EVOLVE
ACADEMY

Evolve Academy

Curriculum Planning

Mathematics

Curriculum Intent

Our intent is to ensure the students attending Evolve Academy have the best possible opportunity to succeed and to have the knowledge, skills and confidence to continue through their educational journey taking into account any additional needs they may have, offering an inclusive curriculum for all.

Mathematics is essential in our everyday lives, and is a highly interconnected subject that transpires to many other academic and vocational subjects. The Maths curriculum at Evolve is designed to provide students with a strong foundation in mathematical concepts, skills, and problem-solving strategies. Our aim is to develop students' mathematical proficiency, breaking down misconceptions, elevating anxieties, and developing confidence, enabling them to confidently apply mathematical concepts to real-world situations with aspiration for the continuation of their educational journey after Evolve. The sequential flow from KS1 to the end of KS3 allows all students to access maths at their individual academic level starting point, celebrating inclusivity and individual progress.

Mathematical fluency, reasoning skills and problem-solving skills are imparted with consideration of the following principles:

Mathematical concepts: We believe that students should have a deep understanding of mathematical concepts and be able to apply them in various contexts. Our curriculum aims to develop students' understanding of mathematical concepts by providing a structured and coherent progression of learning through sequential skill points, ensuring that knowledge is fully embedded before moving onto their next concept. We allow for pathways that reflect the stage of learning the young person is at during their time at Evolve. KS1 and 2 utilise the White Rose schemes and are graded according to the Symphony assessments. KS3 students follow the functional skills pathways.

Development of problem-solving skills: This is an essential skill that students need to succeed in life. Our curriculum aims to develop students' problem-solving skills by providing them with opportunities to do so, using a variety of active learning strategies and tools.

Use of technology to enhance students' learning experiences and help them develop a deeper understanding of mathematical concepts. Our curriculum aims to incorporate technology into the learning process, providing students with opportunities to use technology to explore mathematical concepts and solve problems.

Differentiation: We believe that students have different learning needs and styles. Our curriculum provides differentiated instruction, allowing students to learn at their own pace and level.

Equality, Diversity and Inclusive: All students will have access to an inclusive curriculum that celebrates and relates to them as individuals regardless of age, disability, gender reassignment, race, religion or belief, sex, and sexual orientation. The curriculum will utilise resources that are diverse and representative of the wider world.

Curriculum Implementation

All students access 5 lessons of Mathematics per week.

Evolve Academy recognise students who experience barriers to learning may require additional support to access the curriculum. Our curriculum is designed to be broad and balanced that creates a safe and supportive learning environment that promotes student well-being, offering an inclusive environment that is under pinned by the 6 Nurture principles and core values of Ethos Academy Trust. The adaptation of our curriculum for our students takes consideration of their Cognition and Learning, Communication and Interaction, Social, Emotional and Mental Health and Sensory and Physical needs. This is reviewed frequently throughout the year by the Maths lead and Quality of Education Lead to ensure students are continuing to engage and thrive throughout the subject.

Our teachers work closely with students, parents, and other professionals to identify and address any barriers to learning that may be impacting student progress, and produce differentiated instruction, personalised learning plans, and the utilisation of additional resources to support their learning

Teachers are trained to recognise that all behaviour is communication and that signs of academic anxiety may require students to have extra and appropriate support to support their achievement. We promote student engagement and motivation by incorporating student interests providing opportunities for student choice and autonomy, and using a variety of teaching methods to cater to different learning styles, with a high focus on creating an active learning environment.

Lessons will be structured utilising the following strategies:
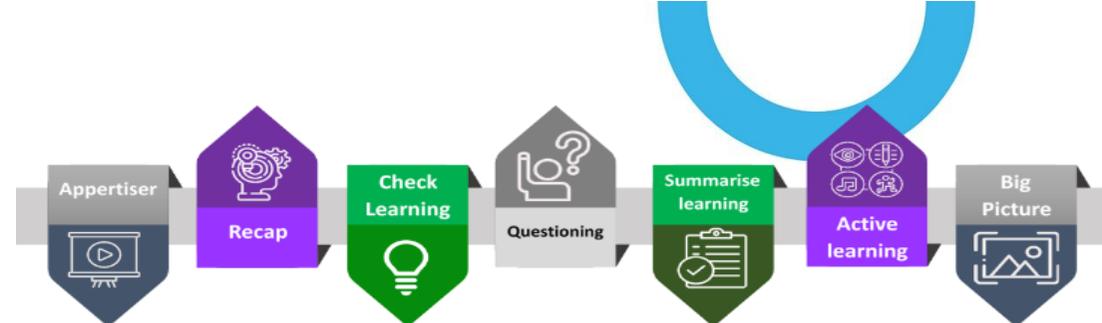
The Primary curriculum, utilises 'The White Rose' programme of learning to support the students have the skills and knowledge for the next stage in their educational journey. The White Rose Maths programme allows for students to be taught in a Concrete-Pictorial- Abstract approach, that supports students to master maths. White Rose is widely used across primary education settings, thus allowing a smoother transition between ourselves and mainstream education.

The KS3 curriculum utilises the Open Awards Entry level Functional maths qualification criteria. The students are encouraged to develop fluency, reason mathematically and solve problems to allow a solid foundation of skills and understanding and the ability to master concepts.

The students are able to gain an Entry level 1,2 or 3 qualification supporting students to gain a sense of achievement and positivity towards their learning heightening their aspirations for their next step after Evolve Academy, and gaining the skills required should they return to mainstream education midyear or transition to KS4.

Curriculum Impact

The impact for our students is to ensure the objectives are clear, progress is made, sustained learning is encouraged, and transferrable skills are developed. We aim that by the end of the students' time spent at Evolve there is;

1. **Improved student achievement**: Our curriculum helps students to develop a deep understanding of mathematical concepts and skills, which can lead to improved academic achievement. Students who have a strong foundation in maths are better equipped to succeed in higher education and in their future careers.

2. **Increased student engagement and motivation**: Our maths curriculum is designed to be engaging and challenging, which can help to motivate students to learn. When students are motivated, they are more likely to take ownership of their learning and to persist in the face of challenges.

3. **Improved attitudes towards maths:** Our maths curriculum aims to help to change students' attitudes towards maths. When students see maths as relevant, interesting, and accessible, they are more likely to develop a positive attitude towards the subject.

4. **Increased opportunities for future success**: Our maths curriculum can help to prepare students for future success in a range of fields, including science, technology, engineering, and mathematics (STEM) careers. Students who have a strong foundation in maths are better equipped to succeed in these fields, which are in high demand in today's job market.

The impact of our curriculum will be gaged using the following methods:

The formal nationally recognised Open Award Entry Level Maths qualification

Through pupils' provision map taking into consideration MSP/EHCP and Boxall Profile learning plans.

