Maths overview 2020-2021

Curriculum Intent	At St Edward's our intent for mathematics is to ensure that all children become mathematicians. This is through the teaching of a rich, balanced and progressive curriculum using Maths to reason, problem solve and develop fluent conceptual understanding in each area. Teachers and governors are kept regularly informed of developments in our frequently reviewed curriculum. Teachers are supported and aided in their roles ensuring confidence in the skills and facts they are required to teach. As stated in the National Curriculum, we aim for all children to be fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately. We aim for all children to be able to reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language. Also, we aim for all children to be able to solve problems by applying their mathematics to a variety of routine and non routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.		
Year group	**Autumn 1 and 2**	**Spring 1 and 2**	**Summer 1 and 2**
1	**Place value and number** **Pupils should be taught to:** • Read and write numbers from 1 to 20 in numerals and words. • Read and write numbers to 20 and beyond in numerals and write numbers in words to 10 Count to and across to at least 50 –forwards and backwards beginning with 0 and 1, or from any other given number • Count in 2s to 20 and beyond • Count in 5s to beyond 20 • Count in 10s to 50 • Identify one more and one less than a given number to 20 • Order objects using the terms 1st , 2nd, 3rd, 4th, 5th and beyond • Find the missing number in a sequence up to 10 • Count within 100, forwards and backwards, starting with any number Y1 NPV1 • Count forwards and backwards in multiples of 2, 5 and 10, up to 10	**Number and Place Value** **Pupils should be taught to:** • Count to and across to at least 50 – forwards and backwards • beginning with 0 and 1 or from any other given number • Read and write numbers to 50 in numerals and begin to write • numbers in words to 20 • Count in 2s and 5s to 50 • Identify one more and one less than a given number to 50 • Order objects using the terms 1st, 2nd, 3rd to 10th • Find the missing number in a sequence up to 20 • Count in 2s and 5s to 50 and beyond • Count in 10s to 100 • Order objects using the terms 1st, 2nd, 3rd to 10th • Find the missing number in a sequence up to 20 and beyond	**Number and Place Value** **Pupils should be taught to:** • Count to and across to at least 100 – forwards and backwards f • beginning with 0 and 1 or from any other given number • Read and write numbers to 100 in numerals and begin to write numbers in words to 20 • Count in 2s and 5s to 100 • Identify one more and one less than a given number to 100 • Order objects using the terms 1st, 2nd, 3rd to 10th • Find the missing number in a sequence up to 50 • Count in 2s and 5s to 100 • Double numbers to 10 • Halve numbers to 20 • Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =

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multiples, beginning with any multiple, and count forwards and backwards through the odd numbers **Y1 NF 2**

Addition and Subtraction
Pupils should be taught to:
- read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs
- represent and use number bonds and related subtraction facts within 20
- add and subtract one-digit and two-digit numbers to 20, including zero
- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems
- Develop fluency in addition and subtraction facts within 10. Y1 NF1
- Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers. **Y1 AS1**

Geometry
Pupils should be taught to:
- Recognise and name 2-D shapes: to include: rectangle (including squares), circle and triangle
- Recognise and name 3-D shapes: to include cuboids (including cubes), pyramid and sphere
- Recognise common 2D and 3D shapes presented in different orientations, and

Addition and Subtraction
Pupils should be taught to:
- Add/subtract 2 1-digit numbers to 10, including 0
- read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs
- represent and use number bonds and related subtraction facts within 20
- add and subtract one-digit and two-digit numbers to 20, including zero
- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems

Number fractions
Pupils should be taught to:
- recognise, find and name a half as one of two equal parts of an object, shape or quantity
- Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.

