Singlewell Primary School cares about being...

Curious
Ambitious
Resilient
Equal
Safe

Maths Curriculum Document

Intent for Maths Curriculum

The intent of our Mathematics curriculum is to be accessible to all and to maximise the development of every child's ability and academic achievement. Every child has an equal opportunity to access maths at their level and pace and this is catered for through differentiation to enhance a safe learning environment, with groups of children working through the Ready to Progress criteria where needed. We want children to make rich connections across Mathematical ideas to develop fluency, reasoning and problem solving (both orally and written) and their taught resilience will enhance and develop these skills. Within (and beyond) lessons, children are challenged with "next steps" and extensions, creating a culture, where, within lessons, our learners want to be ambitious in all that they access and achieve. Our pupils will learn to apply their Mathematical knowledge not only within their Mathematics lessons but also across the curriculum, for example in Art, Science, Geography and DT. We want our pupils to understand that a confident understanding of Mathematics is the bedrock for Science, Technology and Engineering (STEM), necessary for the management of every day finances and a crucial component of most forms of employment. As our pupils progress, we intend that they: be able to calculate swiftly and accurately; have the ability to reason mathematically; have an appreciation of the beauty and power of mathematics and a sense of enjoyment and curiosity about the subject.

At Singlewell Primary School, all year groups follow the White Rose sequence of learning. Therefore, the below statements mirror each 'small step' within each White Rose unit. National curriculum objectives (and PD opportunities) can be found on the Maths curriculum overview document.

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Number and Place Value	Link the number symbol (numeral) with its cardinal number value. Subitise Count objects, actions and sounds. Count beyond ten. Compare numbers. Understand the 'one more than/one less than' relationship between consecutive numbers. Explore the composition of numbers to 10.	**Place Value within 10**: Sort & count objects & in larger groups Represent objects Recognize numbers as words Count on 1 more Count backwards 1 less Comparing groups by matching Fewer, more, same Less than, greater than, equal to Compare numbers Order objects and numbers **Place value within 20**: Count within 20 Understand 10 Understand 11 - 16 Understand 20 1 more and 1 less The number line to 20 Use a number line to 20 Estimate a number line to 20 Compare/order numbers to 20 **Place value within 50**: Count from 20 to 50 20, 30, 40 and 50 Count, group & partition tens & ones The number line to 50 Estimate to 50 1 more, 1 less **Place value within 100:** Count from 50 to 100 Tens to 100 Partition into tens and ones The number line to 100 1 more, 1 less Compare numbers with the same number of tens Compare any two numbers	Numbers to 10 Count objects to 100 by making 10s Recognize tens and ones Use a place value chart Partition numbers to 100 Write numbers to 100 in words Flexibly partition numbers to 100 Write numbers to 100 in words Flexibly partition numbers to 100 Write numbers to 100 in expanded form 10s on the number line to 100 10s and 1s on the number line to 100 Estimate numbers on a number line Compare objects Compare numbers Order objects and numbers Count in 2s, 5s, and 10s Count in 3s	Represent numbers to 100 Partition numbers to 100 Number line to 100 Hundreds Represent numbers to 1,000 Partition numbers to 1,000 Flexible partitioning of numbers to 1,000 Hundreds, tens and ones Find 1, 10 or 100 more or less Number line to 1,000 Estimate on a number line to 1,000 Compare numbers to 1,000 Order numbers to 1,000 Count in 50s	Represent numbers to 1,000 Partition numbers to 1,000 Number line to 1,000 Thousands Represent numbers to 10,000 Partition numbers to 10,000 Flexible partitioning of numbers to 10,000 Find 1, 10, 100, 1,000 more or less Number line to 10,000 Estimate on a number line to 10,000 Compare and order numbers to 10,000 Order numbers to 10,000 Roman numerals Round to the nearest 10 Round to the nearest 100 Round to the nearest 1,000 Round to the nearest 10, 100 or 1,000	Roman numerals to 1,000 Numbers to 10,000 Numbers to 100,000 Numbers to 1,000,000 Read and write numbers to 1,000,000 Powers of 10 10/100/1,000, 10,000, 100,000 more or less Partition numbers to 1,000,000 Number line to 1,00,000 Compare and order numbers to 100,000 Compare and order numbers to 1,000,000 Round to the nearest 10,100 or 1,000 Round within 1,000,000	Numbers up to 1,000,000 Numbers to 10,000,000 Read and write numbers to 10,000,000 Powers of 10 Number line to 10,000,000 Compare and order any integers Round any integer Negative numbers