Informal and formal assessments

Student feedback and levels of engagement and attainment

Assessment in Mathematics:

Recall/Recap	Mapping	Peer-assessment	Baseline Assessments
Questioning	Portfolio	Self-assessment	End of unit assessments
Instant feedback	Quizzes	Teacher Marking	On-going assessment
Knowledge checks	Tests	Live Marking	Data capture
Observation			Target Setting
Discussion			

From Y1 – Y9

Overview National Curriculum KS1, KS2 & KS3

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Key Stage 1	Place Value Addition and Subtraction	Place Value to 20 Geometry- Shape	Place Value to 50 Addition and Subtraction	Measurement Geometry- Position and direction	Multiplication and division Fractions	Time Money Statistics (YR2)
Key Stage 2 Lower	Place Value Addition and subtraction	Measurement Multiplication and Division	Multiplication and Division Measurement	Fractions and decimals	Fractions and decimals Geometry- Shape	Time Money Statistics (YR4)
Key Stage 2 Upper	Place Value Addition and Subtraction 4 Operations (YR6)	Multiplication Fractions Converting Units (YR 6)	Multiplication and Division Ratio and Algebra (YR6)	Decimal and Percentages Measurement	Statistics Geometry- Shape Position and Direction (YR 6)	Decimals (YR 5) Negative Numbers Converting Units
Key Stage 3	Number Basics Addition and Subtraction Fractions and Decimals	Number Patterns Algebra Ratio, Proportion, and Percentages	Money 2D and 3D shapes Angles	Measurement Time	Graphs and Tables	Averages and Probability REVISION

KS1 Curriculum

Autumn	Knowledge	Skills
Place Value	• 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 to and across 10, forwards and backwards, beginning with zero or 1, or from any given number • Compare numbers using <,> and = signs • Count to and across 100, forwards and backwards, beginning with zero or 1, or from any given number • Identify and represent numbers using objects and pictorial representations including the number	• Sort objects • Count objects • Count objects from a larger group • Represent objects • Recognise numbers as words • Count on from any number • 1 more • Count backwards within 10 • 1 less Compare groups by matching • Fewer, more, same • Less than, greater than, equal to • Compare numbers • Order objects and numbers • The number line • Numbers to 20 • Count objects to 100 by making 10s Recognise tens and ones • Use a place value chart • Estimate numbers on a number line • Compare objects • Compare numbers • Order objects and numbers • Count in 2s, 5s and 10s

- line, and use the language of: equal to, more than, less than (fewer), most, least
- Count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s
- Read and write numbers from 1 to 20 in numerals and words.
- Given a number, identify 1 more and 1 less

- Read and write numbers from 1 to 20 in numerals and words
- Read and write numbers to at least 100 in numerals and in words
- Count in steps of 2, 3 and 5 from 0, and in 10s from any number, forward and backward
- Identify, represent and estimate numbers using different representations, including the number line
- Recognise the place value of each digit in a 2-digit number (tens, ones)

- Count in 3's

	• Compare and order numbers from 0 up to 100; use <, > and = signs •	
Addition and Subtraction	• 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) • 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 1-digit and 2-digit numbers to 20, including zero • 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	• Introduce parts and wholes • Part-whole model • Write number sentences • Fact families – addition facts • Number bonds within 10 • Systematic number bonds within 10 • Number bonds to 10 • Addition – add together • Addition – add more • Addition problems • Find a part • Subtraction – find a part • Fact families – the eight facts • Subtraction – take away/cross out (How many left?) • Take away (How many left?) • Subtraction on a number line • Add or subtract 1 or 2 • Bonds to 10 • Fact families - addition and subtraction bonds within 20 • Related facts • Bonds to 100 (tens) • Add and subtract 1s • Add by making 10 • Add three 1-digit numbers • Add to the next 10 • Add across a 10 • Subtract across 10 • Subtract from a 10

	mentally, including: a 2-digit number and 1s, a 2-digit number and 10s, two 2-digit numbers and adding three 1-digit numbers	• Subtract a 1-digit number from a 2-digit number (across a 10) • 10 more, 10 less • Add and subtract 10s • Add two 2-digit numbers (not across a 10) • Add two 2-digit numbers (across a 10) • Subtract two 2-digit numbers (not across a 10) • Subtract two 2-digit numbers (across a 10) • Mixed addition and subtraction • Compare number sentences • Missing number problems
Place Value to 20	• 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 to and across 20, forwards and backwards, beginning with zero or 1, or from any given number	• Count within 20 • Understand 10 • Understand up to 20 • The number line to 20 • Use a number line to 20 • Compare numbers to 20 • Order Numbers to 20 • 1 more and 1 less than 20 • Estimate on a number line to 20
Geometry- Shape	• Recognise and name common 2-D and 3-D shapes, including: 2-D shapes [for example, rectangles (including	• Recognise and name 3-D shapes • Sort 3-D shapes • Recognise and name 2-D shapes • Sort 2-D shapes • Patterns with 2-D and 3-D shapes

squares), circles and triangles]; 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]

- Identify and describe the properties of 2-D shapes, including the number of sides, and line symmetry in a vertical line
- Compare and sort common 2-D and 3-D shapes and everyday objects
- Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces
- Identify 2-D shapes on the surface of 3-D shapes

- Recognise 2-D and 3-D shapes
- Count sides on 2-D shapes
- Count vertices on 2-D shapes
- Draw 2-D shapes
- Lines of symmetry on shapes
- Use lines of symmetry to complete shapes
- Sort 2-D shapes
- Count faces on 3-D shapes
- Count edges on 3-D shapes
- Count vertices on 3-D shapes
- Sort 3-D shapes
- Make patterns with 2-D and 3-D shapes

Spring	Knowledge	Skills
Place Value to 50	• **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 to and across 50, forwards and backwards, beginning with zero or 1, or from any given number**	• **Count within 50** • **Understand 10** • **Understand up to 50** • **The number line to 50** • **Use a number line to 50** • **Compare numbers to 50** • **Order Numbers to 50** • **1 more and 1 less than 50** • **Estimate on a number line to 50**
Addition and Subtraction	• **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)** • **Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs**	• **Add by counting on within 20** • **Add ones using number bonds** • **Find and make number bonds to 20** • **Doubles** • **Near doubles** • **Subtract ones using number bonds** • **Subtraction – counting back** • **Subtraction – finding the difference** • **Related facts** • **Missing number problems**
Measurement - Length Height Mass Volume	• **Compare, describe and solve practical problems for: lengths and height; mass/weight; capacity and volume; time**	• **Compare lengths and heights** • **Measure length using objects** • **Measure length in centimetres** • **Heavier and lighter** • **Measure mass** • **Compare mass**

	• Measure and begin to record the following: lengths and heights; mass/weight; capacity and volume; time • 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 = • Solve problems with addition and subtraction using concrete objects and pictorial representations, including those involving numbers, quantities and measures • Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	• Full and empty • Compare volume Measure capacity • Compare capacity • Measure in centimetres • Measure in metres • Compare lengths and heights • Order lengths and heights • Four operations with lengths and heights • Compare mass Measure in grams • Measure in kilograms • Four operations with mass • Compare volume and capacity • Measure in millilitres • Measure in litres • Four operations with volume and capacity • Temperature	
Geometry- Position and Direction	• Describe position, direction and movement, including whole, half, quarter and three-quarter turns • Practise counting (1, 2, 3…), ordering (for example, 1st,	• Describe turns • Describe position – left and right • Describe position – forwards and backwards • Describe position – above and below • Ordinal Numbers • Language of position	

	2nd, 3rd …) (non-statutory guidance) • **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 anticlockwise)**	• **Describe movement** • **Describe turns** • **Describe movement and turns** • **Shape patterns with turns**

Summer	Knowledge	Skills
Multiplication and Division	• **Count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s** • **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** • **Calculate mathematical statements for multiplication**	• **Count in 2s** • **Count in 10s** • **Count in 5s** • **Recognise equal groups** • **Add equal groups** • **Make arrays** • **Make doubles** • **Make equal groups – grouping** • **Make equal groups- share Recognise equal groups** • **Make equal groups** • **Add equal groups** • **Introduce the multiplication symbol** • **Multiplication sentences** • **Use arrays**

	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 • Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers •	• Make equal groups – grouping • Make equal groups – sharing • The 2 times-table Divide by 2 • Doubling and halving • Odd and even numbers • The 10 times-table • Divide by 10 • The 5 times-table • Divide by 5 • The 5 and 10 times-table
Fractions	• Recognise, find and name a half as one of two equal parts of an object, shape or quantity • 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 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2	• Recognise a half of an object or a shape • Find a half of an object or a shape • Recognise a half of a quantity • Find a half of a quantity • Recognise a quarter of an object or a shape • Find a quarter of an object or a shape • Recognise a quarter of a quantity • Find a quarter of a quantity • Introduction to parts and whole • Equal and unequal parts • Recognise a half • Find a half • Recognise a quarter • Find a quarter • Recognise a third • Find a third Find the whole • Unit fractions • Non-unit fractions • Recognise the equivalence of a half and two-quarters • Recognise three-quarters • Find three-quarters