Measurement
Pupils should be taught to:
- Compare, describe and solve practical problems for:
- Length and height (long/ short, longer/ shorter; tall/short; double/half)
- Mass/ weight (heavy/ light, heavier than, lighter than)

Y1 NPV1
- Count reliably well beyond 100
- Count on and back in 3s from any given number to beyond 100
- Say the number that is 10 more or 10 less than a number to 100
- Know the signs (+); (-); (=); (<); (>)

Addition and Subtraction
Pupils should be taught to:
- read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs
- represent and use number bonds and related subtraction facts within 20
- add and subtract one-digit and two-digit numbers to 20, including zero
- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems
- Add and subtract 1-digit and 2-digit numbers to 50, including zero
- Apply knowledge of number to solve a one-step problem involving an addition, subtraction and simple multiplication and division

Number fractions
Pupils should be taught to:
- recognise, find and name a half as one of two equal parts of an object, shape or quantity

know that rectangles, triangles, cuboids and pyramids are not always similar to one another. **Y1 G1**
- Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations. **Y1 G2**

- Capacity and volume (full/ empty, more than, less than,
- half, half full, quarter)
- . To read the time to the hour and half hour.
- Time (quicker, slower, earlier and later)

- Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.

Geometry – position and direction
Pupils should be taught to:
- Describe position, direction and movement, including whole, half, quarter and three-quarter turns.

Measurement
Pupils should be taught to:
- Compare, describe and solve practical problems for: Length and height (long/ short, longer/ shorter; tall/short; double/half) Mass/ weight (heavy/ light, heavier than, lighter than)
- Capacity and volume (full/ empty, more than, less than, half, half full, quarter)
- To read the time to the hour and half hour. Time (quicker, slower, earlier and later)
- Recognise all coins: £1; 50p; 20p; 10p; 5p and 1p
- Name the days of the week and months of the year
- Recognise all coins and notes and know their value
- Use coins to pay for items bought up to £1
- Use knowledge of time to know when key periods of the day happen, eg, lunchtime, home time, etc.
- Recognise different 2D and 3D shapes in the environment

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2	Autumn 1 and 2	Spring 1 and 2	Summer 1 and 2
	Number and Place Value **Pupils should be taught to:** ● Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward ● Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and nonstandard partitioning NPV 1 ● Reason about the location of any two digit number in the linear number system, including identifying the previous and next multiple of 10. NPV 2 ● identify, represent and estimate numbers 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 in words ● Use place value and number facts to solve problems. **Addition and Subtraction** **Pupils should be taught to:** ● Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and	**Addition and Subtraction** **Pupils should be taught to:** ● 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, ● Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. **Number and Place Value:** **Pupils should be taught to:** ● Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward ● recognise the place value of each digit in a two-digit number(tens, ones) ● identify, represent and estimate numbers 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 in words, ● Use place value and number facts to solve problems. **Multiplication and Division** **Pupils should be taught to:** ● Recall and use multiplication and division facts for the 2, 5 and 10 multiplication	**Number and Place Value:** **Pupils should be taught to:** ● Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward ● Recognise the place value of each digit in a two-digit number(tens, ones) ● Identify, represent and estimate numbers using different representations, including the number line, compare and order numbers from 0 up to 100; ● Count reliably up to 1000 in 2s, 5s and 10s ● Count on and back in multiples of 4, 8, 25, 50 and 100 from any given number to beyond 1000 **Multiplication and Division** **Pupils should be taught to:** ● Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables ● Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs ● Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot solve problems involving

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measures applying their increasing knowledge of mental and written methods
- Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.
- Secure fluency in addition and subtraction facts within 10, through continued practice. Y2 NF1
- Add and subtract across 10 Y2 AS1
- Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more...?" Y2 AS2
- 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 two-digit number. Y2 AS3
- Add and subtract within 100 by applying related one digit addition and subtraction facts: add and subtract any 2 two digit numbers. Y2 AS4
- Apply knowledge of addition and subtraction to pay for items, up to £10, within a problem solving context

- Add and subtract two 2-digit and numbers to 100

tables, calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs
- Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot solve problems involving multiplication and division including problems in contexts.

