St Blasius Shanklin CE Primary Academy – Mathematics Curriculum overview

Intent
At St Blasius, we want pupils to: • become fluent in the fundamentals of mathematics. • develop conceptual understanding and the ability to recall and apply knowledge rapidly. • reason and problem solve by applying mathematics to a variety of increasingly complex problems. • build upon their knowledge and understanding from year 1 to year 6. • develop resilience that enables all children to reason and problem solve with increased confidence.
Implementation
To ensure full topic coverage, the school uses White Rose Maths. This is a whole-school primary maths curriculum that creates continuity and progression in the teaching of mathematics. Daily maths lessons include fluency, reasoning and problem solving. Lessons are differentiated to ensure there is appropriate challenge for all learners. Concrete manipulatives and pictorial representations are used to support conceptual understanding and to make links across topics. Children are individually assessed and rewarded for rapid recall of number bonds (KS1) and times tables (Years 2-6). Children complete a weekly pre and post learning task on each topic to ensure progress is being made through their maths journey, Children are assessed on a termly basis using PUMA standardized assessments, in addition to daily and in-lesson formative assessment.
Impact
We want to ensure our Maths teaching and curriculum: • supports most children to reach end of year expectations • progress is tracked on a weekly basis and reviewed at least termly so that additional support can be provided where required • well planned sequences of learning support children to develop and refine their maths skills • supports children to independently apply their knowledge to a range of increasingly complex problems • reasoning skills are used with increased confidence and accuracy

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Mathematics Long Term Plan (White Rose Maths)						
Year 1	Number: Place Value Number: Addition &Subtraction	Number: Addition &Subtraction Geometry: Shape Number: Place Value	Number: Addition &Subtraction Number: Place Value	Measurement: Length &Height Measurement: Weight &Volume	Number: Multiplication &Division Number: Fractions	Geometry: Position &Direction Number: Place Value Measurement: Money Measurement: Time
Year 2	Number: Place Value Number: Addition &Subtraction	Measurement: Money Number: Multiplication &Division	Number: Multiplication &Division Statistics	Geometry: Properties of Shape Number: Fractions	Measurement: Length &Height Geometry: Position &Direction	Consolidation &Problem Solving Measurement: Time Measurement: Mass, Capacity &Temp
Year 3	Number: Place Value Number: Addition &Subtraction	Number: Addition &Subtraction Number: Multiplication &Division	Number: Multiplication &Division Measurement: Money Statistics	Measurement: Length &Perimeter Number: Fractions	Number: Fractions Measurement: Time	Geometry: Properties of Shape Measurement: Mass &Capacity
Year 4	Number: Place Value Number: Addition &Subtraction	Measurement: Length &Perimeter Number: Multiplication &Division	Number: Multiplication &Division Measurement: Area Number: Fractions	Number: Fractions Number: Decimals	Number: Decimals Measurement: Money Measurement: Time	Statistics Geometry: Properties of Shape Geometry: Position &Direction
Year 5	Number: Place Value Number: Addition &Subtraction	Statistics Number: Multiplication &Division Measurement: Perimeter &Area	Number: Multiplication &Division Number: Fractions	Number: Fractions Number: Decimals &Percentages	Number: Decimals Geometry: Properties of Shape	Geometry: Position &Direction Measurement: Converting Units Measurement: Volume
Year 6	Number: Place Value Number: Addition &Subtraction Number: Multiplication &Division	Number: Fractions Geometry: Position &Direction	Number: Decimals Number: Percentages Number: Algebra	Measurement: Converting Units Measurement: Perimeter, Area, Volume Number: Ratio	Statistics Geometry: Properties of Shape	Consolidation and Themed Projects

Age-related Expectations and Coverage

During the EYFS, the learning environment, adult-led activities and child initiated activities will be planned and supported to encourage progress in Maths. Children at the end of the EYFS who have reached the expected level of development will be able to:

- To count reliably with numbers from one to 20.
- To say which number is one more or one less than a given number from one to 20.
- To place numbers one to 20 in order.
- To add and subtract two single-digit numbers and count on back to find the answer using quantities and objects.
- To solve problems, including doubling, halving and sharing.
- To use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and solve problems.
- To explore characteristics of everyday objects and shapes and use mathematical language to describe them.
- To recognise, create and describe patterns.