		• Count in fractions up to a whole •
Place Value to 100	• 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 to and across 100, forwards and backwards, beginning with zero or 1, or from any given number	• Count from 50 to 100 • Tens to 100 • Partition into 10's and 1's • The number line to 100 • Compare numbers with the same amount of tens • One more or one less • Compare any 2 numbers • Partition numbers to 100 • Write numbers to 100 in words • Flexibly partition numbers to 100 • Write numbers to 100 in expanded form • 10s on the number line to 100 • 10s and 1s on the number line to 100
Measurement - Money	• Recognise and know the value of different denominations of coins and notes • Count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s • YR2 • Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value • Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change	• Unitising • Recognise coins • Recognise notes • Count in coins • Count money – pence • Count money – pounds (notes and coins) • Count money – pounds and pence • Choose notes and coins • Make the same amount • Compare amounts of money • Calculate with money • Make a pound • Find change • Two-step money problems
Measurement- Time	• Sequence events in chronological order using language (for example, before and after, next, first, today,	• Before and after • Days of the week • Months of the year • Hours, minutes and seconds

	yesterday, tomorrow, morning, afternoon and evening • Recognise and use language relating to dates, including days of the week, weeks, months and years • Compare, describe and solve practical problems for time • Measure and begin to record time (hours, minutes, seconds) • Tell the time to the hour and half past the hour and draw the hands on a clockface to show these times • YR2 • Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clockface to show these times • Know the number of minutes in an hour and the number of hours in a day •	• Tell the time to the hour • Tell the time to the half hour • O'clock and half past • Quarter past and quarter to • Tell the time past the hour • Tell the time to the hour • Tell the time to 5 minutes • Minutes in an hour • Hours in a day
Statistics (YR 2 only)	• 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 • Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	• Make tally charts • Tables • Block diagrams • Draw pictograms (1–1) • Interpret pictograms (1–1) • Draw pictograms (2, 5 and 10) • Interpret pictograms (2, 5 and 10)

Key Stage 2 Lower Curriculum

Autumn	Knowledge	Skills
Place Value	- Identify, represent and estimate numbers using different representations - Recognise the place value of each digit in a 3-digit number (hundreds, tens, ones) - Count from zero in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number - Read and write numbers up to 1,000 in numerals and words - YR 4 - Identify, represent and estimate numbers using different representations. - Count in multiples of 6, 7, 9, 25 and 1,000 - Recognise the place value of each digit in a 4-digit number	- Represent numbers to 100 - Partition numbers to 100 - Number line to 100 - Hundreds - Represent numbers to 1,000 - Partition numbers to 1,000 - Flexible partitioning of numbers to 1,000 - Hundreds, tens and ones - Find 1, 10 or 100 more or less - Number line to 1,000 - Estimate on a number line to 1,000 - Compare numbers to 1,000 - Order numbers to 1,000 - Count in 50s - Represent numbers to 1,000 - Partition numbers to 1,000 - Number line to 1,000 - Thousands - Represent numbers to 10,000 - Partition numbers to 10,000 - Flexible partitioning of numbers to 10,000 - Find 1, 10, 100, 1,000 more or less

	(thousands, hundreds, tens and ones) • **Find 1,000 more or less than a given number** • **Order and compare over 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** • **Round any number to 10,100,1000**	• **Number line to 10,000** • **Estimate on a number line to 10,000** • **Compare numbers to 10,000** • **Order numbers to 10,000** • **Roman numerals** • **Round to the nearest 10** • **Round to the nearest 100** • **Round to the nearest 1,000** • **Round to the nearest 10,00,1000** •
Addition and Subtraction	• **Add and subtract numbers mentally, including:** • **• a 3-digit number and ones** • **• a 3-digit number and tens** • **• a 3-digit number and hundreds** • **Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction** • **Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction** • **Estimate the answer to a calculation and use inverse operations to check answers** • **YR 4** • **Add and subtract numbers with up to four digits using the formal written methods**	• **Apply number bonds within 10** • **Add and subtract 1s** • **Add and subtract 10s** • **Add and subtract 100s** • **Spot the pattern** • **Add 1s across a 10** • **Add 10s across a 100** • **Subtract 1s across a10** • **Subtract 10s across a 100** • **Make connections** • **Add two numbers (no exchange)** • **Subtract two numbers (no exchange)** • **Add two numbers (across a 10)** • **Add two numbers (across a 100)** • **Subtract two numbers (across a 10)** • **Subtract two numbers (across a 100)** • **Add 2-digit and 3-digit numbers** • **Subtract a 2-digit number from a 3-digit number** • **Complements to 100** • **Estimate answers** • **Inverse operations** • **Make decisions** • **Add and subtract 1s, 10s, 100s and 1,000s**

	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. • Estimate and use inverse operations to check answers to a calculation	• Add up to two 4-digit numbers: no exchange • Add two 4-digit numbers: one exchange • Add two 4-digit numbers: more than one exchange • Subtract two 4-digit numbers – no exchange • Subtract two 4-digit numbers: one exchange • Subtract two 4-digit numbers: more than one exchange • Efficient subtraction • Estimating answers • Checking strategies •
Measurement (YR 4 only)	• Find the area of rectilinear shapes by counting squares	• Understand 'What is Area' • Count squares • Make shapes • Compare areas
Multiplication and Division	• Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for 2-digit numbers times 1-digit numbers, using mental and progressing to formal written methods • Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	• Multiplication – equal groups • Use arrays • Multiples of 2 • Multiples of 5 and 10 • Sharing and grouping • Multiply by 3 • Divide by 3 • The 3 times-table • Multiply by 4 • Divide by 4 The 4 times-table • Multiply by 8 • Divide by 8 • The 8 times-table • The 2, 4 and 8 times-tables • Multiples of 3 • Multiply and divide by 6 • 6 times-table and division facts • Multiply and divide by 9 9 times-table and division facts • The 3, 6 and 9 times-tables • Multiply and divide by 7 • 7 times-table and division facts

- **11 times-table and division facts**
- **12 times-table and division facts**
- **Multiply by 1 and 0**
- **Divide a number by 1 and itself**
- **Multiply three numbers**

Spring	Knowledge	Skills
Multiplication and Division	• Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for 2-digit numbers times 1-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 • YR4 • Recognise and use factor pairs and commutativity in mental calculations • Recall multiplication and division facts for	• **Multiples of 10** • **Related calculations** • **Reasoning about multiplication** • **Multiply a 2-digit number by a 1-digit number – no exchange** • **Multiply a 2-digit number by a 1-digit number – with exchange** • **Link multiplication and division** • **Divide a 2-digit number by a 1-digit number – no exchange** • **Divide a 2-digit number by a 1-digit number – flexible partitioning** • **Divide a 2-digit number by a 1-digit number – with remainders** • **Scaling** • **How many ways?** • **Factor pairs** • **Use factor pairs** • **Multiply by 10** • **Multiply by 100** • **Divide by 10** • **Divide by 100** • **Related facts – multiplication and division** • **Informal written methods for multiplication**

	• **multiplication tables up to 12 × 12** • **Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout** • **Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers**	
Measurement- **Length** **Perimeter** **Mass** **Capacity**	• **Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)** • **Measure the perimeter of simple 2-D shapes** • **YR4** • **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.**	• **Measure in metres and centimetres** • **Measure in millimetres** • **Measure in centimetres and millimetres** • **Metres, centimetres and millimetres** • **Equivalent lengths (metres and centimetres)** • **Equivalent lengths (centimetres and millimetres)** • **Compare lengths** • **Add lengths** • **Subtract lengths** • **What is perimeter?** • **Use scales Measure mass in grams** • **Measure mass in kilograms and grams** • **Equivalent masses (kilograms and grams)** • **Compare mass** • **Add and subtract mass** • **Measure capacity and volume in millilitres** • **Measure capacity and volume in litres and millilitres** • **Equivalent capacities and volumes (litres and millilitres)** • **Compare capacity and volume** • **Add and subtract capacity and volume** • **Measure perimeter** • **Calculate perimeter** • **Measure in kilometres and metres** • **Equivalent lengths (kilometres and metres)** • **Perimeter on a grid** • **Perimeter of a rectangle**