Fractions
Pupils should be taught to:
- Recognise, find, name and write fractions of a length, shape, set of objects or quantity, write simple fractions and recognise equivalent fractions

Measures
Pupils should be taught to:
- Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels, compare and order lengths, mass, volume/capacity and record the results using >, < and =
- Know about right angles and where they can be seen in the environment

- Measure, compare, add and subtract using common metric measures

multiplication and division including problems in contexts
- Apply knowledge of number up to 100 to solve a one-step problem involving a addition, subtraction and simple multiplication and division

- Use an appropriate strategy to add and subtract numbers that move between and through 100, eg, 97 + 7; 103 - 8

Fractions
Pupils should be taught to:
- Recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity
- Write simple fractions for example, ½ of 6 = 3 and recognise the equivalence of 2/4 and ½

- Add and subtract fractions with a common denominator

Money:
Pupils should be taught to:
- Recognise and use symbols for 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

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Multiplication and Division
Pupils should be taught to:
Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables
- Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs
- Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot solve problems involving multiplication and division including problems in contexts
- Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables. Y2 MD1
- Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division). Y2 MD2

Geometry
Pupils should be taught to:
- Identify and describe the properties of 2-D and 3-D shapes, including the number of edges, vertices and faces including the number of sides and line symmetry in a vertical line

Time
Pupils should be taught to:
- Compare and sequence intervals of 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 and the number of hours in a day.

- Tell time to 5 minute intervals in both analogue and digital and relate one to the other

of money of the same unit, including giving change

Geometry
Pupils should be taught to:
- 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).

Statistics
Pupils should be taught to:
- Interpret and construct simple pictograms, tally charts, block diagrams and simple tables
- Ask and 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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	Autumn 1 and 2	Spring 1 and 2	Summer 1 and 2
	• Identify 2-D shapes on the surface of 3-D shapes compare and sort common 2-D and 3-D shapes and everyday objects. • Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties. Y2G **Measures** **Pupils should be taught to:** • Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels • Compare and order lengths, mass, volume/capacity and record the results using >, < and =		

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3	Number and place value	Place Value	Place Value
	Pupils should be taught to:	**Pupils should be taught to:**	Pupils should be taught to:
	- count from 0 in multiples of 4, 8, 50 and 100; 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) - compare and order numbers up to 1000 - identify, represent and estimate numbers using different representations - read and write numbers up to 1000 in numerals and in words - solve number problems and practical problems involving these ideas. - 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 three-digit multiples of 10. Y3 NPV1 - Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning. Y3 NPV2 - Reason about the location of any three-digit number in the linear number system, including identifying the previous and next multiple of 100 and 10. Y3 NPV 3 - 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. Y3 NPV 4	**Pupils should be taught to:** - count from 0 in multiples of 4, 8, 50 and 100; 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) - compare and order numbers up to 1000 - identify, represent and estimate numbers using different representations - read and write numbers up to 1000 in numerals and in words - solve number problems and practical problems involving these ideas **Addition and Subtraction** **Pupils should be taught to:** - 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 - solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.. **Geometry** **Pupils should be taught to:**	- and 100; 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) - compare and order numbers up to 1000 - identify, represent and estimate numbers using different representations - read and write numbers up to 1000 in numerals and in words - solve number problems and practical problems involving these ideas. - Begin to have an understanding about negative numbers recognising they are smaller than zero **Addition and Subtraction** **Pupils should be taught to:** - 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 - solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. - Add and subtract numbers with any number of digits using formal written methods

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- Secure fluency in addition and subtraction facts that bridge 10, through continued practice Y3 NF1
- 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. Y3 NF2
- Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10), Y3 NF3
- Recognise the value of each digit in a 4-digit number and the value of a tenth

Addition and subtraction
Pupils should be taught to:
- 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
- solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction..
- Calculate complements to 100 Y3 AS1
- Add and subtract up to three-digit numbers using columnar methods. Y3 AS2

- draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them
- 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.
- Describe and visualise 3-D and 2-D shapes, including the tetrahedron and heptagon, Recognise equilateral and isosceles triangles,
- Classify polygons using criteria such as number of right angles, whether or not they are regular, symmetry properties,
- Make and investigate a general statement about familiar numbers and shapes by finding examples that satisfy it.

.**Statistics**
Pupils should be taught to:
- 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

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Geometry
Pupils should be taught to:
- draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them
- 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.