The most relevant statements for Mathematics are also taken from the Maths age-related statements as below:

Communication and Language Speaking

30-50 Months • To build up vocabulary that reflects the breadth of their experiences.

40-60 Months • To extend vocabulary, especially by grouping and naming, • exploring the meaning and sounds of new words. 30-50 Months Mathematics Numbers • To recite numbers in order to 10. • To realise not only objects, but anything can be counted including steps, claps or jumps.

Numbers

30-50 Months

• To use some number names and number language spontaneously. • To know that numbers identify how many objects are in a set. • To show an interest in representing numbers. • To begin to represent numbers using fingers, marks on paper or pictures. • To separate a group of three or four objects in different ways, beginning to recognise that the total is still the same. • To sometimes match numeral and quantity correctly.

• To show an interest in numerals in the environment. • To use some number names accurately in play.

• To compare two groups of objects, saying when they have the same number.

• To show curiosity about numbers by offering comments or asking questions.

40-60 Months

• To count up to three or four objects by saying one number name for each item. • To count out up to six objects from a larger group. • To count actions or objects which cannot be moved. • To count objects to 10 and beginning to count beyond 10. • To count an irregular arrangement of up to ten objects. • To estimate how many objects they can see and check by counting them.

• To select the correct numeral to represent 1 to 5, then 1 to 10 objects. • To say the number that is one more than a given number. • To find one more or one less from a group of up to five objects, then ten objects.

• To show an interest in number problems.

• To recognise some numerals of personal significance. • To recognise numerals 1 to 5.

• To use the language of 'more' and 'fewer' to compare two sets of objects.

• To begin to identify own mathematical problems based on own interests and fascinations.

• To record, using marks that they can interpret and explain.

• To find the total of items in two groups by counting all of them. • To begin to use the vocabulary involved in adding and subtracting in practical activities and discussion.

Shape, Space and Measure

30-50 Months

• To show an interest in shape and space by playing with shapes or making arrangements with objects. • To show interest in shape by sustained construction activity or by talking about shapes or arrangements. • To show interest in shapes in the environment. • To use shapes appropriately for tasks. • To begin to talk about shapes in everyday objects, e.g. 'round' and 'tall'.

• To show awareness of similarities of shapes in the environment.

• To use positional language.

40-60 Months

• To order two or three items by length or height. • To order two items by weight or capacity.

• To use everyday language related to time. • To order and sequence familiar events. • To measure short periods of time in simple ways.

• To begin to use everyday language related to money.

• To begin to use mathematical names for 'solid' 3D shapes and 'flat' 2D shapes, and mathematical terms to describe shapes. • To select particular named shapes.

• To use familiar objects and common shapes to create and recreate patterns and build models.

Year 1: Mathematics Curriculum Objective Overview

Autumn	Spring	Summer
Objectives	**Objectives**	**Objectives**
Place Value Count to ten, forwards and backwards, beginning with 0 or 1, or from any given number. Count, read and write numbers to 10 in numerals and words. Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. Given a number, identify one more or one less. Count in multiples of twos. **Addition and Subtraction** Represent and use number bonds and related subtraction facts (within 10, then to 20). Add and subtract one digit numbers (to 10), including zero. Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. Solve one step problems that involve addition and subtraction, using concrete objects, pictorial representations and missing number problems such as 7=? – 9. **Place Value** Count to twenty, forwards and backwards, beginning with 0 or 1, from any given number. Count, read and write numbers from 1 to 20 in numerals and words. Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. Count in multiples of twos and fives.	**Place Value** Count to 40 forwards and backwards, beginning with 0 or 1, or from any number. Count, read and write numbers from 1-40 in numerals and words. Identify and represent numbers using objects and pictorial representations. Given a number, identify 1 more or 1 less. **Addition and Subtraction** Represent and use number bonds and related subtraction facts within 20. Add and subtract one digit and two digit numbers to 20, including zero. Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing numbers. **Multiplication and Division** Count in multiples of twos, fives, and tens. Solve one step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. **Fractions** Recognise, find and name a half as one of two equal parts of an object, shape or quantity. **Measurement: Length & height** Compare, describe and solve practical problems for: lengths and heights for example, long/short, longer/shorter, tall/short, double/half Measure and begin to record lengths and heights.	**Place Value** Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. Count, read and write numbers from 1-100 in numerals and words. Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than, most, least. Given a number, identify one more and less. **Addition and Subtraction** Represent and use number bonds and related subtraction facts within 20. Add and subtract one digit and two digit numbers to 20, including 0. Read, write and interpret mathematical statements involving addition (+) subtraction (-) and equals (=) signs. Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems. **Multiplication and Division** Count in multiples of twos, fives and tens. Solve one step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. **Fractions** Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. **Measurement: Money** Recognise and know the value of different denominations of coins and notes.