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		• Perimeter of rectilinear shapes • Find missing lengths in rectilinear shapes
Fractions and Decimals	• Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators • Compare and order unit fractions, and fractions with the same denominators • Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) • Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators • Recognise and show, using diagrams, families of common equivalent fractions • Add and subtract fractions with the same denominator	• Understand the denominators of unit fractions • Compare and order unit fractions • Understand the numerators of non-unit fractions • Understand the whole • Compare and order non-unit fractions • Fractions and scales • Fractions on a number line • Count in fractions on a number line • Equivalent fractions on a number line • Equivalent fractions as bar models • Understand the whole • Equivalent fractions on a number line • Equivalent fraction families • Add two or more fractions • Add fractions and mixed numbers • Subtract two fractions • Subtract from whole amounts • Subtract from mixed numbers

Summer	Knowledge	Skills
Fractions and Decimals	• Add and subtract fractions with the same denominator within one whole • Recognise, find and write fractions of a discrete set of objects: unit fractions and non-	• Add fractions • Subtract fractions • Partition the whole • Unit fractions of a set of objects • Non-unit fractions of a set of objects • Reasoning with fractions of an amount

	• unit fractions with small denominators • **Recognise and write decimal equivalents of any number of tenths or hundredths** • **Solve simple measure and money problems involving fractions and decimals to 2 decimal places** • **Round decimals with 1 decimal place to the nearest whole number** • **Recognise and write decimal equivalents to 1/4, 1/2 and 3/4**	• **Make a whole with tenths** • **Make a whole with hundredths** • **Partition decimals** • **Flexibly partition decimals** • **Compare decimals** • **Order decimals** • **Round to the nearest whole number** • **Halves and quarters as decimals**
Measurement - Money	• **Add and subtract amounts of money to give change, using both £ and p in practical contexts** • **Estimate, compare and calculate different measures, including money in pounds and pence**	• **Know the difference between pounds and pence** • **Convert pounds and pence** • **Add money** • **Subtract money** • **Find change** • **Write money using decimals** • **Convert between pounds and pence** • **Compare amounts of money** • **Estimate with money** • **Calculate with money** • **Solve problems with money**
Measurement - 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** • **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, am/pm, morning, afternoon, noon and midnight**	• **Recognise Roman numerals to 12** • **Tell the time to 5 minutes** • **Tell the time to the minute** • **Read time on a digital clock** • **Use AM and PM** • **Explore Years, months and days** • **Explore Days and hours** • **Hours and minutes – use start and end times** • **Hours and minutes - use durations** • **Minutes and seconds** • **Units of time** • **Solve problems with time** • **Years, months, weeks and days** • **Hours, minutes and seconds** • **Convert between analogue and digital times** • **Convert to the 24-hour clock**

	• Know the number of seconds in a minute and the number of days in each month, year and leap year • Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks • Compare durations of events • Solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days • Read, write and convert time between analogue and digital 12- and 24-hour clocks	• Convert from the 24-hour clock
Geometry- Shape	• 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 • Measure the perimeter of simple 2-D shapes Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them • Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) • Identify horizontal and vertical lines and pairs of perpendicular and parallel lines •	• 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 • Measure the perimeter of simple 2-D shapes Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them • Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) • Identify horizontal and vertical lines and pairs of perpendicular and parallel lines

Key Stage 2 Upper Curriculum

Autumn 1	Knowledge	Skills
Place Value	**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** **Solve number problems and practical problems involving the above** **Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000** **YR 6**	**Roman numerals to 1,000** **Numbers to 10,000** **Numbers to 100,000** **Numbers to 1,000,000** **Read and write numbers to 1,000,000** **Powers of 10** **10/100/1,000/10,000/100,000 more or less** **Partition numbers to 1,000,000** **Number line to 1,000,000** **Compare and order numbers to 100,000** **Compare and order numbers to 1,000,000** **Round to the nearest 10, 100 or 1,000** **Round within 100,000** **Round within 1,000,000** **Numbers to 1,000,000**
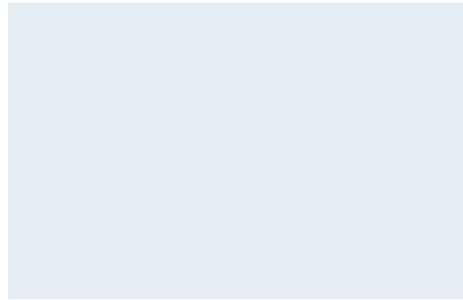
	• Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit • Solve number and practical problems that involve the above • Round any whole number to a required degree of accuracy	• Numbers to 10,000,000 • Read and write numbers to 10,000,000 • Powers of 10 • Number line to 10,000,000 • Compare and order any integers • Round any integer • Negative numbers
Addition and Subtraction Four Operations	• Add and subtract numbers mentally with increasingly large numbers. • Add and subtract whole numbers with more than four 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 • Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 • Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy • YR 6 • Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • Solve problems involving addition, subtraction,	• Mental strategies • Add whole numbers with more than four digits • Subtract whole numbers with more than four digits • Round to check answers • Inverse operations (addition and subtraction) • Multi-step addition and subtraction problems • Compare calculations • Find missing numbers • Add and subtract integers • Solve multi-step problems • Mental calculations and estimation

	• Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy	
Multiplication and Division Four Operations	• Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers • Solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes • 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 • 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 • Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000 • YR6 • Multiply and divide numbers mentally, drawing upon known facts	• Multiples • Common multiples • Factors • Common factors • Prime numbers • Square numbers • Cube numbers • Multiply by 10, 100 and 1, • Divide by 10, 100 and 1,000 • Multiples of 10, 100 and 1,000 • Common factors • Common multiples • Rules of divisibility • Primes to 100 • Square and cube numbers • Multiply up to a 4-digit number by a 2-digit number • Solve problems with multiplication • Short division • Division using factors • Introduction to long division • Long division with remainders • Solve problems with division • Order of operations • Mental calculations and estimation • Reason from known fact •

	• Solve problems involving multiplication and division • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy • Identify common factors, common multiples and prime numbers • Multiply multi-digit numbers up to four digits by a 2-digit whole number using the formal written method of long multiplication • Perform mental calculations, including with mixed operations and large numbers • Divide numbers up to four digits by a 2-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context •	
Fractions	• 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 fractions equivalent to a unit fraction • Find fractions equivalent to a non-unit fraction • Recognise equivalent fractions • Convert improper fractions to mixed numbers • Convert mixed numbers to improper fractions • Compare fractions less than 1 Step 7Order fractions less than 1 • Compare and order fractions greater than • Add and subtract fractions with the same denominator • Add fractions within 1 • Add fractions with total greater than 1 • Add to a mixed number

- Compare and order fractions whose denominators are all multiples of the same number
- 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
- Identify common factors, common multiples and prime numbers
- Use common factors to simplify fractions; use common multiples to express fractions in the same denomination
- Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
- 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
-

- Add two mixed numbers
- Subtract fractions
- Subtract from a mixed number
- Subtract from a mixed number – breaking the whole
- Subtract two mixed numbers
- Equivalent fractions and simplifying
- Equivalent fractions on a number line
- Compare and order (denominator)
- Compare and order (numerator)
- Add and subtract simple fractions
- Add and subtract any two fractions Add mixed numbers
- Subtract mixed numbers
- Multiply fractions by integers
- Step 2Multiply fractions by fractions
- Divide a fraction by an integer
- Divide any fraction by an integer
- Mixed questions with fractions
- Fraction of an amount
- Fraction of an amount – find the whole