- Describe and visualise 3-D and 2-D shapes, including the tetrahedron and heptagon, Recognise equilateral and isosceles triangles,

- Classify polygons using criteria such as number of right angles, whether or not they are regular, symmetry properties,
- Make and investigate a general statement about familiar numbers and shapes by finding examples that satisfy it.

Measures
Pupils should be taught to:
- measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)

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- **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

Measurement
Pupils should be taught to:
- measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)measure the perimeter of simple 2-D shapes
- add and subtract amounts of money to give change, using both £ and p in practical contexts

Geometry – properties of shape
Pupils should be taught to:
- draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them
- 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.

presented in scaled bar charts and pictograms and tables.

Multiplication and Division
Pupils should be taught to:
- call and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods
- solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.

Fractions
Pupils should be taught to:
- 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

- measure the perimeter of simple 2-D shapes
- add and subtract amounts of money to give change, using both £ and p in practical contexts

Statistics
Pupils should be taught to:
- 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.

Multiplication and Division
Pupils should be taught to:
- recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods
- solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.

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- 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.
- Y3 G1
- Draw polygons by joining marked points, and identify parallel and perpendicular sides. Y3 G2

- Know that the total internal angles of a triangle measure 180° and can measure each

Statistics
Pupils should be taught to:
- 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.

Multiplication and Division
Pupils should be taught to:
- recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods

- recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators
- recognise and show, using diagrams, equivalent fractions with small denominators
- add and subtract fractions with the same denominator within one whole [for example, 7 5 + 7 1 = 7 6]
- compare and order unit fractions, and fractions with the same denominators
- solve problems that involve all of the above.

- Multiply and divide any 2-digit number by a single digit number and have an understanding of 'remainder'
- Know all multiplication facts up to 10 x 10 and be able to instantaneously answer questions such as, how many 7s in 42?

Fractions
Pupils should be taught to:
- 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
- recognise and show, using diagrams, equivalent fractions with small denominators
- add and subtract fractions with the same denominator within one whole [for example, 7 5 + 7 1 = 7 6]
- compare and order unit fractions, and fractions with the same denominators
- solve problems that involve all of the above.
- Can find fractional values (from ½ to 1/10) of amounts up to 1000

Mrs V Willington – Maths Leader St. Edward's Primary School BLUE INDICATES DfE GUIDANCE 2020 READY TO PROGRESS RED INDICATES MASTERY OBJECTIVES

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- solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.
- Apply known multiplication and division facts to solve contextual problems with different structures, including quotative and partitive division. Y3 MD1

Fractions, including decimals
Pupils should be taught to:
- 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
- recognise and show, using diagrams, equivalent fractions with small denominators
- add and subtract fractions with the same denominator within one whole [for example, 7 5 + 7 1 = 7 6]
- compare and order unit fractions, and fractions with the same denominators

Measures (time)
- tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks
- 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, a.m./p.m., morning, afternoon, noon and midnight
- 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 to calculate the time taken by particular events or tasks].

- Use knowledge of number to solve problems related to money, time and measures

- Can relate knowledge of time to problems related to timetables

- Measure, compare, add and subtract more complex problems using common metric measures set out in Kg, g; Kl, l; Km and m, etc.

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• solve problems that involve all of the above. • Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. Y3 F1 • Find unit fractions of quantities using known division facts (multiplication tables fluency). Y3 F2 • Reason about the location of any fraction within 1 in the linear number system. Y3 F3 • Add and subtract fractions with the same denominator, within 1.		