Addition and subtraction		**AUT:** Introduce parts and wholes Part-whole model Write number sentences Fact families – addition facts Number bonds within 10 Systematic number bonds within 10 Number bonds to 10 Addition – add together Addition – add more Addition problems Find a part Subtraction – find a part Fact families – the eight facts Subtractions – take away/cross out (how many left?) Subtraction on a number line Add or subtract 1 or 2 **SPR:** Add by counting on within 20 Add ones using number bonds Find and make number bonds to 20 Doubles Near doubles Subtract ones using number bonds Subtraction – counting back & find the difference Related facts Missing number problems	Bonds to 10 Fact families – addition and subtraction bonds within 20 Related facts Bonds to 100 (tens) Add and subtract 1s Add by making 10 Add three 1-digit numbers Add to the next 10 Add across a 10 Subtract across a 10 Subtract from a 10 Subtract a 1-digit number from a 2-digit number (across a 10) 10 more, 10 less Add and subtract 10s Add two 2-digit numbers (not across a 10) Add two 2-digit numbers (across a 10) Subtract two 2-digit numbers (not across a 10) Subtract two 2-digit numbers (across a 10) Mixed addition and subtraction	Apply number bonds within 10 Add and subtract 1s Add and subtract 10s Add and subtract 100s Spot the pattern Add 1s across a 10 Add 10s across a 100 Subtract 1s across a 10 Subtract 10s across a 100 Make connections Add two numbers (no exchange) Subtract two numbers (no exchange) Add two numbers (across a 10) Subtract two numbers (across a 10) Subtract two numbers (across a 100) Add 2-digit and 3-digit numbers Subtract a 2-digit number from a 3-digit number	Add and subtract 1s, 10s, 100s and 1,000s Add up to two 4-digit numbers – no exchange Add two 4-digit numbers – one exchange Add two 4-digit numbers – more than one exchange Subtract two 4-digit numbers – more than one exchange Subtract two 4-digit numbers – no exchange Subtract two 4-digit numbers – one exchange Subtract two 4-digit numbers – more than one exchange Efficient subtraction Estimate answers Checking strategies	Mental strategies Add whole numbers with more than four digits Subtract whole numbers with more than four digits Round to check answers Inverse operations (addition and subtraction) Multi-step addition and subtraction problems Compare calculations Find missing numbers	Add and subtract integers (remainder of statements are within multiplication and division)