Spring	Knowledge	Skills
Measurement – Converting Units (YR 6)	• **Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 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 3 decimal places**	• **Metric measures** • **Convert metric measures** • **Calculate with metric measures** • **Miles and kilometres** • **Imperial measures**
Multiplication and Division	• **Multiply numbers up to four digits by a 1- or 2-digit number using a formal written method, including long multiplication for 2-digit numbers** • **Divide up to four digits by a 1-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** • **YR6**	• **Multiply up to a 4-digit number by a 1-digit number** • **Multiply a 2-digit number by a 2-digit number (area model)** • **Multiply a 2-digit number by a 2-digit number** • **Multiply a 3-digit number by a 2-digit number** • **Multiply a 4-digit number by a 2-digit number** • **Solve problems with multiplication** • **Short division** • **Divide a 4-digit number by a 1-digit** • **Divide with remainders** • **Efficient division** • **Solve problems with multiplication and division** • **Add or multiply?** • **Use ratio language** • **Introduction to the ratio symbol** • **Ratio and fractions** • **Scale drawing** • **Use scale factors** • **Similar shapes**

	• 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 unequal sharing and grouping using knowledge of fractions and multiples • Solve problems involving similar shapes where the scale factor is known or can be found	• Ratio problems • Proportion problems • Recipes •
Ratio and Algebra (YR 6)	• Use simple formulae • Generate and describe linear number sequences • Find pairs of numbers that satisfy an equation with two unknowns • Enumerate possibilities of combinations of two variables • Express missing number problems algebraically	• 1-step function machines • 2-step function machines • Form expressions • Substitution • Formulae • Form equations • Solve 1-step equations • Solve 2-step equations • Find pairs of values • Solve problems with two unknowns
Decimals and Percentages	• Read, write, order and compare numbers with up to 3 decimal places • Read and write decimal numbers as fractions • Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • Solve problems which require knowing percentage and decimal equivalents of ½, ¼.	• Decimals up to 2 decimal places • Equivalent fractions and decimals (tenths) • Equivalent fractions and decimals (hundredths) • Equivalent fractions and decimals • Thousandths as fractions • Thousandths as decimals • Thousandths on a place value chart • Order and compare decimals (same number of decimal places) • Order and compare any decimals with up to 3 decimal places • Round to the nearest whole number • Round to 1 decimal place • Understand percentages • Percentages as fractions

- 1/5, 2/5,4/5 and those fractions with a denominator of a multiple of 10 or 25
- Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
- Round decimals with 2 decimal places to the nearest whole number and to 1 decimal place
- Recognise the per cent symbol (%) and understand that per cent relates to "number of parts per 100", and write percentages as a fraction with denominator 100, and as a decimal fraction
- Yr 6
- Identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places
- Solve problems which require answers to be rounded to specified degrees of accuracy
- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
- Use written division methods in cases where the answer has up to 2 decimal places
- Use common factors to simplify fractions; use common

- Percentages as decimals
- Equivalent fractions, decimals and percentages
- Place value within 1
- Place value – integers and decimals
- Round decimals
- Add and subtract decimals
- Multiply by 10, 100 and 1,000
- Divide by 10, 100 and 1,000
- Multiply decimals by integers
- Divide decimals by integers
- Multiply and divide decimals in context
- Decimal and fraction equivalents
- 2 Fractions as division
- Understand percentages
- Fractions to percentages
- Equivalent fractions, decimals and percentages
- Order fractions, decimals and percentages
- Percentage of an amount – one step
- Percentage of an amount – multi-step
- Percentages – missing values

	multiples to express fractions in the same denomination • **Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts** • **Solve problems involving the calculation of percentages and the use of percentages for comparison**	
Measurement- **Perimeter and Area**	• **Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres** • **Calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm2) and square metres (m2), and estimate the area of irregular shapes** • **YR6** • **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** •	• **Perimeter of rectangles** • **Perimeter of rectilinear shapes** • **Perimeter of polygons** • **Area of rectangles** • **Area of compound shapes Estimate area** • **Shapes – same area** • **Area and perimeter** • **Area of a triangle – counting squares** • **Area of a right-angled triangle** • **Area of any triangle** • **Area of a parallelogram** • **Volume – counting cubes** • **Volume of a cuboid**

Summer	Knowledge	Skills
Statistics	• Solve comparison, sum and difference problems using information presented in a line graph • Complete, read and interpret information in tables, including timetables • YR 6 • Interpret and construct pie charts and line graphs and use these to solve problems • Calculate and interpret the mean as an average	• Draw line graphs • Read and interpret line graphs • Read and interpret tables • Two-way tables • Read and interpret timetables • Line graphs • Dual bar charts • Read and interpret pie charts • Pie charts with percentages • Draw pie charts • The mean
Geometry – Angles and Shape	• 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 1 whole turn (total 360°) • Identify: angles at a point and 1 whole turn (total 360°); angles at a point on a straight line and half a turn (total 180°) • Use the properties of rectangles to deduce related facts and find missing lengths and angles	• Understand and use degrees • Classify angles • Estimate angles • Measure angles up to 180° • Draw lines and angles accurately • Calculate angles around a point • Calculate angles on a straight line • Lengths and angles in shapes • Regular and irregular polygons • 3-D shapes • Measure and classify angles • Calculate angles • Vertically opposite angles • Angles in a triangle • Angles in a triangle – special cases

	• Distinguish between regular and irregular polygons based on reasoning about equal sides and angles • Identify 3-D shapes, including cubes and other cuboids, from 2-D representations • Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles •	• Angles in a triangle – missing angles • Angles in a quadrilateral • Angles in polygons • Circles • Draw shapes accurately • Nets of 3D shapes
Geometry (YR5) – 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	• Read and plot coordinates • Problem solving with coordinates • Translation • Translation with coordinates • Lines of symmetry • Reflection in horizontal and vertical lines
Decimals (YR 5)	• Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • Solve problems involving number up to 3 decimal places • Read, write, order and compare numbers with up to 3 decimal places • Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000	• Use known facts to add and subtract decimals within 1 • Complements to 1 • Add and subtract decimals across 1 • Add decimals with the same number of decimal places • Subtract decimals with the same number of decimal places • Add decimals with different numbers of decimal places • Subtract decimals with different numbers of decimal places • Efficient strategies for adding and subtracting decimals • Decimal sequences • Multiply by 10, 100 and 1,000 • Divide by 10, 100 and 1,000 • Multiply and divide decimals – missing values
Negative Numbers	• Interpret negative numbers in context, count forwards and backwards with positive and	• Understand negative numbers • Count through zero in 1s • Count through zero in multiples • Compare and order negative numbers

	negative whole numbers, including through zero	• Find the difference

KS3 Curriculum

Autumn	Knowledge	Skills
Number Basics	- Read, write, order and compare large numbers (up to one million) - Recognise and use positive and negative numbers - Recognise and continue linear sequences of numbers up to 100	- recognise the numerals 0–20 - read numbers up to 20, including zero - understand numbers can be represented in different ways, e.g. Roman numerals - write numbers up to 20, including zero - recognise numbers written in different fonts and styles - order and compare numbers up to 20 including zero - understand the relative position in a sequence of numbers, e.g. first, second, third - count reliably up to 20 items - understand that if items are rearranged the number stays the same - know how to count on and back from any number below 20. count reliably up to 100 items - understand that if items are rearranged the number stays the same - know how to count on and back from any number below 100 - count in twos and tens up to 100 - count on in tens up to 100, starting from any two-digit number - recognise the numerals 0–200 - read numbers up to 200, including zero - write numbers up to 200, including zero - recognise numbers written in different fonts and styles - order and compare numbers up to 200, including zero - understand that the position of a digit signifies its value - know what each digit in a two-digit number represents, including the use of a zero as a placeholder - know what each digit in a three-digit number represents, including the use of a zero as a placeholder