Geometry: Shape, Position and Direction	Time	Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems.
Geometry: Shape, Position and Direction Recognise and name common 2D and 3D shapes, including rectangles, squares, circles and triangles, cuboids, pyramids and spheres. Describe position, direction and movement, including whole, half, quarter and three quarter turns.	**Time** Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. Recognise and use language relating to dates, including days of the week, weeks, months and years. Compare, describe and solve practical problems for time [for example, quicker, slower, earlier, later] and measure and begin to record time (hours, minutes, seconds) Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening.	**Measurement: Weight & Volume** Compare, describe and solve practical problems for mass/weight [for example, heavy/light, heavier than, lighter than]; capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] Measure and begin to record mass/weight, capacity and volume.

Ready to Progress Criteria:

1NPV–1 Count within 100, forwards and backwards, starting with any number.

1NPV–2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =

1NF–2 Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers.

1NF–1 Develop fluency in addition and subtraction facts within 10.

1AS–1 Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers.

1AS–2 Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts.

1G–1 Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another.

1G–2 Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations.

Year 2: Mathematics Curriculum Objective Overview

Autumn	Spring	Summer
Objectives	**Objectives**	**Objectives**

Autumn	Spring	Summer
Number: Place value Count in steps of 2, 5 from 0 and in tens from any number, forward and backward. Recognise the place value of each digit in a two digit number (tens, ones) Identify, represent and estimate numbers to 100 using different representations including the number line. Compare and order numbers from 0 up to 100; use <, > and = signs. Read and write numbers to at least 100 in numerals and words. Use place value and number facts to solve problems. **Number: Addition and Subtraction** Recall and use addition and subtraction facts to 20 fluently Show that the addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two digit number and ones; a two digit number and tens; two two digit numbers; adding three one digit numbers. Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures; applying their increasing knowledge of mental and written methods. **Multiplication and Division:** Recall and use multiplication and division facts for the 2, 5 and 10 times tables, including recognising odd and even numbers. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) sign. Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental	**Number: Place value** Count in steps of 2, 3 and 5 from 0 and in tens from any number, forward and backward. Recognise the place value of each digit in a two digit number (tens, ones) Identify, represent and estimate numbers to 100 using different representations including the number line. Compare and order numbers from 0 up to 100; use <, > and = signs. Use place value and number facts to solve problems **Number: Addition and Subtraction** Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two digit number and ones; a two digit number and tens; two two digit numbers; adding three one digit numbers. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures; applying their increasing knowledge of mental and written methods. **Multiplication and Division:** Recall and use multiplication and division facts for the 2, 5 and 10 times tables, including recognising odd and even numbers. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) sign. Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts.	**Number: Place value** Count in steps of 2, 3 and 5 from 0 and in tens from any number, forward and backward. Recognise the place value of each digit in a two digit number (tens, ones) Identify, represent and estimate numbers to 100 using different representations including the number line. Compare and order numbers from 0 up to 100; use <, > and = signs. Use place value and number facts to solve problems **Number: Addition and Subtraction** Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two digit number and ones; a two digit number and tens; two two digit numbers; adding three one digit numbers. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures; applying their increasing knowledge of mental and written methods. **Multiplication and Division:** Recall and use multiplication and division facts for the 2, 5 and 10 times tables, including recognising odd and even numbers. Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts. **Number: Fractions** Recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, and set of objects or quantity. Write simple fractions for example, ½ of 6 = 3 Recognise the equivalence of 2/4 and 1/2.

methods and multiplication and division facts, including problems in contexts.	Show that the multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.	**Measurement: Money**

methods and multiplication and division facts, including problems in contexts.
Show that the multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.

