Curriculum Intent
Subject: Mathematics

PRIORITIES IN WHOLE SCHOOL CURRICULUM INTENT

- Enjoyment of learning
- Knowledge acquisition and recall
- Extensive vocabulary
- Effective communication through writing, speaking & listening, and use of technology
- Numeracy
- Critical evaluation of information
- Enterprise and problem-solving
- Working with others

KEY QUESTIONS TO CONSIDER

1. Why has content been selected? Is there sufficient focus on the most powerful knowledge, concepts and skills?
2. Does learning provide sufficient challenge? Is there sufficient challenge for all learners in all year groups?
3. Why is learning sequenced in this way? Does the sequence enable students to build on prior learning, and learn in increasing breadth and depth over time?
4. How is learning sequenced or spaced to promote long-term memory?

SUBJECT CURRICULUM INTENT

The Mathematics department aim to:
Develop students' ability to recall and apply mathematical methods and formulae;
Develop students' resilience and problem solving;
Develop students' capacity to take largely abstract notions and be able to apply them in a variety of contexts;
Promote the enjoyment of learning mathematics and understanding its place and applications in the real world

HIGHLIGHTED TEXT DENOTES ESSENTIAL KNOWLEDGE

HOW IS THE EXTENDED TIME IN KS3 USED TO IMPROVE & ENRICH LEARNING IN THE SUBJECT?

During KS3, students will continue to develop their problem solving skills and build upon the foundations acquired during primary school. Each skill is broken down into small steps, and the curriculum is designed to spiral, ensuring that that retrieval and new learning are interleaved, and opportunities to check this knowledge and understanding are available every lesson.

YEAR 7

	KNOWLEDGE	CONCEPTS	SKILLS	RATIONALE	PERSONAL DEVELOPMENT
Term 1	• Directed Number • Algebraic Thinking • Place value and proportion	• Operations and equations with directed numbers • Understanding and using algebraic notation • Equality and equivalence • Sequences • Place value and ordering integers and decimals	• Four operations with negative numbers • Basics of algebra – reading/writing/terminology • Function machines • Bar models • Inverse operations • Solving equations • Spot patterns – exploring skills • Continue patterns • Calculators used • Read /write numbers up to 1 billion • Number lines	Directed number unit is now the first unit to complete as we felt last year because students didn't have this skill straight away it stopped us from challenging them in the next unit with negative numbers whilst solving equations. We also moved the sequences unit to be the 4th unit as the students found this unit quite easy and we wanted to challenge straight away and do something completely different to what they had been familiar with at primary – algebra. We want to enable consistent approach to algebraic methods and notation to mitigate for varied/limited exposure to algebra at feeder schools Also seen as a tricky topic something they can be really proud of. Basic mathematical concepts covered ensuring the foundations are solid to be built on at a later date. Number lines to help when scaling axes . Topics from algebraic thinking interleaved into place value. Feed into future units on algebra. Number- basis for all maths.	All lessons to contain 'Slide 2' which reference careers using each topic
Term 2	• Place Value and proportion • Applications of number • Fractional thinking	• Fraction, decimal and percentage equivalence • Solving problems with addition and subtraction • Solving problems with multiplication and division • Fractions and percentages of amounts • Addition and subtraction of fractions	• Building formal methods of addition, subtraction, multiplication and division • Interpreting and solving problems • Problems involving perimeter, money, tables and charts • Calculator skills • Checking skills – working backwards • Choosing the correct operation • Order of operations	• Building on prior work from primary school • Application of problem solving to be used in all topic areas in all year groups .	All lessons to contain 'Slide 2' which reference careers using each topic
Term 3	• Lines and angles • Reasoning with number	• Constructing, measuring and using geometric notation • Developing geometric reasoning • Developing number sense • Sets and probability • Prime numbers and proof	• Using rulers and protractors • Angle notation • Pie charts • Names and properties of 2D shapes • Angles rules • Reasoning • Explaining	• Feed into future units on angles and construction • Reasoning and explain skills to be transferred to other topics	All lessons to contain 'Slide 2' which reference careers using each topic

YEAR 8

	KNOWLEDGE	CONCEPTS	SKILLS	RATIONALE	PERSONAL DEVELOPMENT
Term 1	• Representations • Proportional reasoning	• Working in the cartesian plane • Collecting and representing data • Tables • Ratio and scale • Multiplicative change • Multiplying and dividing fractions	• Coordinate geometry • Drawing and interpreting graphs, tables and charts • Problem solving • Explain and reasoning • Fraction manipulation	• Building from earlier units in year 7 • Interleave ratio and proportion with lots of topics as higher emphasis on the GCSE. • Problem solving skills to be transferred to all topics	All lessons to contain 'Slide 2' which reference careers using each topic
Term 2	• Algebraic techniques • Developing number	• Brackets, equations and inequalities • Sequences • Indices • Fractions and percentages • Standard index form • Number sense	• Expanding brackets • Solving equations • Pattern spotting • Indices manipulation • Multiply and divide by powers of 10. • Fraction, decimal and % conversion	• Building from earlier units in year 7 • More algebraic manipulation to help with future units next in year 9. • Problem solving skills to be transferred to all topics	All lessons to contain 'Slide 2' which reference careers using each topic
Term 3	• Developing geometry • Reasoning with data	• Angles in parallel lines and polygons • Area of trapezia and circles • Line of symmetry and reflection • The data handling cycle • Measures of location	• Angle facts • 2d shape facts • Area and perimeter • Multiplication and division skills • Use of tracing paper • Scales	• Building from earlier units in year 7 • Problem solving skills to be transferred to all topics	All lessons to contain 'Slide 2' which reference careers using each topic