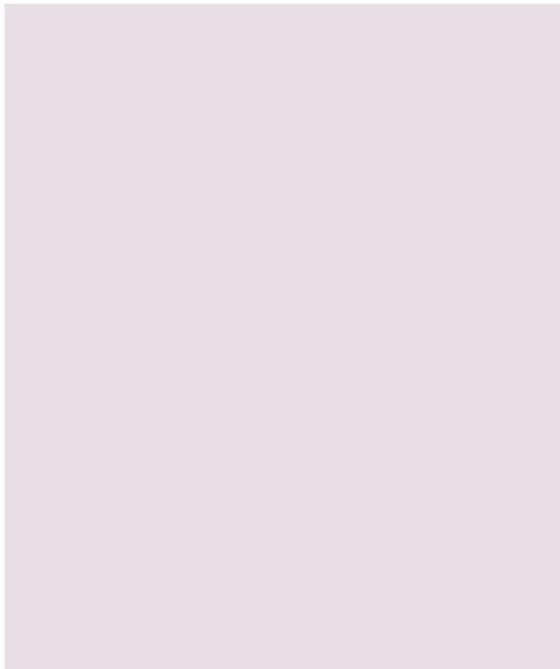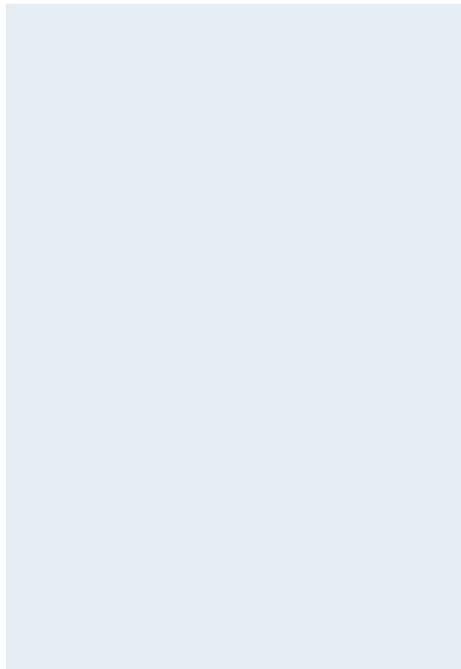|		
		• recognise odd and even numbers up to 100 • understand the relative position in a sequence of numbers, e.g. first, second, third count reliably up to 1000 items • understand that the position of a digit signifies its value • know what each digit in a three-digit number represents, including the use of a zero as a placeholder • know how to count on and back starting from any two-digit or three-digit number up to 1000 • recognise the numerals 0–1000 • recognise odd and even numbers • read numbers up to 1000, including zero • write numbers up to 1000, including zero • order and compare numbers up to 1000, including zero • recognise numbers written in different fonts and styles • read and write numbers up to one million (both written in words and using digits) • explain the value represented by a specific digit in a given number (up to one million) • place numbers up to one million in ascending and/or descending order • compare numbers up to one million using 'greater than' and 'less than' symbols • recognise and use positive and negative numbers in practical contexts (e.g. temperature, profit/loss) • count in steps of various sizes, including negative numbers • calculate with positive and negative numbers.
Addition and Subtraction	• **Add and subtract using three-digit whole numbers** • **Approximate by rounding numbers less than 1000 to the nearest 10 or 100 and use this rounded answer to check results**	• recognise the numerals 0–20 • add single and two-digit whole numbers with totals to 20 • understand the operation of addition and related vocabulary • understand addition gives the same result irrespective of the order in which two or more numbers are placed • know the symbols + and = • understand + represents the operation of addition • understand = represents equality and related vocabulary • understand how to check calculation using whole numbers 0–20 • recognise the numerals 0–20 • subtract single and two-digit numbers from numbers up to 20

- understand the operation of subtraction and relevant vocabulary
- understand that a whole number can only be subtracted from itself or from a larger number
- understand that subtracting zero leaves a number unchanged
- know the symbols − and =
- understand − represents the operation of subtraction
- recognise the numerals 0–99
- add and subtract single and two-digit whole numbers
- understand that there are different strategies to help with mental addition and subtraction
- understand that subtraction is the inverse of addition
- know how to align numbers for column addition and subtraction
- understand the operations of addition and subtraction and related vocabulary
- understand a whole number can only be subtracted from itself or from a larger one
- understand that subtracting zero leaves a number unchanged
- knows the symbols +, − and =
- understand that + represents the operation of addition
- understand that − represents the operation of subtraction
- understand that = represents equality and related vocabulary
- understand that numbers can be rounded to different degrees of accuracy, e.g. nearest 10
- understand place value for units and tens   understand that there are different strategies for adding and subtracting
- add and subtract three-digit whole numbers
- know how to align numbers in column addition and subtraction
- understand place value for units, tens, hundreds and thousands
- understand that subtraction is the inverse of addition
- understand that numbers can be rounded to different degrees of accuracy, e.g. nearest 10, nearest 100
- understand that there are different methods of checking results, e.g. using inverse, using a calculator, approximation by rounding, adding in a different order

| Division and Multiplication | **Multiply and divide whole numbers and decimals by 10, 100, 1000** **Use multiplication facts and make connections with division facts** **Calculate the squares of one-digit and two-digit numbers** **Follow the order of precedence of operators** | **multiply using single and two-digit whole numbers** **understand and use the vocabulary of multiplication** **understand the operation of multiplication as repeated addition, e.g. 4 × 7 = 7 + 7 + 7 + 7** **understand there are different strategies for multiplying** **know times tables in the range 0 × 0 to 12 × 12** **understand multiplication is commutative (e.g. 2 × 3 = 3 × 2) although the functional meaning is different (e.g. taking 2 tablets three times a day is different to taking 3 tablets twice a day)** **understand the relationship between halving and doubling** **know doubles of numbers** **understand × represents the operation of multiplication** **understand = represents equality and related vocabulary** **understand numbers can be rounded to different degrees of accuracy, e.g. nearest 10** **understand place value for units and tens.** **understand division is repeated subtraction** **understand and use the vocabulary of division** **understand there are different strategies for division** **understand division is the inverse of multiplication** **understand that division is not commutative, e.g. 6 ÷ 3 is not the same as 3 ÷ 6** **know and use halving as the inverse of doubling** **understand the concept of a remainder, and understand that remainders need to be interpreted in a functional context** **understand ÷ represents the operation of division** **multiply two-digit whole numbers by single-digit whole numbers** **multiply two-digit whole numbers by double-digit whole numbers** **understand place value for units, tens and hundreds** **understand that there are different strategies for multiplying** **understand and use the vocabulary of multiplication** **understand that multiplication is repeated addition** **understand that multiplication is commutative, e.g. 12 × 6 = 6 × 12** **understand that numbers less than 1000 can be rounded to different degrees of accuracy, e.g. nearest 10 or nearest 100.** |

| | | • **divide three-digit whole number by single-digit numbers and express remainders**
• **divide three-digit whole numbers by double-digit whole numbers and express remainders**
• **understand and use the vocabulary of division**
• **understand that there are different strategies for division**
• **understand that division is repeated subtraction**
• **understand that division is the inverse of multiplication**
• **understand that division is not commutative, e.g. 6 ÷ 3 is not the same as 3 ÷ 6**
• **recognise multiples of 10, 100, 1000**
• **recognise multiples of 2 to 9 up to 100**
• **break down numbers into prime factors**
• **work out multiplication and division problems using mental and written methods.**
• **understand that squaring a number means multiplying the number by itself**
• **recall times tables to work out the squares of up to two-digit numbers**
• **follow the order of operations to solve calculations** |
| **Fractions and Decimals** | • **Estimate answers to calculations using fractions and decimals**
• **Recognise and calculate equivalences between common fractions, percentages and decimals**
• **Read, write, order and compare common fractions and mixed numbers**
• **Find fractions of whole number quantities or measurements.**
• **Read, write, order and compare decimals up to three decimal places** | • **know the words half, quarter, tenth and the symbols ½, ¼, 1/10**
• **understand two halves make one whole**
• **understand four quarters make one whole**
• **understand that the bottom number (denominator) indicates the number of equal parts in the whole**
• **understand that a unit fraction is one part of a whole divided into equal parts**
• **understand that a non-unit fraction is several equal parts of a whole, indicated by the top number (numerator)**
• **understand the connection between half of and share (or divide) into two equal parts**
• **understand the connection between quarter of and share (or divide) into four equal parts**
• **understand the connection between tenth of and share (or divide) into ten equal parts.**
• **understand that the decimal point separates the whole and parts of a number** |

