



Mathematics Planning
National Curriculum
2022

Year 1

Key Principles:

The curriculum builds on prior learning with progression throughout the school. Consideration is given to the order in which knowledge is taught so that children can relate their learning to previous learning. There are key concepts that children must know by the end of year 6 – these are the ‘nuggets’ of learning in this subject (sticky knowledge, components). Recall opportunities relating to the key concepts are built into the planning regularly so that children retain these ‘nuggets’ so that they ‘know more, remember more and can do more’.

How to Use the Medium Term Planning

This planning document is intended to provide planning support to meet all statutory requirements of the National Curriculum and to aid teachers in planning a progressive learning journey for children within Year 1.

Overview Documents

This document starts with the mathematics skills and the coverage of each strand across the entire year of planning. Teachers and TAs can use this to plan mixed starters in order to pre-teach, consolidate learning or as revision, as well as guidance for day-to-day planning, assessment (linked to ScholarPack) and establishing how long until a topic will next be revisited or if additional lessons to achieve the skill are necessary.

Number – number and place value	Coverage					
	Aut1	Aut2	Sp1	Sp2	Sum1	Sum2
[1N1a] Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number	W2	W1	W4	W2	W1	W5
[1N1b] Count in multiples of twos, fives and tens	W2	W1	W4	W2	W1	W5
[1N2a] Count, read and write numbers to 100 in numerals	W2	W1	W4	W2	W1	W5
[1N2b] Given a number, identify one more and one less	W2	W1	W4	W2	W1	W5
[1N2c] Read and write numbers from 1 to 20 in numerals and words	W1	W5	W1	W1	W1	W1
[1N4] 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	W1	W2	W1	W1	W1	W5
[1C1] Represent and use number bonds and related subtraction facts within 20	W1	W5	W1	W2	W1	W5
[1C2a] Add and subtract one-digit and two-digit numbers to 20, including zero	W1	W5	W6	W2	W2	W3
[1C2b] Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs	W4	W5	W1	W2	W2	W2
[1C4] Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 + _____ = 9	W1	W4	W2	W1	W2	W3

Year 1 Mathematics Yearly Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Week 1	Number and Place value	Sequencing and Sorting	Number and Place value	Length and Mass/weight	Number and Place value	Time
Week 2	Number and Place value	Fractions	Mass/weight	Addition and Subtraction	Addition and Subtraction	Multiplication and Division
Week 3	Length and Mass/weight	Fractions Capacity and Volume	2-D and 3-D Shape	Fractions	Capacity and Volume	Subtraction - difference
Week 4	Addition and Subtraction	Money	Counting and Money	Position and Direction	Fractions	Measurement
Week 5	Addition and Subtraction	Time	Multiplication	Time	Position and Direction Time	Sorting
Week 6	2-D and 3-D shape	Assess and review week	Division	Assess and review week	2-D and 3-D shape	Assess and review week

'Ctrl' and clicking on each week will take you to the associated Half Termly Planning, outlining the focus area for each week in more detail.

This is followed by an overview document. This identifies six half termly blocks of six weeks with focus areas of mathematics for each week. The units are designed to be cohesive and allow for application of learning and skills across the mathematics curriculum. The ‘assess and review’ weeks can be used to gain information for teacher assessments or can be used to pick up elements that need further support. It is not designed to be used as an entire week of testing with no teaching. This is a suggested layout and teachers should adapt to meet the needs of their class as required.

Half Termly Planning Documents

The half termly planning documents have been compiled to the following principles:

- Each half term is predominantly learning about number.
- Almost all weeks are focused on one area of mathematics, giving children time to focus on a single area for a longer amount of time.
- The 'knowledge' explains the understanding the child will need to achieve the skills. This also explains why specific skills have been put together and how to enhance the teaching and learning during that week, e.g. number work is often given a context of data, measures, money or problem solving.
- The skills are the end of year expectations and it is the decision of teachers whether to visit the whole objective more than once throughout the year or to organise progression within each objective.
- Every skill is covered at least twice within the year.

Adaptive teaching

At Brettenham, we help children develop their conceptual understanding of mathematics by using concrete objects, pictorial representations and abstract thinking, therefore if a child is struggling with a particular abstract concept, we adapt and take a step back to concrete or pictorial, providing them with resources to enable them to understand. As the objectives in the yearly plans are based on age related expectations, children who may struggle to reach the objectives independently will be provided with scaffolds to provide extra support. Scaffolding supports mathematical understanding by providing the necessary support in applying new information. These approaches help children achieve in lessons which they would not be able to on their own.

Progression

The planning documents are followed by a table showing skill progression from Early Years to Year 6. This can be used to establish and build upon previous knowledge, see where children’s learning is heading and to also easily identify and fill any gaps in their knowledge.

Addition, subtraction, multiplication and division (calculations)						
Strand	Early Years outcomes	National Curriculum reference Year 1	National Curriculum reference Year 2	National Curriculum reference Year 3	National Curriculum reference Year 4	National Curriculum reference Year 5
C1 Add / subtract mentally		1C1 Represent and use number bonds and related subtraction facts within 20	2C1a Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100	3C1 Add and subtract numbers mentally, including: - a three-digit number and ones - a three-digit number and tens - a three-digit number and hundreds		5C1 Add and subtract numbers mentally with increasingly large numbers
			2C1b Add and subtract numbers mentally, including: - a two-digit number and ones - a two-digit number and tens - two two-digit numbers - adding three one-digit numbers			
	40 – 60 months To find the total of items in	1C2a Add and subtract one-digit	2C2 Add and subtract numbers	3C2 Add and subtract numbers	4C2 Add and subtract numbers	5C2 Add and subtract whole

National Curriculum Documentation

At the end of this document is the National Curriculum programme of study for Year 1. This contains the skills for Year 1 along with the non-statutory guidance to help with interpretation.

