Key Stage 2 Curriculum Overview – Maths

Curriculum Intent

The Mathematics department strives to give students the confidence to acquire and use mathematical skills that will stand them in good stead throughout their lifetime. The department seeks to achieve excellence in the teaching and learning of Mathematics, in order for the students to make significant progress, irrespective of their prior attachment in this interesting and varied subject. As a core subject studied by all students throughout their time at school, we believe Maths is one of the most important and interesting in the curriculum. Wherever you look in the world there is Maths and we aim to equip students with the knowledge, and more importantly, the skills to fully participate in our information driven society.

Approach / Philosophy / Implementation:

The curriculum in Maths aims to ensure that students:
Develop a culture of deep understanding, confidence and competence in Maths producing strong, secure learning and progress.
Develop fluency in the fundamental skills of Maths through practice in different contexts and in problem solving.
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 mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Term	Year 5	Year 6
Autumn term 1	**Number: Place Value** Roman numerals Know, understand, read & write numbers to 1,000,000 Power of 10 Know and understand the more/less difference between 10/100/1,000/10,000/10.000 Partition and Number Line to 1,000,000 Compare and order numbers to 100,000 and 1,000,000 Round to the nearest 10,100,1,000 Round within 100,000 and 1,000,000 **Number: Addition and Subtraction** Mental strategies Add and subtract whole numbers with more than four digits Round to check answers Inverse operations (addition and subtraction) one step and multi-step problems Compare calculations	**Number: Place Value** Know, understand, read & write numbers to 10,000,000 Power of 10 Number line to 10,000,000 Compare and order any integers Round any integer Negative numbers **Number: Addition, Subtraction, Multiplication and Division** Add and subtract integers Common factors and multiples Rules of divisibility Primes to 100 Square and cube numbers Multiple up to 4-digit number by a 2-digit number Solve problems with multiplication Short division Division using factors

	Find missing numbers	Introduction to long division including remainders Solve problems with division Solve multiple-step problems Order of operations Mental calculations and estimation Reason from known facts
Autumn term 2	**Number: Multiplication and Division** Multiples and common multiples Factors and common factors Prime, square and cube numbers Multiply and divide by 10, 100 and 1,000 Multiples of 10, 100 and 1,000 **Number: Fractions** Find fractions equivalent to a unit and non-unit fraction Recognise equivalent fractions Convert improper fractions to mixed numbers (and reversed) Compare and order fractions less than and greater than 1 Add and subtract fractions with the same denominator Add fractions within 1 and with total greater than 1 Add to a mixed number and add two mixed numbers Subtract fractions Subtract from a mixed number including breaking the whole number Subtract two mixed numbers	**Number: Fractions** Equivalent fractions and simplifying including on a number line Compare and order (denominator and numerator) Add and subtract simple fractions and any two fractions Add and subtract mixed numbers Multi-step problems Multiply fractions by integers (and reverse) Divide any fraction by an integer Mixed questions with fractions Fraction of an amount include find the whole **Measurement: Converting Units** Metric measures Convert and calculate with metric measures Miles and kilometres Imperial measures
Spring term 1	**Number: Multiplication and Division** Multiply the following: 4 digit by 1 digit – 2 digit by 2 digit (area model) 3 digit by 2 digit and 4 digit by 2 digit Solve problems with multiplication Short division Divide a 4 digit by 1 digit Divide with remainders including efficient division Solve problems with multiplication and division **Number: Fractions 2** Multiply a unit fraction (and non-unit fractions) by an integer	**Number: Ratio** Add or multiple ratio Use ratio language and introduction to the ration symbol Ration and fractions Scale drawing Use scale factors Similar shapes Ratio and proportion problems Recipes – ratio in real life situations **Number: Algebra**

