KS3 – Year 7 Long Term Mapping

Subject Intent/ Aims: Subject Intent/ Aims

The mathematics curriculum aims to ignite curiosity and prepare students well for everyday life and future employment.

Our mathematics curriculum gives students the opportunity to:

become fluent in the fundamentals of mathematics, 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.

solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including break down problems into a series of simpler steps and preserving in seeking solutions.

can communicate, justify, argue and prove using mathematical vocabulary.

develop their character, including resilience, confidence and independence, so that they contribute positively to the life of the school, their local community and the wider environment.

The Year 7 programme of study considers with the curriculum studied at the end of Key Stage 2, consolidating and extending work completed in Year 6.

Term:	Component:	Composite Skills:	Composite Knowledge:	Higher Order Knowledge:	Literacy / Numeracy / Cross Curricular links

Key Concepts - Advent <u>Term 1</u>	Number • Integers • Negative Numbers • Special Number Algebra • Simplifying • Substitution Geometry and Measure Area, perimeter and volume	Use a calculator and ICT Apply maths in real life context and solve problems Understand Mathematical language Identify misconceptions Display fluency Reason mathematically including written communication skills	Four operations (including BIDMAS) Powers and Roots Directed Number Simplify and manipulate algebraic expressions Understand equivalence Order of operations Substitution into formulae and expressions, including scientific formulae Area, perimeter, including compound shapes	Recall of key mathematical formulae (e.g. circles). Understanding negative indices.	Science formulae
Key Concepts - Advent <u>Term 2</u>	Number • Integers • Decimals Data • Collecting data	Use a calculator and ICT Apply maths in real life context and solve problems Understand Mathematical language Identify misconceptions Display fluency Reason mathematically including	Place value Rounding and estimation Four operations (Decimals) Units of measure Averages Charts, tables and diagrams	Converting between measures of area and volume. Understanding stratified sampling.	Volume of liquids, mass of an object (Science).

	• Presenting data • Interpreting data	written communication skills			
Key Concepts – Lent <u>Term 1</u>	Number • Special Number • Fractions, Decimals and Percentages	Use a calculator and ICT Apply maths in real life context and solve problems Understand Mathematical language Identify misconceptions Display fluency Reason mathematically including written communication skills	Factors, Multiples, Primes Equivalence and ordering of fractions, decimals and percentages Four operations (Fractions) Percentages Percentage problems	Fractions with negative powers.	Ratio in recipes (Food).
Key Concepts – Lent <u>Term 2</u>	Algebra • Solving Equations • Sequences	• Use a calculator and ICT • Apply maths in real life context and solve problems • Understand Mathematical language • Identify misconceptions • Display fluency • Reason mathematically including written communication skills	• Form/solve expressions and equations • Generate terms of a sequence and understand when a term is, or is not, part of a sequence • Angle facts	Understanding exponential sequences.	Reproduction of bacteria (Science).
Key Concepts - Pentecost <u>Term 1</u>	Ratio and Proportion • Ratio • Proportion	• Use a calculator and ICT • Apply maths in real life context and solve problems • Understand Mathematical language • Identify misconceptions	• Scale drawings • Ratio notation • Equivalent ratios and fractions • Direct and inverse proportion	Exponential functions.	Proportional representation (SMSC)

		• Display fluency • Reason mathematically including written communication skills	• 3D Shapes and Volume		
Key Concepts - Pentecost <u>Term 2</u>	Algebra • Coordinates and Graphs Probability • Calculating probabilities • Interpreting probabiltiies	• Use a calculator and ICT • Apply maths in real life context and solve problems • Understand Mathematical language • Identify misconceptions • Display fluency • Reason mathematically including written communication skills	• Coordinates in all four quadrants • Draw a linear graph • Exhaustive probabilities • Single event probability • Diagrams to calculate probabilities • And/Or Rule • Single and combined transformations	Reciprocal graphs	Plotting graphs (Science).

SMSC	British Values	RSHE	Assessment
Cultural: As part of enrichment activities, students will investigate the uses of symmetry and Art in Rangoli and Islamic art. Statistical analysis of data that will enable students to understand results and representations of data in the news. **Spiritual:** Investigating the Fibonacci sequence. Using the findings to link to other curriculum areas e.g. the natural world.	**Democracy.** Use of proportion, ratio, fractions decimals and percentages to describe 'fairness'. Outside speaker delivering a two interactive sessions to key year groups on financial education. One session to ensure students understand the concept of credit and savings, the second to practice how to budget in later life as an adult. **The rule of law.** Interpreting and analysing the accuracy of statistics. Does proportional representation in the UK electoral system ensure a 'fair' result?	**Moral.** Examples of the moral development in mathematics include: • The trip to Bletchley Park shows the work that mathematicians contributed in WWII to help stop the spread of the Nazi ideals, and help the allies win the war. Discussions to take place about Turin, his ideas and how and why he was persecuted due to his sexuality? • History of Maths day for year 7 to show the role of males and females in the development of mathematics through the ages. **Social:** Participation in the UKMT Team Maths challenges across the year group. Participation in regional competitions pending performance. The art of origami and it's links with mathematics.	**Summative** Homework tasks to assess understanding in each area of the curriculum. Half termly assessments to measure progress and areas for improvement in topics covered so far. End of year examination covering all content. **Formative** Frequent WWW/EBI feedback from the class teacher. Self/peer/teacher 'live' marking during lessons to adapt content during a lesson to keep the level of challenge high.

Adapted Curriculum Content:	**Adapted Curriculum Content:**	**Adapted Curriculum Content:**
Lower ability: • Understand place value in numbers up to 10,000,000	Lower ability: • Understand the key words factor, multiple, prime.	Lower ability: • Understand what a ratio represents

• Read and write numbers up to 10,000,000 • Use column method for addition and subtraction • Use column method for multiplication. • Use bus stop method for division (short division) to give whole numbers only Higher ability: • Apply the four operations to worded complex questions • Know and understand commutative properties • Find missing values in questions from using inverse operations	• Identify a factor and multiple of any given value • Recall primes numbers up to 20. • Systematically list factors of a value under 60. • List multiples of a given number. Higher ability: • Solve problems involving HCF and LCM, (GCSE problems) e.g. when given the HCF and LCM work backwards to find the original value • Real life problems including HCF and LCM	• Simplify a ratio to express it in its simplest form Higher ability: • Express a ratio as a fraction • Express a ratio in the form of 1:n
Adaptive Implementation Practices: White Rose units – Year 6 content/website SATS content (Year 6 standard, Year 6 Advanced) Taskmaster dominoes	**Adaptive Implementation Practices:** White Rose units – Year 6 content/website Taskmaster dominoes content (Year 6 standard, Year 6 Advanced)	**Adaptive Implementation Practices:** White Rose units – Year 6 content/website SATS content (Year 6 standard, Year 6 Advanced)