Yearly skills and coverage for Year 1 Mathematics

With links to the Content Domain

<u>Number - number and place value</u>	Coverage					
	Aut1	Aut2	Spr1	Spr2	Sum1	Sum2
(1N1a) Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number	W1		W1			
(1N1b) Count in multiples of twos, fives and tens	W2	W1	W4			W5
(1N2a) Count, read and write numbers to 100 in numerals	W1		W1		W1	
(1N2b) Given a number, identify one more and one less	W2		W1		W1	
(1N2c) Read and write numbers from 1 to 20 in numerals and words	W1		W1		W1	
(1N4) 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	W1 W2		W1		W1	W3
<u>Number - addition and subtraction (calculations)</u>	Coverage					
	Aut1	Aut2	Spr1	Spr2	Sum1	Sum2
(1C1) Represent and use number bonds and related subtraction facts within 20	W4 W5			W2		W3
(1C2a) Add and subtract one-digit and two-digit numbers to 20, including zero	W4 W5		W5 W6	W2	W2	W3
(1C2b) Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs	W4 W5				W2	
(1C4) Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \underline{\quad} + 9$	W4 W5	W4	W2		W2 W3	
<u>Number - multiplication and division (calculations)</u>	Coverage					
	Aut1	Aut2	Spr1	Spr2	Sum1	Sum2
(1C8) 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			W5 W6			W2
<u>Number - fractions</u>	Coverage					
	Aut1	Aut2	Spr1	Spr2	Sum1	Sum2
(1F1a) Recognise, find and name a half as one of two equal parts of an object, shape or quantity		W2		W3	W4	
(1F1b) Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity		W3				
<u>Measurement</u>	Coverage					
	Aut1	Aut2	Spr1	Spr2	Sum1	Sum2
(1M1) Compare, describe and solve practical problems for: Lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]	W3			W1 W2		W4
(1M1) Compare, describe and solve practical problems for: Mass/weight [for example, heavy/light, heavier than, lighter than]	W3		W2	W1 W2		W4
(1M1) Compare, describe and solve practical problems for: Capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]		W3			W3	
(1M1) Compare, describe and solve practical problems for: Time [for example, quicker, slower, earlier, later]		W5		W5		W1
(1M2) Measure and begin to record: lengths and heights	W3			W1		W4
(1M2) Measure and begin to record: mass/weight	W3		W2	W1		W4
(1M2) Measure and begin to record: capacity and volume		W3			W3	
(1M2) Measure and begin to record: time (hours, minutes, seconds)		W5		W5		W1
(1M3) Recognise and know the value of different denominations of coins and notes		W4	W4			W5
(1M4a) Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times				W4 W5	W5	
(1M4b) Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]		W5				W1
(1M4c) Recognise and use language relating to dates, including days of the week, weeks, months and years		W5				W1
<u>Geometry - properties of shapes</u>	Coverage					
	Aut1	Aut2	Spr1	Spr2	Sum1	Sum2
(1G1a) Recognise and name common 2-D shapes [for example, rectangles (including squares), circles and triangles]	W6					
(1G1b) Recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]			W3		W6	
<u>Geometry - position and direction</u>	Coverage					
	Aut1	Aut2	Spr1	Spr2	Sum1	Sum2
(1P2) Describe position, direction and movement, including whole, half, quarter and three-quarter turns				W4	W5	

Year 1 Mathematics Yearly Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Week 1	<u>Number and Place value</u>	<u>Sequencing and Sorting</u>	<u>Number and Place value</u>	<u>Length and Mass/weight</u>	<u>Number and Place value</u>	<u>Time</u>
Week 2	<u>Number and Place value</u>	<u>Fractions</u>	<u>Mass/weight</u>	<u>Addition and Subtraction</u>	<u>Addition and Subtraction</u>	<u>Multiplication and Division</u>
Week 3	<u>Length and Mass/weight</u>	<u>Fractions Capacity and Volume</u>	<u>2-D and 3-D Shape</u>	<u>Fractions</u>	<u>Capacity and Volume</u>	<u>Subtraction - difference</u>
Week 4	<u>Addition and Subtraction</u>	<u>Money</u>	<u>Counting and Money</u>	<u>Position and Direction</u>	<u>Fractions</u>	<u>Measurement</u>
Week 5	<u>Addition and Subtraction</u>	<u>Time</u>	<u>Multiplication</u>	<u>Time</u>	<u>Position and Direction Time</u>	<u>Sorting</u>
Week 6	<u>2-D and 3-D shape</u>	<u>Assess and review week</u>	<u>Division</u>	<u>Assess and review week</u>	<u>2-D and 3-D shape</u>	<u>Assess and review week</u>