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4	**Number and place value**	**Place Value**	**Place Value**
	Pupils should be taught to:	**Pupils should be taught to:**	**Pupils should be taught to:**
	● count in multiples of 6, 7, 9, 25 and 1000	● count in multiples of 6, 7, 9, 25 and 1000	● count in multiples of 6, 7, 9, 25 and 1000
	● find 1000 more or less than a given number	● find 1000 more or less than a given number	● find 1000 more or less than a given number
	● count backwards through zero to include negative numbers	● count backwards through zero to include negative numbers	● 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)	● recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)	● recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)
	● order and compare numbers beyond 1000	● order and compare numbers beyond 1000	● order and compare numbers beyond 1000
	● identify, represent and estimate numbers using different representations	● identify, represent and estimate numbers using different representations	● identify, represent and estimate numbers using different representations
	● round any number to the nearest 10, 100 or 1000	● round any number to the nearest 10, 100 or 1000	● round any number to the nearest 10, 100 or 1000
	● solve number and practical problems that involve all of the above and with increasingly large positive numbers	● solve number and practical problems that involve all of the above and with increasingly large positive numbers	● solve number and practical problems that involve all of the above and with increasingly large positive numbers
	● 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.	● 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.	● 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.
	● 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. Y4 NPV1	**Addition and Subtraction**	● Reason about the location of any four digit 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. Y4 NPV 4
	● Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning. Y4 NPV 2	**Pupils should be taught to:**	● 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. Y4 NPV5
	● Reason about the location of any four digit number in the linear number	● add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	● Use tenths, hundredths and thousandths when comparing values and solving addition and subtraction problems
		● estimate and use inverse operations to check answers to a calculation	● Round any number to 100,000 to the nearest 10, 100, 1,000 or 10,000
		● solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	
		Measures	
		Pupils should be taught to:	

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system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each. Y4 NPV 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. Y4 NPV5
- Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100) Y4 NF3
-

Addition and Subtraction
Pupils should be taught to:
- 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.

Measurement
Pupils should be taught to:
- Convert between different units of measure [for example, kilometre to metre; hour to minute]
- measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
- find the area of rectilinear shapes by counting squares

- Convert between different units of measure [for example, kilometre to metre; hour to minute]
- measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
- find the area of rectilinear shapes by counting squares
- estimate, compare and calculate different measures, including money in pounds and pence Mathematics – key stages 1 and 2 28 Statutory requirements
- read, write and 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.

Geometry
Pupils should be taught to:
- compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes
- identify acute and obtuse angles and compare and order angles up to two right angles by size
- identify lines of symmetry in 2-D shapes presented in different orientations
- complete a simple symmetric figure with respect to a specific line of symmetry.

Addition and Subtraction
Pupils should be taught to:
- 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.

- Solve multi-step problems involving more than one of the operations

Measures
Pupils should be taught to:
- Convert between different units of measure [for example, kilometre to metre; hour to minute]
- measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
- find the area of rectilinear shapes by counting squares
- estimate, compare and calculate different measures, including money in pounds and pence Mathematics – key stages 1 and 2 28 Statutory requirements

Geometry

Pupils should be taught to:

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- estimate, compare and calculate different measures, including money in pounds and pence Mathematics – key stages 1 and 2 28 Statutory requirements
- read, write and 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.

Geometry – properties of shape
Pupils should be taught to:
- compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes
- identify acute and obtuse angles and compare and order angles up to two right angles by size
- identify lines of symmetry in 2-D shapes presented in different orientations
- complete a simple symmetric figure with respect to a specific line of symmetry.
- Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant. Y4 G1
- Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are

Multiplication and Division
Pupils should be taught to:
- recall multiplication and division facts for multiplication tables up to 12 × 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
- recognise and use factor pairs and commutativity in mental calculations
- multiply two-digit and three-digit numbers by a one-digit number using formal written layout
- 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
Pupils should be taught to:
- 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
- add and subtract fractions with the same denominator

- compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes
- identify acute and obtuse angles and compare and order angles up to two right angles by size
- identify lines of symmetry in 2-D shapes presented in different orientations
- complete a simple symmetric figure with respect to a specific line of symmetry.
- Use knowledge of perimeter to work out perimeter of large areas around school using meters and centimetres

Statistics
Pupils should be taught to:
- 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.
- Collect own data on given project and present information in graphical formats of their choosing

Multiplication and Division
Pupils should be taught to:
- recall multiplication and division facts for multiplication tables up to 12 × 12
- use place value, known and derived facts to multiply and divide mentally, including:

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equal and the angles are equal. Find the perimeter of regular and irregular polygons. Y4 G2

- 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 Y4 G3

- describe positions on a 2-D grid as coordinates in the first quadrant
- describe movements between positions as translations of a given unit to the left/right and up/down
- plot specified points and draw sides to complete a given polygon.

