



Brookland Federation - Brookland Junior School
Progression of Knowledge and Skills - Maths

We follow the White Rose Scheme at the Brookland Federation from Reception to Year 6.
These units cover the National Curriculum for Maths.

Each unit is taken by our teachers and looked at carefully to ensure that the skills covered match to the current needs of their year group.
The units are adapted to meet the needs of the children, whilst ensuring all skills are covered by the end of each year.



	3	4	5	6
Place Value	Represent and partition numbers to 100 Using a number line to 100 Represent and partition numbers to 1000 Flexible partitioning of numbers to 1000 Hundreds, tens and ones Find 1, 10 or 100 more or less Use and estimate on a number line to 1000 Compare and order numbers to 1000 Count in 50s	Represent and partition numbers to 1000 Using a number line to 1000 Represent and partition numbers to 10,000 Flexible partition number to 10,000 Find 1, 10, 100, 1000 more or less Use and estimate on a number line to 10,000 Compare and order numbers to 10,000 Roman Numerals Round to the nearest 10, 100 or 1000	Roman Numerals to 1,000 Read and write numbers to 1,000,000 Powers of 10 10, 100, 1000, 10,000, 100,000 more or less Partition numbers to 1,000,000 Number line to 1,000,000 Compare and order numbers to 1,000,000 Round within 1,000,000 Understand negative numbers Count through zero in 1s Count through zero in multiples Compare and order negative numbers Find the difference	Numbers to 10,000,000 Read and write numbers to 10,000,000 Number line to 10,000,000 Compare and order any integers Round any integer Negative numbers
Addition and Subtraction	Apply number bonds within 10 Add and subtract 1s, 10s and 100s Add 1s across a 10 and 10s across 100 Subtract 1s across a 10 and 10s across 100 Add 2 numbers (no exchange) Subtract 2 numbers (no exchange) Add 2 numbers across a 10 and a 100 Subtract 2 numbers across a 10	Add and subtract 1s, 10s, 100s and 1000s Add up to two 4-digit numbers - no exchange Add two 4-digit numbers - one exchange, then more than one Subtract two 4 digit numbers no exchange then one exchange then 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 Order of operations Mental calculations and estimation Reason from known facts



	<p>and a 100 Add 2 digit and 3 digit numbers Subtract a 2 digit number from a 3 digit number Complements to 100 Estimate answers Inverse operations</p>			
Multiplication and division	<p>Multiplication - equal groups Using arrays Sharing and grouping Multiply and divide by 3 The 3 times table Multiple and divide by 4 The 4 times table Multiply and divide by 8 The 2, 4 and 8 times table Multiple of 10 Related calculations Reasoning with multiplication Multiply a 2 digit number by a 1 digit number - no exchange Multiply a 2 digit number by a 1 digit number - with exchange Link multiplication and division Divide a 2 digit number by a 1 digit number - no exchange Divide a 2 digit number by a 1 digit number - flexible partitioning Divide a 2 digit number by a 1 digit with remainders Scaling</p>	<p>Multiples of 3 - to multiply and divide by 6 6 times table and division facts Multiply and divide by 9 9 times table and division facts The 3, 6, and 9 times tables Multiply and divide by 7 7 times table and division facts 11 and 12 times table and division facts Divide a number by 1 and itself Multiply three numbers Factor pairs Multiply by 10 and 100 Divide by 10 and 100 Related multiplication and division facts Informal written method for multiplication Multiply a 2, then 3 digit number by a 1 digit number Divide a 2, then 3 digit number by a 1 digit number Correspondance problems Efficient multiplication</p>	<p>Multiples Common multiples Factors Common Factors Prime numbers Square numbers Cube numbers Multiply by 10, 100 and 1000 Divide by 10, 100 and 1000 Multiples of 10, 100 and 1000 Multiply up to a 4-digit number by a 1-digit number Multiply a 2,3 and 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</p>	<p>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 Solve problems with division Solve multi step problems Order of operations Mental calculations and estimation Reason from known facts</p>
Length, Perimeter and area	<p>Measure in metres and centimetres, millimetres then both Metres, centimetres and millimetres Equivalent lengths (m & cm) Equivalent lengths (cm & mm) Compare lengths Add and subtract lengths What is perimeter?</p>	<p>What is area? Count squares to find area Make shapes Compare areas Measure in km and m Perimeter on a grid Perimeter of a rectangle Perimeter of rectilinear shapes Find missing lengths Calculate perimeter of rectilinear</p>	<p>Perimeter of rectangles, rectilinear shapes and polygons Area of rectangles Area of compound shapes Estimate area</p>	<p>Area of a triangle Area of a right-angled triangle Area of a parallelogram Volume - counting cubes Volume of a cuboid</p>