Number: Fractions
Recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, and set of objects or quantity.
Write simple fractions for example, ½ of 6 = 3
Recognise the equivalence of 2/4 and 1/2.

Measurement: Length and Mass
Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm) and mass (kg/g) to the nearest appropriate unit, using rulers and scales.
Compare and order length and mass and record the results using >, < and =.

Measure: Money
Recognise and use symbols of pounds (£) and pence (p); combine amounts to make a particular value.
Find different combinations of coins that equal the same amounts of money.
Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.

Show that the multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.

Number: Fractions
Recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, and set of objects or quantity.
Write simple fractions for example, ½ of 6 = 3
Recognise the equivalence of 2/4 and 1/2.

Measurement: Time
Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.
Know the number of minutes in an hour & the number of hours in a day.
Compare and sequence intervals of time.

Geometry: Properties of Shape
Identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line.
Identify and describe the properties of 3D shapes, including the number of edges, vertices and faces.
Identify 2D shapes on the surface of 3D shapes, [for example, a circle on a cylinder and a triangle on a pyramid].
Compare and sort common 2D and 3D shapes and everyday objects.

Statistics: Graphs
Interpret and construct simple pictograms, tally charts, block diagrams and simple tables.
Ask answer simple questions by counting the number of objects in each category and sorting the categories by quantity.
Ask and answer questions about totalling and comparing categorical data

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Measurement: Money
Recognise and use symbols of pounds (£) and pence (p); combine amounts to make a particular value.
Find different combinations of coins that equal the same amounts of money.
Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.

Measurement: Time
Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.
Know the number of minutes in an hour & the number of hours in a day.
Compare and sequence intervals of time.

Measurement
Choose and use appropriate standard units to estimate and measure capacity (l/ml) and temperature (0 C) to the nearest appropriate unit, using thermometers and measuring vessels.
Compare and order volume/capacity & record the results using >, < and =.

Geometry: Position and direction
Order and arrange combinations of mathematical objects in patterns and sequences.
Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).

Ready to Progress Criteria:
2NPV–1 *Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and nonstandard partitioning.*
2NPV–2 *Reason about the location of any twodigit number in the linear number system, including identifying the previous and next multiple of 10.*
2NF–1 *Secure fluency in addition and subtraction facts within 10, through continued practice.*
2AS–1 *Add and subtract across 10.*
2AS–2 *Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more…?"*
2AS–3 *Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract only ones or only tens to/from a twodigit number.*
2AS–4 *Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two-digit numbers.*
2MD–1 *Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.*
2MD–2 *Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division).*
2G–1 *Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties.*

Year 3: Mathematics Curriculum Objective Overview

Autumn	Spring	Summer
Objectives	**Objectives**	**Objectives**
Number: Place value: Count from 0 in multiples of 4 8, 50 and 100. Identify, represent and estimate numbers using different representations. Find 10 or 100 more or less than a given number; Recognise the place value of each digit in a three digit number (hundreds, tens, ones). **Number: Addition and Subtraction** Add and subtract numbers mentally, including: a three-digit number and ones; a three-digit number and tens; a three digit number and hundreds. Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. Estimate the answer to a calculation and use inverse operations to check answers. **Number: Multiplication and Division** Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. Write and calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) signs. Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in context. **Number: Fractions** Count up and down in tenths. Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators.	**Number: Place value:** Compare and order numbers up to 1000 Read and write numbers up to 1000 in numerals and in words. Solve number problems and practical problems involving these ideas. **Number: Addition and Subtraction** Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. Add and subtract amounts of money to give change, using both £ and p in practical contexts **Number: Multiplication and Division** Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. Solve problems including missing number problems involving multiplication and division, positive integer scaling problems and correspondence problems in which *n* objects are connected to *m* objectives. **Number: Fractions** Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. Add and subtract fractions with the same denominator within one whole. **Measurement:** Estimate and read time with increasing accuracy to the nearest minute. Record and compare time in terms of seconds, minutes and hours. Use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight.	**Number: Place value:** Compare and order numbers up to 1000 Read and write numbers up to 1000 in numerals and in words. Solve number problems and practical problems involving these ideas. **Number: Addition and Subtraction** Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. **Number: Multiplication and Division** Write and calculate mathematical statements for multiplication and division using the multiplication tables they know, including for two-digit numbers times one-digit numbers, using mental methods and progressing to formal written methods **Number: Fractions** Recognise and show, using diagrams, equivalent fractions with small denominators. Add and subtract fractions with the same denominator within one whole. Compare and order unit fractions, and fractions with the same denominators. Solve problems that involve all of the above. **Geometry: Property of Shapes** Recognise angles as a property of shape or a description of a turn. Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle. Identify horizontal and vertical lines and pairs of perpendicular and parallel lines. Draw 2-D shapes and make 3-D shapes using modelling materials.