Measurement		**Length and height:** Compare lengths and heights Measure length using objects Measure length in centimeters **Mass and volume:** Heavier and lighter Measure mass Compare mass Full and empty Compare volume Measure capacity Compare capacity **Money** Unitizing Recognize coins Recognize notes Count in coins	**Length and height:** Measure in centimeters Measure in meters Compare lengths and heights Order lengths and heights Four operations with lengths and heights **Mass, capacity and temperature:** Compare mass Measure grams Measure in kilograms Four operations with mass Compare volume and capacity Measure in millilitres Measure in litres Four operations with volume and capacity Temperature **Money:** Count money – pence & notes (notes & coins) Make & compare the same amount Calculate with money Make a pound Find change Two step problems **Time** O'clock and half past Quarter past & quarter to Tell time past the hour Tell the time to the hour Tell the time to 5 minutes Minutes in an hour Hours in a day	**Length and perimeter:** Measure in m, cm Measure in mm Measure in cm & mm, m Equivalent lengths (cm, mm) Compare lengths Add & subtract lengths What is perimeter? Measure perimeter Calculate perimeter **Length and capacity:** Use scales Measure mass in g, kg Equivalent masses (kilograms and grams) Add and subtract mass Measure capacity and volume in ml, l Compare capacity and volume **Money** Pounds and pence Convert pounds and pence Add & Subtract money Find change **Time** Roman numerals to 12 Tell the time to 5 minutes Tell the time to the minute Read time on a digital clock Use a.m and p.m Years, months, days Days and hours Hours and minutes – use start and end times Hours and minutes – use durations Minutes and seconds Units of time	**Area:** What is area? Count squares Make shapes Compare area **Length and perimeter:** Measure in kilometres and metres Equivalent lengths (kilometres and metres) Perimeter on a grid Perimeter of a rectangle Perimeter of rectilinear shapes Find missing lengths in rectilinear shapes Calculate the perimeter of rectilinear shapes Perimeter or regular polygons Perimeter of polygons **Money** Write money using decimals Convert between pound and pence Compare amounts of money Estimate with money Calculate with money Solve problems with money **Time** Years, months, weeks, daus Hours, minutes and seconds Convert between analogue and digital times Convert to the 24 hour clock Convert from the 24 hour clock	**Perimeter and area:** Perimeter of rectangles Perimeter of rectilinear shapesPerimeter of polygons Area of rectangles Area of compound shapes Estimate area **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 **Volume** Cubic centimetres Compare volume Estimate volume Estimate capacity	**Converting units:** Metric measures Convert metric measures Calculate with metric measures Miles and kilometers Imperial measures **Area, Perimeter and Volume** Shapes – same area Area and perimeter Area of a triangle – counting squares Area of a right-angled triangle Area of any triangle Area of a parallelogram Volume – counting vubes Volume of a cuboid

Multiplication and division		Count in 2s Count in 10s Count in 5s Recognize equal groups Add equal groups Make arrays Make doubles Make equal groups – grouping Make equal groups – sharing	Recognize equal groups Make equal groups Add equal groups Introduce the multiplication symbol Multiplication sentences Use arrays Make equal groups – grouping Make equal groups – sharing The 2 times-table Divide by 2 The 5 times-table Divide by 5 The 5 times-table Divide by 5 The 5 and 10 times-tables	**Multiplication & division A:** Multiplication – equal groups Use arrays Multiples of 2 Multiples of 5 and 10 Sharing and grouping Multiply by 3 Divide by 3 The 3 times-table Multiply by 4 Divide by 4 The 4 times-table Multiply by 8 Divide by 8 The 8 times-table The 2, 4 and 8 times-table **Multiplication & division B** Multiples of 10 Relate calculations Reasoning about multiplication Multiply a 2-digit number by a 1-digit number – no exchange Multiply a 2-digit number by a 1-digit number – flexible partitioning Divide a 2-digit number by a 1-digit number – with remainders Scaling How many ways?	**Multiplication & division A:** Multiples of 3 Multiply and divide by 6 6 times-table and division facts Multiply and divide by 9 9 times-tables and division facts The 3, 6 and 9 times-tables Multiply and divide by 7 7 times-table and division facts 11 times-table and division facts 12 times-table and division facts Multiply by 1 ad 0 Divide a number by 1 and itself Multiply 3 numbers **Multiplication & division B** Factor pairs Use factor pairs Multiply by 10 Multiply by 100 Divide by 10 Divide by 100 Related facts – multiplication and division Informal written methods for multiplication Multiply a 2-digit number by 1-digit Multiply a 3-digit number by 1-digit Divide a 2-digit number by 1-digit(1) Divide a 2-digit number by 1-digit (2) Divide a 3-digit number by 1-digit Correspondence problems Efficient multiplication	**Multiplication & division A:** Multiples Common multiples Factors Common factors Prime numbers Square numbers Cube numbers Multiply by 10, 100 and 1,000 Divide by 10, 100 and 1,000 Multiples of 10, 100 and 1,000 **Multiplication & division B:** Multiply up to a 4-digit number by a 1-digit number Multiply a 2-digit number by a 2-digit number (area model) Multiply a 2 digit number by a 2-digit number Multiply a 3-digit number by a 2-digit number Multiply a 4-digit number by a 2-digit number Solve problems with multiplication Short division Divide a 4-digit number by a 1-digit number Divide with remainders Efficient division Solve problems with multiplication and division	Common factors Common multiples Rules of divisibility Primes to 100 Square and cube numbers Multiply up to a 4-digit number by a 2-digit number Solve problems with multiplication Short division Division using factors Introduction to long division Long division with remainders Solve problems with division Solve multi-step problems Order of operations Mental calculation and estimation