Statistics
Pupils should be taught to:
- 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.

Multiplication and Division
Pupils should be taught to:
- recall multiplication and division facts for multiplication tables up to 12 × 12
- use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1;

- recognise and write decimal equivalents of any number of tenths or hundredths
- recognise and write decimal equivalents to 4 1 , 2 1 , 4 3
- find the effect of dividing a one- or two-digit number by 10 and 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
- compare numbers with the same number of decimal places up to two decimal places
- solve simple measure and money problems involving fractions and decimals to two decimal places.

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multiplying by 0 and 1; dividing by 1; multiplying together three numbers
- recognise and use factor pairs and commutativity in mental calculations
- multiply two-digit and three-digit numbers by a one-digit number using formal written layout
- 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.
- 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. Y4 MD1

- Rapidly recall answer when multiplying and dividing a whole or decimal number by 10

Fractions
Pupils should be taught to:
- 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,

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dividing by 1; multiplying together three numbers
- recognise and use factor pairs and commutativity in mental calculations
- multiply two-digit and three-digit numbers by a one-digit number using formal written layout
- 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.
- Recall multiplication and division facts up to 12X12 , and recognise products in multiplication tables as multiples of the corresponding number Y4 NF1
- Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, Y4 NF2
- 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. Y4 MD1
- Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication. Y4 MD2
- Understand and apply the Distributive property of multiplication. Y4 MD3

Fractions, including decimals
Pupils should be taught to:

including non-unit fractions where the answer is a whole number
- add and subtract fractions with the same denominator
- recognise and write decimal equivalents of any number of tenths or hundredths
- recognise and write decimal equivalents to $4\ 1\ ,\ 2\ 1\ ,\ 4\ 3$
- find the effect of dividing a one- or two-digit number by 10 and 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
- compare numbers with the same number of decimal places up to two decimal places
- solve simple measure and money problems involving fractions and decimals to two decimal places.
- Work out simple percentage values of whole numbers as is related to on-going learning in science, history and geography
- Compare and add fractions whose denominators are all multiples of the same number

Geometry – position and direction
Pupils should be taught to:
- describe positions on a 2-D grid as coordinates in the first quadrant
- describe movements between positions as translations of a given unit to the left/right and up/down

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	• 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 • add and subtract fractions with the same denominator • recognise and write decimal equivalents of any number of tenths or hundredths • recognise and write decimal equivalents to 4 1 , 2 1 , 4 3 • find the effect of dividing a one- or two-digit number by 10 and 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 • compare numbers with the same number of decimal places up to two decimal places • solve simple measure and money problems involving fractions and decimals to two decimal places. • Reason about the location of mixed numbers in the linear number system. Y4 f1 • Convert mixed numbers to improper fractions and vice versa. Y4 F2	• plot specified points and draw sides to complete a given polygon. **Measures** (time) **Pupils should be taught to:** • 28 Statutory requirements • read, write and 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. • Use a 24-hour timetable to find out times for a journey between various places

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		Autumn 1 and 2	Spring 1 and 2	Summer 1 and 2
		• Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers Y4 F3 • Relate tenths and hundredths to fractional values		
5		**Autumn 1 and 2**	**Spring 1 and 2**	**Summer 1 and 2**
		Number and place value **Pupils should be taught to:** • 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. NPV 1 • 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. NPV 2 • read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit • count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000	**Number and place value** **Pupils should be taught to:** • Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth). NF2 • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero • solve number problems and practical problems **Addition and subtraction** **Pupils should be taught to:** • add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • Add and subtract numbers mentally with increasingly large numbers	**Number and place value** **Pupils should be taught to:** • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero • Read Roman numerals to 1000 (M) and recognise years written in Roman numerals. • Have a concept of numbers well beyond 1,000,000 and their relative association to distances to planets; historical data and geographical aspects • Use rounding as a strategy for quickly assessing what approximate answers ought to be before calculating • Link working across zero for positive and negative numbers to work time between BC and AD in history • Recognise the symbol for square root (√) and work out square roots for numbers up to 100