Year 1 Autumn 1			
	Links to domain & progression	Skills	Knowledge
Week 1 <i>Number and Place value</i>	1N1a 1N2c 1N2a 1N4	<ul style="list-style-type: none"> Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. Read and write numbers from 1 to 20 in numerals and words. Count, read and write numbers to 100 in numerals. Begin to recognise the place value of numbers beyond 20 (tens and ones). 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. Solve problems and practical problems involving all of the above. 	<p>Children build on their experiences in the EYFS where they learn about, and use numbers up to 20. When counting, children should be encouraged to recognise patterns in the spoken numbers and the numbers used to represent them. It is not essential at this stage for children to understand the size of all the numbers they are saying when counting – this will develop through the year.</p> <p>Children should use practical equipment, familiar items and pictures to represent the numbers they are working with – children should begin to understand the notion of grouping in tens i.e. 10 ones is the same as 1 ten and that in two-digit number the first digit refers to the number of groups of ten.</p>
Week 2 <i>Number and Place value</i>	1N2b 1N4 1N1b	<ul style="list-style-type: none"> Given a number, identify one more and one less. Begin to recognise the place value of numbers beyond 20 (tens and ones). Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. Count in multiples of, twos, fives and tens. Solve problems and practical problems involving all of the above. 	<p>Children build on their understanding of numbers from the previous week to identify one more/less than a given number, using different representations, including the number line. It is useful to introduce the number line alongside practical or pictorial representations of the numbers.</p> <p>Children should understand the purpose of counting in twos, fives and tens and relate this to efficiently counting large quantities in practical contexts and also when counting money. When counting in twos, the concept of odd and even numbers can be explored.</p>
Week 3 <i>Measurement - length and mass/weight</i>	1M1 1M2 1M1 1M2	<ul style="list-style-type: none"> Compare and describe lengths and heights (for example, long/short, longer/shorter, tall/short, double/half). Measure and begin to record lengths and heights, using non-standard and then manageable standard units (m and cm) within children's range of counting competence. Compare and describe mass/weight (for example, heavy/light, heavier than, lighter than). Measure and begin to record mass/weight, using non-standard and then standard units (kg and g) within children's range of counting competence. Solve practical problems for lengths, heights and masses/weights. 	<p>The pairs of terms mass and weight, volume and capacity are used interchangeably at this stage.</p> <p>Children should work practically to measure length and height, recognising that both are measurements of distance. Children make direct comparisons of lengths, heights, masses/weights before measuring using uniform non-standard units progressing to manageable standard units and equipment.</p>
Week 4 <i>Addition and subtraction</i>	1C2b 1C1 1C2a 1C4	<ul style="list-style-type: none"> 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 (using concrete objects and pictorial representations). Solve simple one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems, such as $7 = \square - 9$. 	<p>Children should use familiar items to create number stories e.g. 8 ducks on a pond and 5 more land in the pond, how many ducks are there now? This gives rise to the number sentence $8 + 5 = ?$</p> <p>Continuing the theme of number stories can give rise to other number sentences such as $8 + ? = 13$ This could be explained as, there are 8 ducks on a pond. How many more join them if in the end there are 13 ducks on the pond?</p> <p>The use of physical objects to tell a number story and the creation of numbers sentences helps children to understand the relationship between addition and subtraction.</p>
Week 5 <i>Addition and subtraction and statistics</i>	1C2b 1C1 1C2a 1C4	<ul style="list-style-type: none"> 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 (using concrete objects and pictorial representations). Solve simple one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems, such as $7 = \square - 9$. Present and interpret data in block diagrams using practical equipment. Ask and answer simple questions by counting the number of objects in each category. Ask and answer questions by comparing categorical data. 	<p>This week is a continuation of last week.</p> <p>Children should also explore each number up to 20 can be partitioned in different ways to create the number bonds. For example, if there are 17 sheep split between two fields, how many sheep could be in each field? The number sentences created should be $17 = ? + ?$ Children would then find different ways in which 17 can be made using two numbers.</p> <p>Children should be introduced to a range of vocabulary associated with each operation e.g. put together, add, altogether, total, take away.</p> <p>Physical block diagrams give children a context to explore calculations and number sentences.</p>
Week 6 <i>Shape</i>	1G1a 1G1b	<ul style="list-style-type: none"> Recognise and name common 2-D shapes, including rectangles (including squares), circles and triangles. Recognise and name common 3-D shapes, including cuboids (including cubes), pyramids and spheres. 	<p>When learning about shapes, children should handle them, name them and begin to describe them. Children should recognise these shapes in different orientations and also in different sizes, and know that rectangles, triangles, cuboids and pyramids are not always similar to each other.</p> <p>Children could make pictures and structures using these shapes, explaining why certain shapes have been used (and not used) for particular parts of the picture or structure.</p>

Year 1 Autumn 2

	Links to domain & progression	Skills	Knowledge
Week 1 Sequencing and sorting	1N1b	<ul style="list-style-type: none"> Recognise and create repeating patterns with numbers, objects and shapes. Identify odd and even numbers linked to counting in twos from 0 and 1. Sort objects, numbers and shapes to a given criterion and their own. 	<p>Children's experiences of sequences and patterns supports them in identifying relationships between shapes, objects and numbers and can be used as a precursor to sorting, in which children can consolidate their understanding of the properties of numbers, including comparing numbers, odd and even, sequences; properties of shapes; equipment and units of measure, more than and less than a given measure e.g. one metre.</p> <p>It is also an opportunity to introduce children to ways in which information can be sorted in tables according to one criterion.</p>
Week 2 Fractions	1F1a 1F1b	<ul style="list-style-type: none"> Understand that a fraction can describe part of a whole. Understand that a unit fraction represents one equal part of a whole. Recognise, find and name a half as one of two equal parts of an object, shape or quantity (including measure). Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. 	<p>Children should understand what a fraction is – a way of describing part of a whole unit or shape. At this stage, when describing part of a whole unit or shape, an important feature to understand is the need for the whole to be split into equal sized parts. Children should experience shapes that have not been divided into equal parts and identify that the fractions of these shapes are not easy to identify.</p> <p>Children's work on halves and quarters should be practically based and linked to their work on shape and also measures.</p>
Week 3 Measurement – capacity and volume	1F1a 1F1b 1M1 1M2	<ul style="list-style-type: none"> Understand that a fraction can describe part of a whole. Understand that a unit fraction represents one equal part of a whole. Recognise, find and name a half as one of two equal parts of an object, shape or quantity (including measure). Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. Compare and describe capacity/volume (for example, full/empty, more than, less than, half, half full, quarter). Measure and begin to record capacity and volume using non-standard and then standard units (litres and ml) within children's range of counting competence. Solve practical problems for capacity/volume. 	<p>The fractions work from the previous week is further consolidated in the context of capacity and volume. Children should relate pouring a jug of juice equally into four cups would mean each cup contains one quarter of the juice from the jug. If the cups of juice were poured back into the jug, the original volume of the jug would be restored i.e. one quarter plus one quarter plus one quarter plus one quarter equals four quarters, which results in one whole jug of juice.</p> <p>Children can make their own scales on large containers using masking tape and carefully pouring cups into the large container and marking the level after each cup poured in. After two or four cups, children should recognise what fraction one cup is of the whole amount in the container.</p>
Week 4 Money	1M3 1C4	<ul style="list-style-type: none"> Recognise and know the value of different denominations of coins and notes. Solve simple one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems, such as $7 = \square - 9$. 	<p>Children's introduction to money should involve numbers that they are confident with. Larger value coins can be introduced later. Children need to understand how many pennies each coin is worth and exchange between pennies and 2p, 5p, 10p and 20p coins. This could be done in a Bank role play area.</p> <p>Shop role play could be used when teaching about paying for amounts exactly. This is a good opportunity for children to experience finding all possibilities problems. Combining coins to make given amounts should be linked to addition and number sentences e.g. $9p = 5p + 2p + 2p$</p>
Week 5 Time	1M4b 1M4c 1M2 1M1	<ul style="list-style-type: none"> Sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening. Recognise and use language relating to dates, including days of the week, weeks, months and years. Measure and begin to record time (hours, minutes, seconds). compare, describe and solve practical problems for time (quicker, slower, earlier, later). 	<p>Children should be introduced to the language of time using familiar events in their life and in school. Sequencing of events can also be explored in children's stories such as The Very Hungry Caterpillar, Jasper's Beanstalk, The Princess and the Wizard, What the Ladybird Heard amongst others.</p> <p>Children should explore how long certain activities take and also how many times certain things can be done in a given time period e.g. one minute.</p>
Week 6 Assess and review		Assess and review week	It is useful at regular intervals for teachers to consider the learning that has taken place over a term (or half term), assess and review children's understanding of the learning and use this to inform where the children need to go next.