Fractions		Recognize a half of an object or a shape Find half of an object or a shape Recognize a half of a quantity Find a half of a quantity Recognize a quarter or an object or a shape Find a quarter of an object or a shape Recognize a quarter of a quantity Find a quarter of a quantity	Introduction to parts and whole Equal and unequal parts Recognize a half Find half Recognize a quarter Find a quarter Recognize a third Find a third Find the whole Unit fractions Non-unit fractions Recognize the equivalence of a half and two quarters Recognise three-quarters Count in fractions up to a whole	**Fractions A** Understand the denominators of unit fractions Compare and order unit fractions Understand the numerators of non-unit fractions Understand the whole Compare and order non-unit fractions Fractions and scales Fractions on a number line Count in fractions on a number line Equivalent fractions on a number line Equivalent fractions as bar models **Fractions B** Add fractions Subtract fractions Partition the whole Unit fractions of a set of objects Non-unit fractions of a set of objects Reasoning with fractions of an amount	Understand the whole Count beyond 1 Partition a mixed number Number lines with mixed numbers Compare and order mixed numbers Understand improper fractions Convert mixed numbers to improper fractions Convert improper fractions to mixed numbers Equivalent fractions on a number line Equivalent fraction families Add two or more fractions Add fractions with mixed number Subtract two fractions Subtract from whole numbers Subtract from mixed numbers	Find fractions equivalent to a unit fraction Find fractions equivalent to a non-unit fraction Recognise equivalent fractions Convert improper fractions to mixed numbers Convert mixed numbers to improper fractions Compare fractions less than 1 Order fractions less than 1 Compare and order fractions greater than 1 Add and subtract fdractions with the same denominator Add fractions within 1 Add fractons with a total greater than 1 Add to a mixed number Add two mixed numbers Subtract fractions Subtract from a mixed number	Fractions A Equivalent fractions and simplifying Equivalent fractions on a number line Compare and order (denomin-ator) Compare and order (numerator) Add and subtract simple fractions Add and subtract any two fractions Add mixed numbers Subtract mixed numbers Multi-step problems Fractions B Multiply fractions by integers Multiply fractions by fractions Divide a fraction by an integer Divide any fraction by an integer Mixed questions with fractions Fraction of an amount Fraction of an amount – find the whole