Mrs V Willington – Maths Leader St. Edward's Primary School   BLUE INDICATES DfE GUIDANCE 2020 READY TO PROGRESS   RED INDICATES MASTERY OBJECTIVES

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- 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. NPV3
- 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, 10 000 and 100000
- 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. NPV 4
- Convert between units of measure, including using common decimals and fractions. NPV 5
- 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.
- Secure fluency in multiplication table facts, and corresponding division facts, through continued practice. NF1
- Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth) Y5 NF2

- Use rounding to check answers to calculations and 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.

Multiplication and division
Pupils should be taught to:
- Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers
- Multiply and divide numbers mentally drawing upon known facts
- 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
- Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes

Fractions, including decimals and percentages
Pupils should be taught to:
- Add and subtract fractions with the same denominator and denominators that are multiples of the same number

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- Calculate number problems algebraically, e.g. $2x - 3 = 5$

Addition and subtraction
Pupils should be taught to:
- add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)
- Add and subtract numbers mentally with increasingly large numbers
- Use rounding to check answers to calculations and 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.

Multiplication and division
Pupils should be taught to:
- Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers
- Multiply and divide numbers mentally drawing upon known facts
- 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
- Divide whole numbers (up to 4 digits) by 2-digit numbers, using preferred method

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Addition and subtraction
Pupils should be taught to:
- Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)
- Add and subtract numbers mentally with increasingly large numbers
- Use rounding to check answers to calculations and 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.

Multiplication and division
Pupils should be taught to:
- Identify multiples and factors, including finding all factor pairs of a number, and common factors of two 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
- Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers
- Multiply and divide numbers mentally drawing upon known facts

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

Geometry – position and direction
Pupils should be taught to:
- 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.

Statistics
Pupils should be taught to:
- Solve comparison, sum and difference problems using information presented in a line graph
- Complete, read and interpret information in tables, including timetables
- Collect own data on personal project and present information in formats of their choosing, charts, graphs and tables

Fractions, including decimals and percentages
Pupils should be taught to:
- 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

Fractions, including decimals and percentages
Pupils should be taught to:
- Add and subtract fractions with the same denominator and denominators that are multiples of the same number
- Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams

Geometry – properties of shapes
Pupils should be taught to:
- Identify 3-D shapes, including cubes and other cuboids, from 2-D representations

Measurement
Pupils should be taught to:
- Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)
- Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints
- Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres
- Calculate and compare the area of rectangles (including squares), and including using standard units, square

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- 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
- 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, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign
- Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.
- 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. Y5 MD1
- 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. Y5 MD2

- Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25.

Measurement
Pupils should be taught to:
- Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)
- Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints

centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes

- Use knowledge of measurement to create plans of areas around school, such as classroom , field, outside play area, etc.
- Relate imperial measures still used regularly in our society to their metric equivalents, eg, miles to Km and lbs to Kg
- Use a range of timetables to work out journey times on a fictional journey around the world, eg, how long would it take to reach the rainforests in the Amazon

- Multiply any whole number with up to 4 digits by any one-digit number using a formal written method. Y5 MD3
- 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. Y5 MD4

Fractions, including decimals and percentages
Pupils should be taught to:
- Read and write decimal numbers as fractions [for example, 0.71 = 71/100]
- 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
- Read, write, order and compare numbers with up to three decimal places
- Solve problems involving number up to three decimal places
- Compare and order fractions whose denominators are all 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 mathematical statements > 1 as a mixed number
- Find non-unit fractions of quantities. Y5 F1
- Find equivalent fractions and understand that they have the same value and the same position in the linear number system. Y5 F2
- Recall decimal fraction equivalents Y5 F3

Geometry – properties of shapes
Pupils should be taught to:
- Identify 3-D shapes, including cubes and other cuboids, from 2-D representations
- Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
- Draw given angles, and 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 turn (total 180°)
  - other multiples of 90°
- 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.