Year 1 Spring 1			
	Links to domain & progression	Skills	Knowledge
Week 1 Number, place value and measures	1N1a 1N2C 1N2a 1N4 1N2b	<ul style="list-style-type: none"> Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. Read and write numbers from 1 to 20 in numerals and words. Count, read and write numbers to 100 in numerals. Begin to recognise the place value of numbers beyond 20 (tens and ones). Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. Given a number, identify one more and one less. Given a number, identify ten more and ten less. Order numbers to 50. Solve problems and practical problems involving all of the above. 	<p>When counting, children should be encouraged to recognise patterns in the spoken numbers and the numbers used to represent them.</p> <p>Children should use practical equipment, familiar items and pictures to represent the numbers they are working with – children should understand the notion of grouping in tens i.e. 10 ones is the same as 1 ten and that in two-digit number the first digit refers to the number of groups of ten.</p> <p>Children use their understanding of numbers to identify one more/less and ten more/less than a given number, using different representations, including the number line.</p> <p>Children recognise the number line when measuring length using a ruler and volume using a measuring jug.</p> <p>Children should understand the purpose of counting in twos, fives and tens and relate this to efficiently counting large quantities in practical contexts and also when counting money. When counting in twos, the concept of odd and even numbers can be explored.</p>
Week 2 Measurement - mass	1M1 1M2 1C4	<ul style="list-style-type: none"> Compare and describe mass/weight (for example, heavy/light, heavier than, lighter than). Measure and begin to record mass/weight, using non-standard and then standard units (kg and g) within children's range of counting competence. Solve practical problems for masses/weights. Solve simple one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems, such as $7 = \square - 9$. 	<p>The terms mass and weight are used interchangeably at this stage.</p> <p>Children should work practically to measure mass/weight, applying their knowledge of the number system and number lines. Children make direct comparisons of masses/weights before measuring using uniform non-standard units progressing to manageable standard units and equipment.</p> <p>When solving problems, children apply their knowledge and understanding of calculations in the context of mass/weight.</p>
Week 3 Shape	1G1a 1G1b	<ul style="list-style-type: none"> Recognise and name common 2-D shapes, including rectangles (including squares), circles and triangles. Recognise and name common 3-D shapes, including cuboids (including cubes), pyramids and spheres. 	<p>When learning about shapes, children should handle them, name them and begin to describe them. Children should recognise these shapes in different orientations and also in different sizes, and know that rectangles, triangles, cuboids and pyramids are not always similar to each other.</p> <p>Children could make pictures and structures using these shapes, explaining why certain shapes have been used (and not used) for particular parts of the picture or structure.</p>
Week 4 Counting and money	1N1b 1M3	<ul style="list-style-type: none"> Count in multiples of, twos, fives and tens. Recognise and know the value of different denominations of coins and notes. 	<p>When counting, children should explore patterns that emerge and relationships that can be seen e.g. when counting in tens, the unit digit does not change; when counting in fives the units digit alternates; when counting in twos the units digits will repeat 2, 4, 6, 8, 0 or 1, 3, 5, 7, 9. This can lead to discussion around odd and even numbers and what other numbers will occur in the sequence if it continued.</p> <p>Counting should also be related to real life, such as counting money.</p> <p>Larger value coins may be introduced at this stage as the children's understanding of numbers and the number system is growing. Children need to understand how many pennies each coin is worth and exchange between pennies and 2p, 5p, 10p, 20p and 50p coins. This could be done in a bank role play area.</p>
Week 5 Multiplication – problem solving	1C2a 1C8	<ul style="list-style-type: none"> Add one-digit and two-digit numbers to 20, including zero. Recall and use doubles of all numbers to 10 and corresponding halves. Solve one-step problems involving multiplication by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. 	<p>Children should be introduced to multiplication as repeated addition, using real life contexts and practical / pictorial representations of these. Children should make connections between arrays, number patterns and counting in twos, fives and tens.</p> <p>Children should realise that doubling is adding a number to itself, which is also multiplying by 2.</p>
Week 6 Division – problem solving	1C2a 1C8	<ul style="list-style-type: none"> Subtract one-digit and two-digit numbers to 20, including zero. Recall and use doubles of all numbers to 10 and corresponding halves. Solve one-step problems involving division by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. 	<p>Children should be introduced to division as sharing and grouping (or repeated subtraction), using real life contexts and practical / pictorial representations of these. Again, children should make connections between arrays, number patterns and counting back in twos, fives and tens.</p> <p>Children should realise that halving is dividing a number or quantity by 2. The link should be made between division by sharing and finding a fraction of an amount. Children should find simple fractions of objects, numbers and quantities.</p>