Measurement: Measure, compare, add and subtract: lengths (m/cm/mm). Measure the perimeter of simple 2D shapes. Tell and write the time from an analogue clock, including using Roman numerals, 12-hour and 24-hour clocks	Know the number of seconds in a minute and the number of days in each month, year and leap year. Compare durations of events [for example calculate the time taken by particular events or tasks].	Recognise 3-D shapes in different orientations and describe them. **Measurement:** Measure, compare, add and subtract: mass (kg/g); volume/capacity (l/ml). **Measurement: Money** Add and subtract amounts of money to give change, using both £ and p in practical contexts. **Statistics** Interpret and present data using bar charts, pictograms and tables. Solve one-step and two-step questions (for example, 'How many more?' and 'How many fewer?') using information presented in scaled bar charts and pictograms and tables.

Ready to Progress Criteria:

3NPV–1 Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other threedigit multiples of 10.

3NPV–2 Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning.

3NPV–3 Reason about the location of any threedigit number in the linear number system, including identifying the previous and next multiple of 100 and 10.

3NPV–4 Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts.

3NF–1 Secure fluency in addition and subtraction facts that bridge 10, through continued practice.

3AS–1 Calculate complements to 100.

3AS–2 Add and subtract up to three-digit numbers using columnar methods

3AS–3 Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part–part–whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction

3NF–2 Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number.

3NF–3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10).

3MD–1 Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division.

3F–1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.

3F–2 Find unit fractions of quantities using known division facts (multiplication tables fluency).

3F–3 Reason about the location of any fraction within 1 in the linear number system.

3F–4 Add and subtract fractions with the same denominator, within 1.

3G–1 Recognise right angles as a property of shape or a description of a turn, and identify right angles in 2D shapes presented in different orientations.

3G–2 Draw polygons by joining marked points, and identify parallel and perpendicular sides.

Year 4: Mathematics Curriculum Objective Overview

Autumn Objectives	Spring Objectives	Summer Objectives
Number: Place Value Count in multiples of 6, 7, 9. 25 and 1000. Count backwards through zero to include negative numbers. Recognise the place value of each digit in a four digit number (thousands, hundreds, tens and ones) Round any number to the nearest 10, 100 or 1000. Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value **Number: Addition and Subtraction** Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. Estimate and use inverse operations to check answers to a calculation. **Number: Multiplication and Division** Recall and use multiplication and division facts for multiplication tables up to 12 x 12. Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. **Number; Fractions (including decimals)** Recognise and show, using diagrams, families of common equivalent fractions. Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. Recognise and write decimal equivalents of any number of tenths or hundredths. **Measurement: Area** Find the area of rectilinear shapes by counting squares.	**Number: Place Value** Order and compare numbers beyond 1000. Find 1000 more or less than a given number. Identify, represent and estimate numbers using different representations. Count in multiples of 6, 7, 9. 25 and 1000. **Number: Addition and Subtraction** Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. Estimate and use inverse operations to check answers to a calculation. Solve addition and subtraction two step problems in contexts, deciding which operations and methods to use and why. **Number: Multiplication and Division** Recognise and use factor pairs and commutatively in mental calculations. Multiply two digit and three digit numbers by a one digit number using formal written layout. **Fractions** Recognise and show, using diagrams, families of common equivalent fractions. Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. Add and subtract fractions with the same denominator. **Decimals** Recognise and write decimal equivalents of any number of tenths or hundredths. Recognise and write decimal equivalents to ¼, ½, ¾… Find the effect of dividing a one or two digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths. Round decimals with one decimal place to the nearest whole number.	**Number: Place Value** Solve number and practical problems with increasingly large positive numbers. Count in multiples of 6, 7, 9. 25 and 1000. **Number: Addition and Subtraction** Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. Solve addition and subtraction two step problems in contexts, deciding which operations and methods to use and why. **Number: Multiplication and Division** Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects **Fractions** Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. Add and subtract fractions with the same denominator. Solve simple measure and money problems involving fractions and decimals to two decimal places. **Geometry: Angles** Identify acute and obtuse angles and compare and order angles up to two right angles by size. Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. **Geometry: Position and Direction** Describe positions on a 2D grid as coordinates in the first quadrant. Describe movements between positions as translations of a given unit to the left/ right and up/ down.

Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. Convert between different units of measure [for example, kilometre to metre] **Geometry: Shape and Symmetry** Identify lines of symmetry in 2D shapes presented in different orientations. Complete a simple symmetric figure with respect to a specific line of symmetry.	Compare numbers with the same number of decimal places up to two decimal places **Time** Convert between different units of measure, e.g. hour to minute. Read, write & convert time between analogue and digital 12 and 24 hour clocks. Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. **Measurement: Money** Solve simple measure and money problems involving fractions and decimals to two decimal places. Estimate, compare and calculate different measures, including money in pounds and pence.	Plot specified points and draw sides to complete a given polygon. **Statistics** Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.

Ready to Progress Criteria:

4NPV–1 Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100.

4NPV–2 Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and nonstandard partitioning.

4NPV–3 Reason about the location of any fourdigit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each.

4NPV–4 Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts.

4NF–3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100)

4NF–1 Recall multiplication and division facts up to 12 x 12 , and recognise products in multiplication tables as multiples of the corresponding number.

4NF–2 Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, and interpret remainders appropriately according to the context.

4MD–1 Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size.

4MD–2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication.

4MD–3 Understand and apply the distributive property of multiplication

4F–1 Reason about the location of mixed numbers in the linear number system.

4F–2 Convert mixed numbers to improper fractions and vice versa.

4F–3 Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers.

4G–2 Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons.

4G–3 Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.

4G–1 Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant.

Year 5: Mathematics Curriculum Objective Overview

Autumn	Spring	Summer
Objectives	**Objectives**	**Objectives**

Autumn	Spring	Summer
Number Place Value Read, write, order and compare numbers to at least 1000000 and determine the value of each digit. Count forwards or backwards in steps of powers of 10 for any given number up to 1000000. Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers including through zero. Round any number up to 1000000 to the nearest 10, 100, 1000, 10000 and 100000 Solve number problems and practical problems that involve all of the above. **Number: Addition and Subtraction** Add and subtract numbers mentally with increasingly large numbers. Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) **Number: Multiplication and Division** Multiply and divide numbers mentally drawing upon known facts. Multiply and divide whole numbers by 10, 100 and 1000. Multiply numbers up to 4 digits by a one or two digit number using a formal written method, including long multiplication for 2 digit numbers. Identify multiples and factors, including all the factor pairs of a number, and common factors of 2 numbers. Know and use the vocabulary of prime numbers, prime factors and composite(non-prime) numbers. Establish whether a number up to 100 is prime and recall prime numbers up to 19. **Number: Fractions** Compare and order fractions whose denominators are multiples of the same number. Identify, name and write equivalent fractions of a given fraction, represented visually including tenths and hundredths. Recognise mixed numbers and improper fractions and convert from one form to the other and write	**Number Place Value** Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers including through zero. Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 Solve number problems and practical problems that involve all of the above. **Number: Addition and Subtraction** Add and subtract numbers mentally with increasingly large numbers. Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) Use rounding to check answers to calculations, determine, in the context of a problem, levels of accuracy. Solve addition and subtraction multi-step problems in contexts deciding which operations and methods to use and why. **Number: Multiplication and Division** Multiply numbers up to 4 digits by a one or two digit number using a formal written method, including long multiplication for 2 digit numbers. Divide numbers up to 4 digits by a one digit number using the formal written method of short division and interpret remainders appropriately for the context. Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. **Number: Fractions** Add and subtract fractions with the same denominator and denominators that are multiples of same number. Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. Read and write decimal numbers as fractions [eg 0.71 = 71/100) **Number: Decimals** Read, write, order and compare numbers with up to three decimal places.	**Number Place Value** Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit. Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers including through zero. Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10000 and 100000 Solve number problems and practical problems that involve all of the above. Read Roman numerals to 1000 (M) and recognise years written in Roman numerals. **Number: Addition and Subtraction** Add and subtract numbers mentally with increasingly large numbers. Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) Solve addition and subtraction multi-step problems in contexts deciding which operations and methods to use and why. **Number: Multiplication and Division** Recognise and use square numbers and cube numbers and the notation for squared (2) and cubed (3) Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. Solve problems involving addition and subtraction, multiplication and division and a combination of these, including understanding the use of the equals sign. Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. **Number: Fractions** Add and subtract fractions with the same denominator and denominators that are multiples of the same number. Solve problems involving number up to three decimal places.