- Compare angles, estimate and measure angles in degrees (°) and draw angles of a given size. Y5 G1
- Compare areas and calculate the area of rectangles (including squares) using standard units. Y5 G2

Measurement
Pupils should be taught to:
- Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)
- Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints
- Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres
- Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes

Statistics
Pupils should be taught to:
- Solve comparison, sum and difference problems using information presented in a line graph

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	• Complete, read and interpret information in tables, including timetables		

6	**Autumn 1 and 2**	**Spring 1 and 2**	**Summer 1 and 2**
	<u>**Number and place value**</u> **Pupils should be taught to:** • 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). NPV1 • 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. NPV 2 • 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 • 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 NPV 3 • Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines	<u>**Algebra**</u> **Pupils should be taught to:** • use simple formulae • generate and describe linear number sequences • express missing number problems algebraically • find pairs of numbers that satisfy an equation with two unknowns numerate possibilities of combinations of two variables. • Recognise an arithmetic progression, and find the nth term <u>**Fractions, including decimals and percentages**</u> **Pupils should be taught to:** • multiply simple pairs of proper fractions, writing the answer in its simplest form • divide proper fractions by whole numbers • associate a fraction with division and calculate decimal fraction equivalents for a simple fraction • identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places • multiply one-digit numbers with up to two decimal places by whole numbers	**Geometry – position and direction** **Pupils should be taught to:** • 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. **Geometry – properties of shape** **Pupils should be taught to:** • 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 cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3 and • km3]. <u>**Statistics**</u> **Pupils should be taught to:** • interpret and construct pie charts and line graphs and use these to solve problems • calculate and interpret the mean as an average.

with labelled intervals divided into 2, 4, 5 and 10 equal parts. NPV 4
- use negative numbers in context, and calculate intervals across zero
- solve number and practical problems that involve all of the above.

- Move beyond squared and cubed numbers to calculate problems such as $X \times 10^n$ where n is positive
- Use =, ≠, <, >, ≤, ≥ correctly

Number – addition, subtraction, multiplication and division
Pupils should be taught to:
- 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) AS/MD 1
- Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding. AS/MD 2
- Solve problems involving ratio relationships. AS/MD 3
- Solve problems with 2 unknowns AS/MD 4
- multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication

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- 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
- recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Geometry – properties of shapes
Pupils should be taught to:
- draw 2-D shapes using given dimensions and angles
- recognise, describe and build simple 3-D 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
- illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
- recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.
- Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems. Y6 G1

- Collect own data on personal project and present information in formats of their choosing, charts, graphs and tables and answer specific questions related to their research

Revision of all topics

- divide numbers up to 4 digits by a two-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 two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the 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 addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
- solve problems involving addition, subtraction, multiplication and division
- use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.
- Multiply all integers, (using efficient written methods) including mixed numbers and negative numbers

- Calculate costs and time involved to visit a destination in another part of the

- Use formula for measuring area of shape, such as cuboid and triangle to work out area of irregular shape in the school environment

Ratio and proportion
Pupils should be taught to:
- 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 the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison
- 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.

world relating to on-going learning in history or geography

<u>Fractions, including decimals and percentages</u>
Pupils should be taught to:
- 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 denominators and mixed numbers, using the concept of equivalent fractions
- Recognise when fractions can be simplified, and use common factors to simplify fractions. Y6 F1
- Express fractions in a common denomination and use this to compare fractions that are similar in value. Y6 F2
- Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy. Y6 F3
- Compare, order and convert between fractions, decimals and percentages in contexts related to science, history or geography learning

<u>Measurement</u>
Pupils should be taught to:

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	- 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 three decimal places - convert between miles and kilometres Use four operations with mass, length, time, money and other measures, including with decimal quantities Create a scaled model of a historical or geographical structure showing an acceptable degree of accuracy using known measurements		