Year 1 Spring 2			
	Links to domain & progression	Skills	Knowledge
Week 1 <i>Measurement – length and height, mass/weight</i>	1M1 1M2 1M1 1M2	<ul style="list-style-type: none"> Compare and describe lengths and heights (for example, long/short, longer/shorter, tall/short, double/half). Measure and begin to record lengths and heights, using non-standard and then manageable standard units (m and cm) within children's range of counting competence. Compare and describe mass/weight (for example, heavy/light, heavier than, lighter than). Measure and begin to record mass/weight, using non-standard and then standard units (kg and g) within children's range of counting competence. Solve practical problems for lengths, heights and masses/weights. 	<p>The pairs of terms mass and weight, volume and capacity are used interchangeably at this stage.</p> <p>Children should work practically to measure length and height, recognising that both are measurements of distance. Children make direct comparisons of lengths, heights, masses/weights before measuring using uniform non-standard units progressing to manageable standard units and equipment. Measurement work should be in line with a child's number work e.g. using numbers up to 100.</p>
Week 2 <i>Mental addition and subtraction facts in context of measurement</i>	1C1 1C2a 1M1	<ul style="list-style-type: none"> Represent and use number bonds and related subtraction facts within 20. Add and subtract one-digit and two-digit numbers to 20, including zero (<i>using concrete objects and pictorial representations</i>). Solve practical problems for length and height and mass/weight. 	<p>Children should use measurements of items they have measured in the previous week or interesting measures (from the Guinness Book of Records) to create number sentences.</p> <p>The use of physical objects or pictures to give meaning to number sentences helps children to understand the relationship between addition and subtraction.</p>
Week 3 <i>Fractions</i>	1F1a 1F1b	<ul style="list-style-type: none"> Understand that a fraction can describe part of a whole. Understand that a unit fraction represents one equal part of a whole. Recognise, find and name a half as one of two equal parts of an object, shape or quantity (<i>including measure</i>). Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. 	<p>Children should understand what a fraction is – a way of describing part of a whole unit or shape. At this stage, when describing part of a whole unit or shape, an important feature to understand is the need for the whole to be split into equal sized parts. Children should experience shapes that have not been divided into equal parts and identify that the fractions of these shapes are not easy to identify.</p> <p>Children's work on halves and quarters should be practically based and linked to their work on shape and also measures from the previous two weeks.</p> <p>As a lead into the following week, children could be introduced to the fraction three-quarters when experiencing one quarter.</p>
Week 4 <i>Position and direction time</i>	1P2 1M4a	<ul style="list-style-type: none"> Describe position, directions and movements, including half, quarter and three-quarter turns. Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. 	<p>Children's work on fractions in the previous week should be continued, in particular linking the images of quarter, half and three-quarters of a circle to fractions of a turn. Their understanding of fractions of a turn should be related to the movement of the minute hand on an analogue clock, introducing language of clockwise, o'clock and half past.</p> <p>Children should also understand that as the minute hand moves on an analogue clock, the hour hand also moves. When the minute hand is showing half past, children should be encouraged to identify other clues, using the position of the hands on the clock that suggest 'half'.</p>
Week 5 <i>Measurement - time</i>	1M4a 1M1 1M2	<ul style="list-style-type: none"> Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. Compare, describe and solve practical problems for time (quicker, slower, earlier, later). Measure and begin to record the following time (hours, minutes, seconds). 	<p>Children should be introduced to the language of time using familiar events in their life and in school. Sequencing of events can also be explored in children's stories such as <i>The Very Hungry Caterpillar</i>, <i>Jasper's Beanstalk</i>, <i>The Princess and the Wizard</i>, <i>What the Ladybird Heard</i> amongst others.</p> <p>Children should explore how long certain activities take and also how many times certain things can be done in a given time period e.g. one minute.</p>
Week 6 <i>Assess and review</i>		Assess and review week	It is useful at regular intervals for teachers to consider the learning that has taken place over a term (or half term), assess and review children's understanding of the learning and use this to inform where the children need to go next.

Year 1 Summer 1			
	Links to domain & progression	Skills	Knowledge
Week 1 Number and place value	1N2c 1N2a 1N4 1N2b	<ul style="list-style-type: none"> Read and write numbers from 1 to 20 in numerals and words. Count, read and write numbers to 100 in numerals. Begin to recognise the place value of numbers beyond 20 (tens and ones). Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. Given a number, identify one more and one less. Given a number, identify ten more and ten less. Order numbers to 50. Solve problems and practical problems involving all of the above. 	<p>When counting, children should be encouraged to recognise patterns in the spoken numbers and the numbers used to represent them.</p> <p>Children should use practical equipment, familiar items and pictures to represent the numbers they are working with – children should understand the notion of grouping in tens i.e. 10 ones is the same as 1 ten and that in two-digit number the first digit refers to the number of groups of ten.</p> <p>Children use their understanding of numbers to identify one more/less and ten more/less than a given number, using different representations, including the number line. Children recognise the number line when measuring length using a ruler and volume using a measuring jug.</p> <p>The context of the number and place value objectives in this week should be either measurement or statistics e.g. block graphs, bar charts, pictograms, tally charts.</p>
Week 2 Addition and subtraction and statistics	1C1 1C2a 1C2b 1C4	<ul style="list-style-type: none"> Represent and use number bonds and related subtraction facts within 20. Add and subtract one-digit and two-digit numbers to 20, including zero (using concrete objects and pictorial representations). Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. Solve simple one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems, such as $7 = \square - 9$. Present and interpret data in block diagrams using practical equipment. Ask and answer simple questions by counting the number of objects in each category. Ask and answer questions by comparing categorical data. 	<p>Children should use familiar items to create number stories e.g. 8 ducks on a pond and 5 more land in the pond, how many ducks are there now? This gives rise to the number sentence $8 + 5 = ?$</p> <p>Continuing the theme of number stories can give rise to other number sentences such as $8 + ? = 13$ This could be explained as, there are 8 ducks on a pond. How many more join them if in the end there are 13 ducks on the pond?</p> <p>The use of physical objects to tell a number story and the creation of numbers sentences helps children to understand the relationship between addition and subtraction.</p> <p>Physical block diagrams support children in understanding calculations and the mathematical representation of number sentences.</p>
Week 3 Measurement – capacity/volume	1M1 1M2 1C4	<ul style="list-style-type: none"> Compare, describe and solve practical problems capacity/volume (full/empty, more than, less than, quarter). Measure and begin to record capacity and volume using non-standard and then standard units (litres and ml) within children's range of counting competence. Solve simple one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems, such as $7 = \square - 9$. 	<p>Children should be using measuring containers and beginning to read simple scales involving numbers up to 100.</p> <p>Children can make their own scales on large containers using masking tape and carefully pouring cups into the large container and marking the level after each cup poured in. After two or four cups, children should recognise what fraction one cup is of the whole amount in the container.</p>
Week 4 Fractions	1F1a 1F1b	<ul style="list-style-type: none"> Understand that a fraction can describe part of a whole. Understand that a unit fraction represents one equal part of a whole. Recognise, find and name a half as one of two equal parts of an object, shape or quantity (including measure). Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. 	<p>Children should understand what a fraction is – a way of describing part of a whole unit or shape. At this stage, when describing part of a whole unit or shape, an important feature to understand is the need for the whole to be split into equal sized parts. Children should experience shapes that have not been divided into equal parts and identify that the fractions of these shapes are not easy to identify.</p> <p>Children's work on halves and quarters should be practically based and linked to their work on shape and also measures from the previous week.</p> <p>As a lead into the following week, children could be introduced to the fraction three-quarters when experiencing one quarter.</p>
Week 5 Position, direction and time	1P2 1M4a	<ul style="list-style-type: none"> Describe position, directions and movements, including half, quarter and three-quarter turns. Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. 	<p>Children's work on fractions in the previous week should be continued, in particular linking the images of quarter, half and three-quarters of a circle to fractions of a turn.</p> <p>Their understanding of fractions of a turn should be related to the movement of the minute hand on an analogue clock, introducing language of clockwise, o'clock and half past.</p> <p>Children should also understand that as the minute hand moves on an analogue clock, the hour hand also moves. When the minute hand is showing half past, children should be encouraged to identify other clues, using the position of the hands on the clock that suggest 'half'.</p>
Week 6 Shape	1G1a 1G1b	<ul style="list-style-type: none"> Recognise and name common 2-D shapes, including rectangles (including squares), circles and triangles. Recognise and name common 3-D shapes, including cuboids (including cubes), pyramids and spheres. 	<p>When learning about shapes, children should handle them, name them and begin to describe them. Children should recognise these shapes in different orientations and also in different sizes, and know that rectangles, triangles, cuboids and pyramids are not always similar to each other. Children could make pictures and structures using these shapes, explaining why certain shapes have been used (and not used) for particular parts of the picture or structure.</p>