	Measure perimeter Calculate perimeter	shapes Perimeter of polygons		
Fractions	<p>Understand the denominators of unit fractions</p> <p>Compare and order unit fractions</p> <p>Understand the numerators of non-unit fractions</p> <p>Understand the whole</p> <p>Compare and order non-unit fractions</p> <p>Fractions and scales</p> <p>Fractions on a number line</p> <p>Count in fractions on a number line</p> <p>Equivalent fractions on a number line and as bar models</p> <p>Add and subtract fractions</p> <p>Partition the whole</p> <p>Unit and non-unit fractions of a set of objects</p> <p>Reasoning with fractions of an amount</p>	<p>Understand the whole</p> <p>Count beyond 1</p> <p>Partition a mixed number</p> <p>Number line with mixed numbers</p> <p>Compare and order mixed numbers</p> <p>Understand improper fractions</p> <p>Convert mixed numbers to improper fractions and vice versa</p> <p>Equivalent fractions on a number line</p> <p>Equivalent fraction families</p> <p>Add and subtract two or more fractions</p> <p>Add fractions and mixed numbers</p> <p>Subtract two fractions</p> <p>Subtract from whole amounts and mixed numbers</p>	<p>Find fractions equivalent to a unit fraction</p> <p>Find fractions equivalent to a non-unit fraction</p> <p>Recognise equivalent fractions</p> <p>Convert improper fractions to mixed numbers</p> <p>Convert mixed numbers to improper fractions</p> <p>Compare fractions less than 1</p> <p>Order fractions less than 1</p> <p>Compare and order fractions greater than 1</p> <p>Add two mixed numbers</p> <p>Subtract from a mixed number</p> <p>Subtract from a mixed number - breaking the whole</p> <p>Subtract two mixed numbers</p> <p>Multiply a unit, a non-unit fraction and a mixed number by an integer</p> <p>Calculate a fraction of a quantity</p> <p>Fraction of an amount</p> <p>Find the whole</p> <p>Use fractions as operators</p>	<p>Equivalent fractions and simplifying</p> <p>Equivalent fractions on a number line</p> <p>Compare and order - denominator</p> <p>Compare and order - numerator</p> <p>Add and subtract simple fractions</p> <p>Add and subtract any 2 fractions</p> <p>Multi step problems</p> <p>Divide a fraction by an integer</p> <p>Fraction of an amount - find the whole</p> <p>Decimal and fraction equivalents</p> <p>Fractions as division</p> <p>Equivalent fractions, decimals and percentages</p> <p>Order fractions, decimals and percentages</p>
Decimals and Percentages		<p>Tenths as fractions and decimals</p> <p>Tenths on a place value chart</p> <p>Tenths on a number line</p> <p>Divide a 1 digit and 2 digit number by 10</p> <p>Hundredths as fractions and decimals</p> <p>Make a whole with tenths and hundredths</p> <p>Partition decimals</p> <p>Compare and order decimals</p> <p>Round to the nearest whole number</p>	<p>Decimals up to 2 decimal places</p> <p>Equivalent fractions and decimals (tenths and hundredths)</p> <p>Thousandths as fractions and decimals</p> <p>Thousandths on a place value chart</p> <p>Order and compare decimals up to 3 decimal places</p> <p>Round to the nearest whole number</p> <p>Round to 1 decimal place</p> <p>Understand percentages</p>	<p>Place value within 1</p> <p>Place value - integers and decimals</p> <p>Round decimals</p> <p>Add and subtract decimals</p> <p>Multiply and divide decimals in context</p> <p>Percentage of an amount</p> <p>Percentages - missing numbers</p>