	Multiple a mixed number by an integer Calculate a fraction of a quantity Fraction of an amount Find the whole Use fractions as operators	1 and 2 step function machines Form expressions Substitution Formula Form equations Solve 1 and 2 step equations **Number: Decimals** Place value within 1, integers and decimals Round, add and subtract decimals Multiply and divide by 10, 100, and 1,000 Multiply and divide decimals by integers Multiply and divide decimals in context
Spring term 2	**Number: Decimals and Percentages (Place value and equivalence)** Decimals up to 2 decimal places Equivalent fractions and decimals (tenths and hundredths) Equivalent fractions and decimals Thousandths as fractions, decimals and on a place value chart Order and compare decimals with same number of decimal places and with up to 3 decimal places Round to the nearest whole number and to 1 decimal place Understand percentages including percentages as fractions and decimals Equivalent fractions, decimals and percentages **Measurement: Perimeter and Area** Perimeter of rectangles, rectilinear shares and polygons Area of rectangles, compound shapes Estimate area **Statistics** Draw line graphs Read and interpret line graphs and tables Two-way tables Read and interpret timetables	**Number: Decimals/fractions/percentages** Decimal and fraction equivalents Fractions as division Understand percentages including fractions to percentages Equivalent fractions, decimals and percentages Order fractions, decimals and percentages Percentage of an amount – one step and multi-step Percentages – missing values **Measurement: Perimeter, Area and Volume** Shapes – same area Ares and perimeter Area of a triangle – counting squares Area of any triangle including right-angled triangle Area of a parallelogram Volume – counting cubes Volume of a cuboid **Statistics** Line graphs Dual bar charts Read and interpret pie charts Pie charts with percentages

		Draw pie charts The mean
Summer term 1	**Geometry: Properties of Shape** Understand and use degrees Classify and estimate angles Measure angles up to 180 Draw lines and angles accurately Calculate angles around a point and on a straight line Lengths and angles in shapes Regular and irregular polygons 3-D shapes **Geometry: Position and Direction** Read, plot and problem solve with coordinates Translation including with coordinates Lines of symmetry Reflection in horizontal and vertical lines **Number: Decimals (Four operations)** Use known facts to add and subtract decimals within 1 Complements to 1 Add and subtract decimals across 1 Add and subtract decimals with the same number of decimal places Add and subtract decimals with different numbers of decimal places Efficient strategies for adding and subtracting decimals Decimal sequences Multiple and divide by 10, 100 and 1,000 Multiple and divide decimals – missing values	**Geometry: Properties of Shape** Measure, classify and calculate angles Vertically opposite angles Angles in a triangle including special carer and missing angles Angles in quadrilaterals and polygons Circles Draw shapes accurately Nets of 3-D shapes **Geometry: Position and Direction** The first quadrant Read and plot points in four quadrants Solve problems with coordinates Translations Reflections
Summer term 2	**Number: Negatives** Understand negative numbers Count through zero un 1s Count through zero in multiples Compare and order negative numbers Find the difference	**Problem Solving and applying Maths in context/consolidation** This unit features ideas of strategies to use, clear steps to follow and plenty of opportunities for discussion. Problem solving with: Algebra, Data Handling, Number, Probability, Ratio & Proportion, Shape, Space & Measure.