mathematical statements >1 as a mixed number [for example + = = 1].

Statistics

Solve comparison, sum and difference problems using information presented in a line graph.

Complete, read and interpret information in tables including timetables.

Geometry: Shapes

Identify 3D shapes, including cubes and other cuboids, from 2D representations.

Use the properties of rectangles to deduce related facts and find missing lengths and angles.

Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.

Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.

Round decimals with two decimal places to the nearest whole number and to one decimal place.

Solve problems involving up to three decimal places.

Number: Percentages

Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.

Solve problems which require knowing percentage and decimal equivalents of ½, ¼, 1/5, 2/5 and those fractions with a denominator of a multiple of 10 or 25

Geometry: Angles

Know angles are measured in degrees; estimate and compare acute, obtuse and reflex angles.

Draw given angles - measure them in degrees (˚).

Identify: angles at a point and one whole turn (total 360˚), angles at a point on a straight line and ½ a turn (total 180˚) other multiples of 90˚.

Measurement: Converting units

Convert between different units of metric measure (eg, km and m; cm and m; cm and mm; g and kg; l and ml).

Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.

Solve problems involving converting units of time.

Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.

Number: Percentages

Solve problems which require knowing percentage and decimal equivalents of ½ ¼ 1/5 2/5 and those fractions with a denominator of a multiple of 10 or 25

Geometry: Position and Direction

Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.

Perimeter and Area

Measure and calculate the perimeter of composite rectilinear shapes in cm and m.

Calculate and compare the area of rectangles (including squares), and including using standard units, cm2, m2 estimate the area of irregular shapes.

Measures: Volume

Estimate volume (for example using 1cm3 blocks to build cuboids (including cubes) and capacity (for example, using water)).

Use all four operations to solve problems involving measure.

Ready to Progress Criteria:

5NPV–1 Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01.

5NPV–2 Recognise the place value of each digit in numbers with up to 2 decimal places, and compose and decompose numbers with up to 2 decimal places using standard and nonstandard partitioning.

5NPV–3 Reason about the location of any number with up to 2 decimals places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each.

5NPV–4 Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts.

5NF–1 Secure fluency in multiplication table facts, and corresponding division facts, through continued practice.

5NF–2 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth).

5MD–1 Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size.

5MD–2 Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors.

5MD–3 Multiply any whole number with up to 4 digits by any one-digit number using a formal written method.

5MD–4 Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context.

5F–1 Find non-unit fractions of quantities

5F–2 Find equivalent fractions and understand that they have the same value and the same position in the linear number system.

5F–3 Recall decimal fraction equivalents for ½, ¼, 1/5 and 1/10 and for multiples of these proper fractions.

5NPV–5 Convert between units of measure, including using common decimals and fractions. **5G–1** Compare angles, estimate and measure angles in degrees (°) and draw angles of a given size. **5G–2** Compare areas and calculate the area of rectangles (including squares) using standard units.