		Halves and quarters as decimals	Percentages as fractions Percentages as decimals Equivalent fractions, decimals and percentages 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, then different number of decimal places Efficient strategies for adding and subtracting decimals Decimal sequences Multiply and divide by 10, 100 and 1000 Multiply and divide decimals - missing values	
Mass, Capacity and Volume	Use scales Measure mass in grams Measure mass in kg and g Equivalent masses (kg and g) Compare mass Add and subtract mass Measure capacity and volume in ml, then l and ml Equivalent capacities and volumes (l and ml) Compare capacity and volume Add and subtract capacity and volume		Cubic centimetres Compare volume Estimate volume Estimate capacity	
Money	Pounds and pence Convert pounds and pence Add and subtract money Find change	Write money using decimals Compare amounts of money Estimate and calculate with money Solve problems with money		
Time	Roman numerals to 12 Tell the time to 5 minutes Tell the time to the minute Read time on a digital clock	Convert between analogue and digital times Convert to and from the 24hr clock		



	<p>Use am and pm Years, months and days Days and hours Hours and minutes (use start and end time) Hours and minutes - durations Minutes and seconds Units of time Solving time problems</p>			
Shape	<p>Turns and angles Right angles Compare angles Measure and draw accurately Horizontal and vertical Parallel and perpendicular Recognise and describe 2-D shapes Draw polygons Recognise and describe 3-D shapes Make 3-D shapes</p>	<p>Understand angles as turns Identify angles Compare and order angles Triangles Quadrilaterals Polygons Lines of symmetry</p>	<p>Understand and use degrees Classify angles Estimate angles Measure angles up to 180 degrees Draw lines and angles accurately Calculate angles on a straight line Lengths and angles in shapes Regular and irregular polygons 3-D shapes</p>	<p>Measure and classify angles Calculate angles Vertically opposite angles Angles in a triangle Angles in a quadrilateral Angles in polygons Circles Draw shapes accurately Nets of 3-D shapes</p>
Statistics	<p>Interpret and draw pictograms Interpret and draw bar charts Collect and represent data Two-way tables</p>	<p>Interpret charts Comparison, sum and difference Interpret and draw line graphs</p>	<p>Draw line graphs Read and interpret line graphs Read and interpret tables Read and interpret timetables</p>	<p>Dual bar charts Read and interpret pie charts Pie charts with percentages Draw pie charts The mean</p>
Position and Direction		<p>Describe position using coordinates Plot coordinated Draw 2-D shapes on a grid Translate on a grid Describe translation on a grid</p>	<p>Read and plot coordinates Problem solving with coordinates Translation Translation with coordinates Lines of symmetry Reflection in horizontal and vertical lines</p>	<p>The first quadrant Read and plot points in four quadrants Translations Reflections</p>
Converting Units			<p>Kilograms and kilometres Millimetres and millilitres Convert units of length Convert between metric and imperial units Convert units of time Calculate with timetables</p>	<p>Metric measures Convert metric measures Calculate with metric measures Miles and kilometres Imperial measures</p>



Ratio and proportion				Use ratio language Ratio symbol Ratio and fractions Scale drawing Use scale factors Similar shapes Ratio problems Proportion problems
Algebra				1 step function machines 2 step function machines Substitution Formulae Form equations Solve 1 and 2 step equations Find pairs of values Solve problems with 2 unknowns