- Add, subtract, multiply and divide decimals up to two decimal places
- Approximate by rounding to a whole number or to one or two decimal places
-

- understand the use of zero as a placeholder
- understand the use of a leading zero, e.g. 0.5 m = 50 cm
- use a calculator to solve problems in context and check calculations using whole numbers and decimals to 1dp.
- know the words thirds, quarters, fifths and tenths and the symbols 1/3, 1/4, 1/5, 1/10
- understand that the bottom number (denominator) indicates the number of equal parts in the whole
- understand that a unit fraction is one part of a whole divided into equal parts
- understand that a non-unit fraction is several equal parts of a whole, indicated by the top number (numerator)
- understand that in unit fractions, the larger the denominator the smaller the fraction; understand that this is not true with non-unit fractions
- understand the connection between third of and share (or divide) into three equal parts
- understand the connection between quarter of and share (or divide) into four equal parts
- understand the connection between fifth of and share (or divide) into five equal parts
- understand the connection between tenth of and share (or divide) into ten equal parts
- know common equivalent fractions, e.g. equivalent to quarters, thirds, fifths, tenths
- understand that equivalent fractions look different but have the same value
- understand that when the top and bottom number of a fraction are the same, this is equivalent to 1
- understand that the decimal point separates the pounds and pence, or m and cm
- understand the use of a zero as a placeholder, e.g. £1.05 is £1 and 5p
- understand the use of a leading zero, e.g. 0.5 m = 50 cm
- recognise .5 as a half, e.g. 2.5 m = 2½ m
- use a calculator to calculate using whole numbers and decimals to 1dp, to solve problems in context, and to check calculations
  - read and write common fractions and mixed numbers

		- find equivalent fractions (simplify fractions) - order fractions in ascending or descending order and compare them - work out the value of a fraction of a whole number, some using various units (£, kg, m, etc.). - read and write decimals up to three decimal places (both written in words and using digits) - explain the value represented by a specific digit in a given decimal (up to three decimal places) - place decimals in ascending and/or descending order - compare decimals up to three decimal places using 'greater than' and 'less than' symbols - add, subtract, multiply and divide decimals up to two decimal places - approximate by rounding to a whole number or to one or two decimal places. - estimate answers to calculations using fractions and decimals - recognise and calculate equivalences between common fractions, percentages and decimals. - read and write decimals up to three decimal places (both written in words and using digits) - explain the value represented by a specific digit in a given decimal (up to three decimal places) - place decimals in ascending and/or descending order - compare decimals up to three decimal places using 'greater than' and 'less than' symbols - add, subtract, multiply and divide decimals up to two decimal places - approximate by rounding to a whole number or to one or two decimal places
Number Patterns and Algebra	**Use simple formulae expressed in words for one or two-step operations**	- substitute a variable in a formula with a correct value - evaluate expressions in a given formula - follow the correct order of operations to evaluate a formula
Ratio, Proportion and Percentages	**Work with simple ratio and direct proportions.** **Read, write, order and compare percentages in whole numbers**	- work with direct proportion. - read and write percentages in whole numbers - order and compare percentages using 'greater than' and 'less than' symbols

	• Calculate percentages of quantities, including simple percentage increases and decreases by 5% and multiples thereof	• work out percentages of quantities, including increases and decreases by 5% and multiples thereof.

Spring	Knowledge	Skills
Money	• Calculate with money using decimal notation and express money correctly in writing in pounds and pence. • Round amounts of money to the nearest £1 or 10p • Calculate simple interest in multiples of 5% on amounts of money • Calculate discounts in multiples of 5% on amounts of money	• recognise and select coins and notes • write money amounts up to 20, using the correct symbols • know the names and value of coins and notes involving numbers up to 20 • make amounts of money up to £1 in different ways using 1p, 2p, 5p, 10p, 20p, and 50p • calculate the cost of more than one item and the change from a transaction, in pence or in whole pounds • understand the same strategies used with numbers can be applied in practical situations using money • know and use appropriately the symbols for money notation £ and p. • add and subtract sums of money using decimal notation • understand that the same strategies used with numbers can be applied in practical situations using money, e.g. shopping, household bills, orders, pay slips, cost of a small job or work, weekly budget • make approximate calculations by rounding sums of money to the nearest £ or 10p. work out simple interest on amounts of money • work out discount on amounts of money. •
2D and 3D shapes Symmetry	• Sort 2-D and 3-D shapes using properties including lines of symmetry, length, right angles, angles including in rectangles and triangles • Draw 2-D shapes and demonstrate an understanding of line symmetry	• recognise common 2-D shapes • know the names of common 2-D shapes • recognise common 3-D shapes • know the names of common 3-D shapes • understand the difference between 2-D and 3-D shapes. • understand the use of vocabulary related to shape, e.g. side length, angle

	and knowledge of the relative size of angles Interpret plans, elevations and nets of simple 3-D shapes	• recognise common 2-D shapes, e.g. pentagons, hexagons, cylinders, cuboids, pyramids and spheres • know the names of common 2-D shapes, e.g. pentagons, hexagons • know the names of common 3-D shapes, e.g. cylinders, cuboids, pyramids, spheres • understand that shape is independent of size and orientation • know the properties of common 2-D shapes, such as number of sides and corners • know the properties of common 3-D shapes, such as shape of faces, number of faces, edges and corners • identify angles in 2-D shapes, e.g. how many angles, which shape has the greatest number of angles • know angles are measured in degrees identify regular 2-D and 3-D shapes • know the properties of regular 2-D shapes • know the properties of regular 3-D shapes • know that angles are measured in degrees • know that a right angle is 90° or a quarter turn • understand the meaning of parallel and recognise parallel lines • identify which regular shapes tessellate, i.e. fit together without a gap • identify the lines of symmetry in shapes and images. draw common 2-D shapes and identify lines of symmetry • place squares of different shading into a symmetrical pattern on a grid • draw lines of symmetry on a given shape • name common angles and their size (e.g. right angle = 90°, ¾ sector in a pie chart has 270° angle) • interpret the front elevation and plan of simple 3-D shapes • interpret a working net of a cube, cuboid, cylinder, pyramid and prism • draw nets of simple 3-D shapes
Angles	• Movement and direction • right angles, angles including in rectangles and triangles in the environment. • Use appropriate positional vocabulary to describe position and direction including eight compass points and including full/half/quarter turns. • Use angles when describing position and direction, and measure angles in degrees	• understand everyday positional vocabulary. • Describe position using positional vocabulary. • Provide directions using positional vocabulary. • Follow spoken instructions or directions using positional vocabulary. • Follow written instructions or directions using positional vocabulary. • Describe position using positional vocabulary, e.g. full/half/quarter turns. • Provide directions using positional vocabulary, e.g. eight compass points. • Follow spoken instructions or directions using positional vocabulary. • Follow written instructions or directions using positional vocabulary. • describe position or direction using angles, including bearings • measure angles in degrees.