YEAR 8 ENRICHED LEARNING EXPERIENCES

Junior Maths Challenge

YEAR 9

	KNOWLEDGE	CONCEPTS	SKILLS	RATIONALE	PERSONAL DEVELOPMENT
Term 1	• Reasoning with number • Reasoning with algebra • Constructing in 2D and 3D	• Numbers • Using percentages • Maths and money • Forming and solving equations • Testing conjectures • Straight line graphs	• Working with directed numbers • Four operations with fractions • Solving percentage problems • Using exchange rates • Solving equations and inequalities • Substitution • Using tables of values • Using y=mx+c	Building on prior units from Y7 and Y8, and completing remaining content from National Curriculum	All lessons to contain 'Slide 2' which reference careers using each topic
Term 2	• Constructing in 2 and 3 dimensions • Reasoning with geometry	• Three dimensional shapes • Constructions and congruence • Deduction • Rotation and translation • Enlargement and similarity	• Finding area and volume • Drawing and measuring angles • Rotating and translating shapes • Enlarging shapes • Calculating corresponding sides	Building on prior units from Y7 and Y8, and completing remaining content from National Curriculum	All lessons to contain 'Slide 2' which reference careers using each topic
Term 3	• Reasoning with proportion • Representations and revision	• Pythagoras' Theorem • Solving ratio and proportion problems • Rates • Probability • Algebraic representation	• Calculating hypotenuse and short sides using Pythagoras • Solving best buy problems • Using direct and inverse proportion • Using distance-time graphs • Solving density problems • Using tree diagrams • Calculating probability and relative frequency • Draw and interpret quadratic graphs	Building on prior units from Y7 and Y8, and completing remaining content from National Curriculum	All lessons to contain 'Slide 2' which reference careers using each topic

YEAR 9 ENRICHED LEARNING EXPERIENCES

YEAR 10

	KNOWLEDGE	CONCEPTS	SKILLS	RATIONALE	PERSONAL DEVELOPMENT
Term 1	All classes begin at the same point on the SOW • Number • Algebra • Geometry • Statistics	• Directed Number • Calculator skills • Rounding • Pythagoras • Statistical Diagrams • Percentages • Fractions • Algebra	Four operations Negative numbers Use of Calculator Rounding and Error Intervals Estimation Calculating missing lengths in a right angled triangle Two Way Tables Frequency Trees Scatter Graphs Frequency polygons Reverse Percentages Percentage of an Amount Interest and Growth Depreciation and Decay Equivalent fractions 4 operations with fractions Simplify expression Expand brackets Factorise Solve equations Change the subject Inequalities	This enables students to access both tiers, to ensure no knowledge is wasted when tiering decisions are made and there is no ceiling for any student. Cumulative assessments check for gaps in knowledge and understanding	All lessons to contain 'Slide 2' which reference careers using each topic
Term 2	• Geometry • Ratio and proportion • Numbers • Algebra	• Angles • Ratio • Area & Perimeter • Multiples and Factors • Graphs • Averages	Angle facts Angles in parallel lines Bearings Loci Angles in polygons Congruence Pie charts Ratio Proportion – Recipes Exchange Rates Area and perimeter of 2d shapes including circles HCF/LCM Product of Prime Factors Multiples in Context Averages Time Series	This enables students to access both tiers, to ensure no knowledge is wasted when tiering decisions are made. Cumulative assessments check for gaps in knowledge and understanding	All lessons to contain 'Slide 2' which reference careers using each topic

YEAR 11

	KNOWLEDGE	CONCEPTS	SKILLS	RATIONALE	PERSONAL DEVELOPMENT
Term 1	Algebra Ratio and proportion	• Algebra • Ratio • Compound measure	Simplify expressions Expand brackets Factorise expressions Solve equations Rearrange equations Substitute Inequalities Problems with area, perimeter, probability, angles Word problems Exchange rates Conversion graphs Simplify ratio Share in a ratio Recipe questions Scale diagrams Density Pressure Speed/distance/time Real life graphs Gradients	Topics based on high frequency questions that appear on GCSEs to help with the revision for the mock exams after October half term.	All lessons to contain 'Slide 2' which reference careers using each topic
Term 2	Revision of prior learning (SOW should be complete by Easter of Y11)	Revision of prior learning (SOW should be complete by Easter of Y11)	Classes will be following amended SOW (specific to each class) based on Mock exam analysis to ensure best use of time and effort	Prepare students for GCSE exams	All lessons to contain 'Slide 2' which reference careers using each topic
Term 3					

YEAR 11 ENRICHED LEARNING EXPERIENCES

Level 2 Certificate in Further Maths (by invitation after November mock exams)