Year 1 Summer 2

	Links to domain & progression	Skills	Knowledge
Week 1 <i>Time</i>	1M4b 1M4c 1M2 1M1	<ul style="list-style-type: none"> • Sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening. • Recognise and use language relating to dates, including days of the week, weeks, months and years. • Measure and begin to record time (hours, minutes, seconds). • Compare, describe and solve practical problems for time (quicker, slower, earlier, later). 	<p>Children should be introduced to the language of time using familiar events in their life and in school. Sequencing of events can also be explored in children's stories such as <i>The Very Hungry Caterpillar</i>, <i>Jasper's Beanstalk</i>, <i>The Princess and the Wizard</i>, <i>What the Ladybird Heard</i> amongst others.</p> <p>Children should explore how long certain activities take and also how many times certain things can be done in a given time period e.g. one minute.</p>
Week 2 <i>Multiplication and division</i>	1C8	<ul style="list-style-type: none"> • 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. 	<p>Children should continue to understand multiplication and division using real life contexts and practical / pictorial representations of these. Children should make connections between arrays, number patterns and counting back in twos, fives and tens.</p> <p>Children should realise that halving is dividing a number or quantity by 2 and doubling is multiplying by 2. The link should be made between division by sharing and finding a fraction of an amount. Children should find simple fractions of objects, numbers and quantities.</p>
Week 3 <i>Subtraction – difference in context of measurement or statistics</i>	1C2a 1C1 1N4	<ul style="list-style-type: none"> • Subtract one-digit and two-digit numbers to 20 using 'difference' as finding how many more to make (<i>using concrete objects and pictorial representations</i>). • Solve problems involving how many more to make. • Present and interpret data in block diagrams using practical equipment. • Ask and answer simple questions by counting the number of objects in each category. • Ask and answer questions by comparing categorical data. 	<p>Children should be introduced to the concept of 'difference' through measurement or statistics. This should be represented practically, using towers of cubes (a physical block diagram) and discussing how we can make one tower the same size as the other. Children's previous work on the relationship between addition and subtraction is crucial in understanding that the difference between 13 and 21 can be written as $21 - 13$, but calculated by finding $21 - ? = 13$ or that $13 + ? = 21$.</p>
Week 4 <i>Measurement</i>	1M1 1M2 1M1 1M2	<ul style="list-style-type: none"> • Compare and describe lengths and heights (for example, long/short, longer/shorter, tall/short, double/half). • Measure and begin to record lengths and heights, using non-standard and then manageable standard units (m and cm) within children's range of counting competence. • Compare and describe mass/weight (for example, heavy/light, heavier than, lighter than). • Measure and begin to record mass/weight, using non-standard and then standard units (kg and g) within children's range of counting competence. • Solve practical problems for lengths, heights and masses/weights. 	<p>The pairs of terms mass and weight, volume and capacity are used interchangeably at this stage.</p> <p>Children should work practically to measure length and height, recognising that both are measurements of distance. Children make direct comparisons of lengths, heights, masses/weights before measuring using uniform non-standard units progressing to manageable standard units and equipment. Measurement work should be in line with a child's number work e.g. using numbers up to 100.</p>
Week 5 <i>Sorting</i>	1N1b 1M3	<ul style="list-style-type: none"> • Recognise and create repeating patterns with numbers, objects and shapes. • Identify odd and even numbers linked to counting in twos from 0 and 1. • Sort objects, numbers and shapes to a given criterion and their own. • Recognise and know the value of different denominations of coins and notes. 	<p>Children's work on sequencing and sorting can be used to consolidate understanding of the properties of numbers, including comparing numbers, odd and even, predicting and generalising sequences; properties of shapes; equipment and units of measure, more than and less than a given measure e.g. one metre.</p> <p>It is also an opportunity to introduce children to ways in which information can be sorted in tables according to one criterion.</p> <p>Children should explore patterns that emerge and relationships that can be seen e.g. when counting in tens, the unit digit does not change; when counting in fives the units digit alternates; when counting in twos the units digits will repeat 2, 4, 6, 8, 0 or 1, 3, 5, 7, 9. This can lead to discussion around odd and even numbers and what other numbers will occur in the sequence if it continued.</p> <p>Counting should also be related to real life, such as counting money.</p>
Week 6 <i>Assess and review</i>		Assess and review week	<p>It is useful at regular intervals for teachers to consider the learning that has taken place over a term (or half term), assess and review children's understanding of the learning and use this to inform where the children need to go next.</p>

Whole School Domain Progression

Number and place value; approximation and estimation / rounding (KS2)