| Measurement | • Convert between units of length, weight, capacity, money and time, in the same system
• Recognise and make use of simple scales on maps and drawings
• Calculate the area and perimeter of simple shapes including those that are made up of a combination of rectangles
• Calculate the volumes of cubes and cuboids | • describe size
• use direct comparisons for the size of at least two items
• understand and use vocabulary related to size
• describe length, width and height
• use direct comparisons for length, width and height
• understand vocabulary related to length, width and height.
• describe weight
• use direct comparisons for weight
• understand and use vocabulary related to weight
• understand that weight is not related to size
• describe capacity
• use direct comparisons for capacity
• understand and use vocabulary related to capacity
• understand that capacity is a measure of volume
• understand that shapes of containers can be deceptive.　　understand and use vocabulary related to measures of length, width and height
• know millimetres, centimetres, metres and kilometres are metric units of length and be able to relate the measurements to familiar things
• recognise and write millimetres, centimetres, metres and kilometres in full and abbreviated, e.g. mm, cm, m, km
• understand mm, cm, m and km divisions on simple scales
• understand labelled divisions on different scales
• read scales to the nearest labelled division
• know how to use a ruler to draw and measure lines to the nearest cm.
• understand and use vocabulary related to weight
• know that a kilogram is a metric unit of weight and relate the measurement to familiar quantities
• recognise and write grams and kilograms in full and abbreviated to g, kilo and kg
• understand g and kg divisions on a simple scale
• understand labelled divisions on different scales
• read scales to the nearest labelled division
• know how to use scales and measure grams and kilograms
• understand and use vocabulary related to capacity
• understand ml and l divisions on a simple scale
• understand labelled divisions on different scales
• read scales to the nearest labelled division
• know how to use a measuring jug and measure millilitres and litres.
• understand and use vocabulary related to temperature in degrees Celsius
• know units of temperature
• recognise and write degrees Celsius and the abbreviation °C |

- compare positive temperatures in different contexts
- understand labelled divisions on different scales
- read scales to the nearest labelled division
- know how to use a thermometer to measure to the nearest °C.

- understand and use vocabulary related to measures of length, width and height
- know the standard metric units of length, including abbreviations (km, m, cm, mm) and be able to relate the measurements to familiar things
- know the standard imperial units of length, including abbreviations (ins, ft, yards, miles) and be able to relate the measurements to familiar things
- understand scales of length to the nearest labelled or unlabelled division
- understand mm, cm, m and km divisions on simple scales
- obtain measurements of different items using a suitable measuring instrument
- compare measurements of length in one metric measurement to another, e.g. mm and cm, cm and m
- know how to use a ruler to draw and measure lines.
- understand and use vocabulary related to weight
- know the standard metric units of weight, including abbreviations (kg, g) and be able to relate the measurements to familiar things
- know the standard imperial units of length, including abbreviations (lbs, oz) and be able to relate the measurements to familiar things
- understand scales of weight to the nearest labelled or unlabelled division
- understand g and kg divisions on simple scales
- obtain weights of different items using a suitable measuring instrument
- compare weights in one metric measurement to another, e.g. g, kg
- understand and use vocabulary related to capacity
- know the standard metric units of capacity, including abbreviations (ml, cl, l) and be able to relate the measurements to familiar things
- know the standard imperial units of capacity, including abbreviations (fl oz, pt, gal) and be able to relate the measurements to familiar things
- understand scales of capacity to the nearest labelled or unlabelled division
- obtain capacity of different items using a suitable measuring instrument
- Work out the total weight of a parcel in kg.
- Work out the total distance in km.
- Complete an order form.
- Create a time plan for an event.
- Work out a distance from a map or a real-life dimension from a scale drawing.

		• work out the perimeter of simple shapes including those that are made up of a combination of rectangles • work out the area of simple shapes including those that are made up of a combination of rectangles • calculate the volumes of cubes and cuboids • calculate accurately to two decimal places, using the correct units.
Time	•	• understand and use vocabulary related to the time of day • understand the times are repeated in the 12-hour clock • understand and use a.m. and p.m. • understand that analogue clock faces can be marked in different ways • read the position of the hands on a clock face • understand that a digital clock shows hours (and minutes). • know the days of the week and their order • know the months of the year and their order • know the seasons of the year and their order. know the relationship between units of time, e.g., 24 hours = 1 day, 7 days = 1 week, 52 weeks = 1 year • know the days of the week and their order • know the months of the year and their order • understand and use common date formats • understand time in the 12-hour and 24-hour clock • know that midnight is 00.00 or 0000 and 12.00 or 1200 is midday • understand and use timetables read time in the 12-hour and 24-hour clock • measure time in the 12-hour and 24-hour clock • know the relationship between units of time, e.g. 1 hour = 60 minutes • add and subtract time in hours and minutes • convert units of time, e.g. 70 minutes = 1 hour 10 minutes • record time in the 12-hour and 24-hour clock • understand and use am and pm • know that midnight is 00.00 or 0000 and 12.00 or 1200 is midday • know the units of time, i.e. year, month, week, day, hour, minute. • •

Summer	Knowledge	Skills
Graphs and Tables	• Represent discrete data in tables, diagrams and charts including pie charts, bar charts and line graphs • Group discrete data and represent grouped data graphically.	• obtain simple information from lists • understand that lists can be ordered in different ways, e.g. numerically, alphabetically • understand that not all lists are ordered logically • understand that a list can contain words, numbers or both • understand the concept of a criterion, e.g. a single feature such as colour, shape, gender, height. • understand that the purpose of charts and diagrams is to communicate information • understand that information can be represented in different ways • understand that a title, label and key provide information • know what is meant by a tally • make observations and record numerical information using a tally • know that tally marks have to be counted • understand that the height of the bar indicates the numerical value in that category • understand that values are compared through the height of the bars • use a scale to extract and represent information. obtain information from lists

- understand that lists can be ordered in different ways (e.g. alphabetically, numerically) and not all lists are ordered in a logical way
- understand a list can contain words, numbers or both
- understand that tables are arranged in rows and columns
- understand that a title, label and key provide information
- use a scale to extract numerical values
- understand that the height of a bar in a bar chart indicates the numerical value in that category and therefore values are compared based on the height of the bars.
- understand the concept of a criterion, e.g. a feature such as colour, shape, gender, height
- know how to present data in tables, charts and diagrams
- know how to use a simple scale to represent data, e.g. 1 cm = 1 m
- understand the different elements in tables, charts and diagrams, e.g. title, axis, scale, key
- label tables, charts and diagrams
- understand that a title, label and key provide information
- know how to read the scale on an axis
- know how to use a simple scale such as 1 cm to 1 m
- know how to obtain information from a pictogram, pie chart, bar chart or single line graph
- understand that comparisons can be made based on the height or length of the bars, or the number of pictures.
- sort, classify and record collected data
- know how to present data in tables, diagrams, simple line graphs and bar charts
- understand the different elements in tables, charts and diagrams, e.g. title, axis, scale, key
- know how to use a simple scale to represent data, e.g. 1 cm = 1 m
- label tables, charts, graphs and diagrams.
- extract and interpret information from tables, diagrams, charts and graphs
- recognise features of charts to summarise and compare sets of data
- represent discrete data in tables, diagrams and charts including pie charts, bar charts and line graphs

		• group discrete data and represent grouped data graphically.
Averages and Probability	• Find the mean and range of a set of quantities. • Understand probability on a scale from 0 (impossible) to 1 (certain) and use probabilities to compare the likelihood of events • Use equally likely outcomes to find the probabilities of simple events and express them as fractions	• analyse information presented in different ways and apply simple statistics to interpret it • work out the mean of a set of quantities • work out the range of a set of quantities • understand probability on a scale from 0 (impossible) to 1 (certain) • show probability as a fraction • use equally likely outcomes to find the probabilities of simple events