	Measurement: Converting Units Kilograms and kilometres Millimetres and millilitres Convert units of length Convert between metric and imperial units Convert units of time Calculate with timetables **Measurement: Volume** Cubic centimetres Compare volume Estimate volume Estimate capacity	
Evidence of learning	Pupils complete 20-minute end of block assessments that cover each of the small steps after each unit of work. These are recorded and compared as a cohort to ensure good progress is being made. Pupils will also complete arithmetic style tests that build up over the course of the year ready for KS2 SATS. Assessment will be ongoing through lessons the use of mini-whiteboards and 'live' marking. Pupils will also have end of term tests to showcase retention of knowledge – this will help inform their grades and targets.	Pupils complete 20-minute end of block assessments that cover each of the small steps after each unit of work. These are recorded and compared as a cohort to ensure good progress is being made. Pupils will also complete arithmetic style tests that build up over the course of the year ready for KS2 SATS. Assessment will be ongoing through lessons the use of mini-whiteboards and 'live' marking. Pupils will also have end of term tests to showcase retention of knowledge – this will help inform their grades and targets towards their official SATS assessments in May.
Links to prior learning	All of our units of work build upon prior knowledge gained throughout KS2. This all builds upon Scheme of work used by lower school. Throughout the year skills learnt at Holywell will be revisited in different contexts (operations with shape etc.) Our scheme builds over time and allows for small steps to be taught by teachers so pupils can be the best they can be. If there are gaps we will endeavour to close these and adjust lessons accordingly.	Links back directly to Y5 work completed at Holywell and all of our units of work build upon prior knowledge gained throughout KS2. This all builds upon Scheme of work used by lower school. Throughout the year skills learnt at Holywell will be revisited in different contexts (operations with shape etc.) Our scheme builds over time and allows for small steps to be taught by teachers so pupils can be the best they can be. If there are gaps we will endeavour to close these and adjust lessons accordingly.
Links to future learning	Similar units in Y6 Place Value and four operations are key to understand many other areas of the subject – especially in SATS also.	These skills are built upon in KS3 and are used regularly to solve problems.

Holywell School Curriculum Overview

Reading in the curriculum (Literacy & Vocabulary) Key vocabulary is identified in each unit and taught explicitly during lessons We encourage pupils to talk like a Mathematician using the key words in Mathematics. Verbal discussion and Oracy in Maths is encouraged throughout learning. Pupils are encouraged to use full sentences in their explanations and reading strategies are reinforced when teaching.
Careers in Maths Computer analyst Criminology expert Civil engineering – structure using shapes Programming Financial analyst Product designing/industry Software engineering Data analyst Computer Software developer System analyst Mathematical modeller Space scientist Accountant Growth analyst Pilot Construction Midwifery/Nursing Architecture Design/Industry Banking Teacher **EVERY JOB!!**
Protected Characteristics in the curriculum By maintaining high standards of behaviour, including mutual respect and tolerance for different faiths and beliefs and encouraging learners to respect the protected characteristics, class teachers will be promoting British values.
Safeguarding including safety in the curriculum Ensuring students are seated in a way that takes account of safeguarding notes and which promotes positive learning and social outcomes. Reporting any concerns within department and school policies.
Values across the curriculum Respect – Respecting different abilities in the classroom, different styles and approaches Perseverance & Resilience – Keeping on going is key to solving problems and improving within Maths Trust – Trusting the process – keep going and you will improve Community/Co-operation – working together to solve problems, fins mistakes and improve Joy/Happiness - To enjoy the subject of Maths Determination - To keep going
Spirituality in the curriculum Spirituality is within our Maths lessons where children develop deep thinking and questioning, challenging and supporting one another's learning through fluency and reasoning problems. Pupils are encouraged to reflect upon where they have made progress and praise their peers when they have too whilst also looking for where they can improve even more. Learners look at Maths in the real world – considering how we might interact and the impact of Maths upon all aspects of life. Appreciating the beauty of Maths all around.
How we track your progress Linking to the progress descriptors all students' progress is tracked through the work they produce and contribute to in class, homework, end of unit assessments and in class assessments/quizzes. Pupils access end of block tests when a unit of work is complete – this allows everyone to see where progress has been made. These are out of 20 each time and the papers go home so parents can see them. All learners also have end of term tests building towards SATS – these cover all skills in Maths and help to decide progress points – this is shared with learners. Regular arithmetic tests are also part of the KS2 practice.

Parents/Carers can support their child by: Being positive with pupils. Checking test papers that come home and discussing Maths with pupils. Ensuring times tables facts are known for rapid recall. Making sure homework is completed and to a good standard.
Sustainability within the subject Links to real-world scenarios – farming, transporting goods etc. Discussions on how we can use Maths to improve the world. Using online resources where possible