluate algebraic expressions • Use order of operations • Solve equations • Understand powers and roots • Add and subtract fractions • Understand and use improper fractions and mixed numbers • Understand and use equivalent fractions
SUMMER ONE	SUMMER TWO
<ul style="list-style-type: none"> • Understand and use letter and labelling conventions including those for geometric figures • Draw and measure line segments including geometric figures • Understand angles as a measure of turn • Classify angles • Use a protractor to measure and draw angles • Identify perpendicular a parallel lines • Recognise types of triangles and quadrilaterals • Identify polygons • Construct triangles 	<ul style="list-style-type: none"> • Know and use mental addition, subtraction, multiplication and division strategies for integers, decimals and fractions • Use fractions to simplify calculations • Use estimation • Use and know number facts • Know when to use mental strategy, formal written method or a calculator • Identify and represent sets • Interpret and create Venn diagrams • Understand and use probability • Identify factors

- Construct polygons
- Interpret pie charts
- Understand and use the sum of angles at a point
- Understand and use the 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

- Recognise and identify prime numbers, square and triangular numbers
- Find common factors