Geometry - position and direction		Describe turns Describe position – left and right Describe position – forwards and backwards Describe position – above and below Ordinal numbers	Language of position Describe movement Describe turns Describe movement and turns Shape patterns with turns	Turns and angles Right angles Compare angles Measure and draw accurately Horizontal and vertical Parallel and perpendicular Recognize and describe 2-D shapes Draw polygons Recognise and describe 3-D shapes Make 3-D shapes	Describe position using coordinates Plot coordinates Draw 2-D shapes on a grid Translate on a grid Describe translation on a grid.	Read and plot coordinates Problem solving with coordinates Translation Translation with coordinates Lines of symmetry Reflection in horizontal and vertical lines	The first quadrant Read and plot points on four quadrants Solve problems with coordinates Translations Reflections
Geometry - shape		Recognize and name 3-D shapes Sort 3-D shapes Recognize and name 2-D shapes Sort 2-D shapes Patterns with 2-D and 3-D shapes	Recognize 2-D and 3-D shapes Count sides on 2-D shapes Count vertices on 2-D shapes Draw 2-D shapes Lines of symmetry on shapes Use lines of symmetry to complete shapes Sort 2-D shapes Count faces on 3-D shapes Count edges on 3-D shapes Count vertices on 3-D shapes Sort 3-D shapes Make patterns with 2-D and 3-D shapes	Turns and angles Right angles Compare angles Measure and draw accurately Horizontal and vertical Parallel and perpendicular Recognise and described 2D shapes Make 3-D shapes	Understand angles as turns Identify angles Compare and order angles Triangles Quadrilaterals Polygons Lines of symmetry Complete a symmetric figure	Understand and use degrees Classify angles Measure angles up to 180 Draw lines and angles accurately Calculate angles around a point Calculate angles on a straight line Lengths and angles in shapes Regular and irregular polygons 3-D shapes	Measure and classify angles Calculate angles Vertically opposite angles Angles in a triangle Angles in a triangle – special cases Angles in a triangle – missing angles Angles in quadrilaterals Angles in polygons Circles Draw shapes accurately Nets of 3-D shapes

Statistics			Make tally charts Tables Block diagrams Draw pictograms (1-1) Interpret pictograms (1-1) Draw pictograms (2, 5 and 10) Interpret pictograms (2, 5 and 10)	Interpret pictograms Draw pictograms Interpret bar charts Draw bar charts Collect and represent data Two way tables	Interpret charts Comparison, sum and difference Interpret line graphs Draw line graphs	Draw line graphs Read and interpret line graphs Read and interpret tables Two-way tables Read and interpret timetables	Line graphs Dual bar charts Read and interpret pie charts Pie charts with percentage Draw pie charts The mean
Number – negative numbers						Understand negative numbers Count through zero in 1s Count through zero in multoples Compare and order negative numbers Find the difference	Negative numbers
Decimals and percentages					Decimals A Tenths as fractions Tenths as decimals Tenths on a place value chart Tenths on a number line Divide a 1-digit number by 10 Divide a 2-digit number by 10 Hundredths as fractions Hundredths as decimals Hundredths on a place value chart Divide a 1 or 2-digit number by 100 Decimals B Make a whole with tenths	Decimals up to 2 decimal places Equivalent fractions and decimals (tenths) Equivalent fractions and decimals (hundredths) Equivalent fractions and decimals Thousandths as decimals Thousandths on a place value chart Order and compare decimals (same number of decimal places) Order and compare any decimals with up to 3 decimal places Round to the nearest whole number Round to 1 decimal place Understand percentages	Decimals Place value within 1 Place value – integers and decimals Round decimals Add and subtract decimals Multiply by 10, 100 and 1,000 Divide by 10, 100 and 1,000 Multiply decimals by integers Divide decimals by integers Multiply and divide decimals in context Fractions, Decimals and Percentages

					Make a whole with hundredths Partition decimals Flexibly partition decimals Compare decimals Order decimals Round to the nearest whole number Halves and quarters as decimals	Percentagesd as fractions Percentages as dfecimals Equivalent fractions, decimals and percentages	Decimal and fraction equivalents Fractions as division Understand percentage Fractions to percentage Equivalent fractions decimals and percentages Order fractions, decimals and percentage Percentage of an amount – one step Percentage of an amount – multi step Percentages – missing values
Ratio							Add or multiply? Use ratio language Introduction to the ratio symbol Ratio and fractions Scale drawing Use scale factors Similar shapes Ratio problems Proportion problems Recipes
Algebra							1-step function machines 2-step function machines Form expressions Substitution Formulae Form equations Solve 1-step equations Solve 2-step equations Find pairs of values Solve problems with 2 unknowns