Year 6: Mathematics Curriculum Objective Overview

Autumn	Spring	Summer
Objectives	**Objectives**	**Objectives**

Autumn Objectives

Number Place Value
Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.
Round any whole number to a required degree of accuracy.
Use negative numbers in context, and calculate intervals across zero.
Solve number and practical problems that involve all of the above

Addition subtraction, multiplication and division
Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why.
Multiply multi-digit number up to 4 digits by a 2 digit number using the formal written method of long multiplication.
Divide numbers up to 4 digits by a 2 digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions or by rounding as appropriate for the context.
Divide numbers up to 4 digits by a 2 digit number using the formal written method of short division, interpreting remainders according to context.
Perform mental calculations, including with mixed operations and large numbers.
Identify common factors, common multiples and prime numbers.
Use their knowledge of the order of operations to carry out calculations involving the four operations.
Solve problems involving addition, subtraction, multiplication and division.
Use estimation to check answers to calculations and determine in the context of a problem, using an appropriate degree of accuracy.

Fractions

Spring Objectives

Number: Decimals
Identify the value of each digit in numbers given to three decimal places and multiply numbers by 10, 100 and 1000 giving answers up to 3 dps.
Multiply one digit numbers with up to 2dp by whole numbers.
Use written division methods in cases where the answer has up to two decimal places.
Solve problems which require answers to be rounded to specified degrees of accuracy.

Number: Percentages
Solve problems involving the calculation of percentages [for example, of measures such as 15% of 360] and the use of percentages for comparison.
Recall and use equivalences between simple FDP including in different contexts.

Measurement
Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.
Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3dp.
Convert between miles and kilometres.
Recognise that shapes with the same areas can have different perimeters and vice versa.
Recognise when it is possible to use formulae for area and volume of shapes.
Calculate the area of parallelograms and triangles.
Calculate, estimate and compare volume of cubes and cuboids using standard units, including cm3, m3 and extending to other units (mm3, km3).

Number: Algebra
Use simple formulae.
Generate and describe linear number sequences.
Express missing number problems algebraically.

Summer Objectives

Geometry: Properties of Shape
Draw 2D shapes using given dimensions and angles.
Recognise, describe and build simple 3D shapes, including making nets.
Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals and regular polygons.
Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.

Geometry: Position and Direction
Describe positions on the full coordinate grid (all four quadrants).
Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

Number Place Value
Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.
Round any whole number to a required degree of accuracy.
Use negative numbers in context, and calculate intervals across zero.
Solve number and practical problems that involve all of the above

Addition subtraction, multiplication and division
Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why.
Multiply multi-digit number up to 4 digits by a 2 digit number using the formal written method of long multiplication.
Divide numbers up to 4 digits by a 2 digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions or by rounding as appropriate for the context.

Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. Compare and order fractions, including fractions > 1 Add and subtract fractions with different denominations and mixed numbers, using the concept of equivalent fractions. Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example 14 x 12 = 18] Divide proper fractions by whole numbers [for example 1/3 ÷ 2 = 1/6] Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example 3/8] Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.	Find pairs of numbers that satisfy an equation with two unknowns. Enumerate possibilities of combinations of two variables. **Number: Ratio** Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. Solve problems involving similar shapes where the scale factor is known or can be found. Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. **Geometry** Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. **Statistics** Calculate the mean as an average. Interpret and construct pie charts and line graphs and use these to solve problems.	Divide numbers up to 4 digits by a 2 digit number using the formal written method of short division, interpreting remainders according to context. Use their knowledge of the order of operations to carry out calculations involving the four operations. Solve problems involving addition, subtraction, multiplication and division. **Fractions** Add and subtract fractions with different denominations and mixed numbers, using the concept of equivalent fractions. Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example 14 x 12 = 18] Divide proper fractions by whole numbers [for example 13 ÷ 2 = 16] Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example 38] Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts

Ready to Progress Criteria:

6NPV–1 *Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000).*

6NPV–2 *Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and nonstandard partitioning.*

6NPV–3 *Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts.*

6NPV–4 *Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts.*

6AS/MD–1 *Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number).*

6AS/MD–2 *Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.*

6AS/MD–4 *Solve problems with 2 unknowns.*

6F–1 *Recognise when fractions can be simplified, and use common factors to simplify fractions.*

6F–2 *Express fractions in a common denomination and use this to compare fractions that are similar in value.*

6F–3 *Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy.*

6AS/MD–3 *Solve problems involving ratio relationships.*

6G–1 *Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.*