Strand	Early Years outcomes	National Curriculum reference Year 1	National Curriculum reference Year 2	National Curriculum reference Year 3	National Curriculum reference Year 4	National Curriculum reference Year 5	National Curriculum reference Year 6	
N1 Counting (in multiples)	<u>Nursery Outcomes</u> Recite numbers past 5. Say one number name for each item from 1-5. Know that the last number reached when counting a set of objects tells you how many there is in total.	1N1a Count to and across 100, forward and backwards, beginning with 0 or 1, or from any given number	2N1 Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward		4N1 Count in multiples of 6, 7, 9, 25 and 1000	5N1 Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000		
	<u>Reception Outcomes (ELG)</u> Verbally count beyond 20, recognising the pattern of the counting system.	1N1b Count in multiples of twos, fives and tens		3N1b Count from 0 in multiples of 4, 8, 50 and 100				
N2 Read, write, order and compare numbers	<u>Nursery Outcomes</u> Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. Experiment with their own symbols and marks as well as numerals.	1N2a Count, read and write numbers to 100 in numerals	2N2a Read and write numbers to at least 100 in numerals and in words	3N2a Compare and order numbers up to 1000 Read and write numbers to 1000 in numerals and in words	4N2a Order and compare numbers beyond 1000	5N2 Read, write, order and compare numbers to at least 1 000 000	6N2 Read, write, order and compare numbers up to 10 000 000	
	<u>Reception Outcome</u> Link the number symbol (numeral) with its cardinal number value. (1-10)							
	<u>Nursery Outcomes</u> Compare quantities saying 'lots' 'more' and 'same'.	1N2b Given a number, identify one more and one less	2N2b Compare and order numbers from 0 up to 100; use <, > and = signs	3N2b Find 10 or 100 more or less than a given number	4N2b Find 1000 more or less than a given number			
	<u>Reception Outcomes (ELG)</u> Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.	1N2c Read and write numbers from 1 to 20 in numerals and words						
N3 Place value; Roman numerals			2N3 Recognise the place value of each digit in a two-digit number (tens, ones)	3N3 Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)	4N3a Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones)	5N3a Determine the value of each digit in numbers up to 1 000 000	6N3 Determine the value of each digit in numbers up to 10 000 000	
					4N3b Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the	5N3b Read Roman numerals to 1000 (M) and recognise years written in Roman numerals		

					concept of zero and place value		
N4 Identify, represent and estimate; rounding	<u>Nursery Outcomes</u> Show 'finger numbers' up to 5. Subitise up to 3 objects. Link numerals and amounts: for example, showing the right number of objects up to 5.	1N4 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	2N4 Identify, represent and estimate numbers using different representations, including the number line	3N4 Identify, represent and estimate numbers using different representations	4N4a Identify, represent and estimate numbers using different representations	5N4 Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000	6N4 Round any whole number to a required degree of accuracy
	<u>Reception Outcome (ELG)</u> Link numeral with cardinal number value (1-10) Subitise (recognise quantities without counting) up to 5				4N4b Round any number to the nearest 10, 100 or 1000		
N5 Negative numbers					4N5 Count backwards through zero to include negative numbers	5N5 Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero	6N5 Use negative numbers in context, and calculate intervals across zero
N6 Number problems			2N6 Use place value and number facts to solve problems	3N6 Solve number problems and practical problems involving 3N1–3N5	4N6 Solve number and practical problems that involve 4N1–4N5 and with increasingly large positive numbers	5N6 Solve number problems and practical problems that involve 5N1–5N5	6N6 Solve number problems and practical problems that involve 6N2–6N5

Addition, subtraction, multiplication and division (calculations)

Strand	Early Years outcomes	National Curriculum reference Year 1	National Curriculum reference Year 2	National Curriculum reference Year 3	National Curriculum reference Year 4	National Curriculum reference Year 5	National Curriculum reference Year 6
C1 Add / subtract mentally	<u>Reception Outcome (ELG)</u> Automatically recall number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.	1C1 Represent and use number bonds and related subtraction facts within 20	2C1a Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100	3C1 Add and subtract numbers mentally, including: - a three-digit number and ones - a three-digit number and tens - a three-digit number and hundreds		5C1 Add and subtract numbers mentally with increasingly large numbers	
			2C1b Add and subtract numbers mentally, including: - a two-digit number and ones - a two-digit number and tens - two two-digit numbers - adding three one-digit numbers				
		1C2a	2C2	3C2	4C2	5C2	

C2 Add / subtract using written methods		Add and subtract one-digit and two-digit numbers to 20, including zero	Add and subtract numbers using concrete objects and pictorial representations, including: - a two-digit number and ones - a two-digit number and tens - two two-digit numbers - adding three one-digit numbers	Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)	
		1C2b Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs					
C3 Estimate, use inverses and check			2C3 To recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems	3C3 Estimate the answer to a calculation and use inverse operations to check answers	4C3 Estimate and use inverse operations to check answers to a calculation	5C3 Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	6C3 Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
C4 Add/subtract to solve problems		1C4 Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$	2C4 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	3C4 Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	4C4 Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	5C4 Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	6C4 Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
C5 Properties of number (multiples, factors, primes, squares and cubes)						5C5a Identify multiples and factors, including finding all factor pairs of a number and common factors of two numbers	6C5 Identify common factors, common multiples and prime numbers
						5C5b Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers	
						5C5c Establish whether a number up to 100 is prime and recall prime numbers up to 19	
						5C5d Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)	
C6			2C6 Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables,	3C6 Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	4C6a Recall multiplication and division facts for multiplication tables up to 12×12	5C6a Multiply and divide numbers mentally drawing upon known facts	6C6 Perform mental calculations, including with mixed operations and large numbers

Multiply / divide mentally			including recognising odd and even numbers				
					4C6b 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	5C6b Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	
					4C6c Recognise and use factor pairs and commutativity in mental calculations		
C7 Multiply / divide using written methods			2C7 Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals (=) signs	3C7 Write and calculate mathematical statements for multiplication and division using the multiplication tables that children know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods	4C7 Multiply two-digit and three-digit numbers by a one-digit number using formal written layout	5C7a 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	6C7a Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
						5C7b 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	6C7b 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
							6C7c 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
C8 Solve problems (commutative, associative, distributive and all four operations)	Nursery Outcomes Solve some real-world mathematical problems with numbers up to 5, Reception Outcomes (ELG) Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly.	1C8 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	2C8 Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	3C8 Solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects	4C8 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	5C8a Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes	6C8 Solve problems involving addition, subtraction, multiplication and division
						5C8b	

						Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	
						5C8c Solve problems involving multiplication and division including scaling by simple fractions and problems involving simple rates	
C9 Order of operations			2C9a Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot				6C9 Use their knowledge of the order of operations to carry out calculations involving the four operations
			2C9b Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot				

Fractions, decimals and percentages

Strand	Early Years outcomes	National Curriculum reference Year 1	National Curriculum reference Year 2	National Curriculum reference Year 3	National Curriculum reference Year 4	National Curriculum reference Year 5	National Curriculum reference Year 6
F1 Recognise, find, write, name and count fractions	Reception Outcomes Halving and sharing objects practically.	1F1a Recognise, find and name a half as one of two equal parts of an object, shape or quantity	2F1a Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity	3F1a 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	4F1 Count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten		
		1F1b Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	2F1b Write simple fractions [e.g.: $\frac{1}{2}$ of 6 = 3]	3F1b Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators			
				3F1c Recognise and use fractions as numbers:			

				unit fractions and non-unit fractions with small denominators			
F2 Equivalent fractions			2F2 Recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$	3F2 Recognise and show, using diagrams, equivalent fractions with small denominators	4F2 Recognise and show, using diagrams, families of common equivalent fractions	5F2a Recognise mixed numbers and improper fractions and convert from one form to the other; write mathematical statements >1 as a mixed number [e.g.: $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1 \frac{1}{5}$]	6F2 Use common factors to simplify fractions; use common multiples to express fractions in the same denomination
						5F2b Identify name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths	
F3 Comparing and ordering fractions				3F3 Compare and order unit fractions and fractions with the same denominators		5F3 Compare and order fractions whose denominators are all multiples of the same number	6F3 Compare and order fractions, including fractions >1
F4 Add / subtract fractions				3F4 Add and subtract fractions with the same denominator within one whole [e.g.: $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$]	4F4 Add and subtract fractions with the same denominator	5F4 Add and subtract fractions with the same denominator and denominators that are multiples of the same number	6F4 Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
F5 Multiply / divide fractions						5F5 Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	6F5a Multiply simple pairs of proper fractions, writing the answer in its simplest form [e.g.: $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$]
							6F5b Divide proper fractions by whole numbers [e.g.: $\frac{1}{3} \div 2 = \frac{1}{6}$]
F6 Fractions / decimals equivalence					4F6a Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$	5F6a Read and write decimal numbers as fractions [e.g.: $0.71 = \frac{71}{100}$]	6F6 Associate a fraction with division to calculate decimal fraction equivalents (e.g.: 0.375) for a simple fraction [e.g.: $\frac{3}{8}$]
					4F6b Recognise and write decimal equivalents of any number of tenths or hundredths	5F6b Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	
F7 Rounding decimals [KS2]					4F7 Round decimals with one decimal place to the nearest whole number	5F7 Round decimals with two decimal places to the nearest whole number and to one decimal place	

F8 Compare and order decimals					4F8 Compare numbers with the same number of decimal places up to two decimal places	5F8 Read, write, order and compare numbers with up to three decimal places	
F9 Multiply / divide decimals					4F9 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		6F9a Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places
							6F9b Multiply one-digit numbers with up to two decimal places by whole numbers
							6F9c Use written division methods in cases where the answer has up to two decimal places
F10 Solve problems with fractions and decimals				3F10 Solve problems that involve 3F1–3F4	4F10a 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	5F10 Solve problems involving numbers up to three decimal places	6F10 Solve problems which require answers to be rounded to specified degrees of accuracy
					4F10b Solve simple measure and money problems involving fractions and decimals to two decimal places		
F11 Fractions / decimal / percentage equivalence						5F11 Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred'; write percentages as a fraction with denominator hundred, and as a decimal	6F11 Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts
F12 Solve problems with percentages						5F12 Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25	

Ratio and proportion

Strand	Early Years outcomes	National Curriculum reference Year 1	National Curriculum reference Year 2	National Curriculum reference Year 3	National Curriculum reference Year 4	National Curriculum reference Year 5	National Curriculum reference Year 6
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Enumerate all possibilities of combinations of							Enumerate possibilities of combinations of two variables
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Measurement

Strand	Early Years outcomes	National Curriculum reference Year 1	National Curriculum reference Year 2	National Curriculum reference Year 3	National Curriculum reference Year 4	National Curriculum reference Year 5	National Curriculum reference Year 6
M1 Compare, describe and order measures	<u>Reception Outcomes</u> Make comparisons between 2 objects relating to their size, length, weight and capacity. <u>Reception Outcomes</u> Compare length, weight and capacity.	1M1 Compare, describe and solve practical problems for: - lengths and heights [e.g.: long/short, longer/ shorter, tall/short, double/half] - mass/weight [e.g.: heavy/light, heavier than, lighter than] - capacity and volume [e.g.: full/empty, more than, less than, half, half full, quarter] - time [e.g.: quicker, slower, earlier, later]	2M1 Compare and order lengths, mass, volume/ capacity and record the results using >, < and =	3M1a Compare lengths(m/cm/mm)	4M1 Compare different measures, including money in pounds and pence		
				3M1b Compare mass (kg/g)			
					3M1c Compare volume / capacity (l/ml)		
M2 Estimate, measure and read scales		1M2 Measure and begin to record the following: - lengths and heights - mass/weight - capacity and volume - time (hours, minutes, seconds)	2M2 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	3M2a Measure lengths (m/cm/mm)	4M2 Estimate different measures, including money in pounds and pence		
				3M2b Measure mass (kg/g)			
					3M2c Measure volume / capacity (l/ml)		
M3 Money	<u>Reception Outcome</u> To use everyday language related to money.	1M3 Recognise and know the value of different denominations of coins and notes	2M3a Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value				
			2M3b Find different combinations of coins that equal the same amounts of money				
M4	<u>Reception Outcome</u> To use everyday language related to time.	1M4a Tell the time to the hour and half past the hour and draw	2M4a Tell and write the time to five minutes, including quarter	3M4a	4M4a		

Telling time, ordering time, duration and units of time		the hands on a clock face to show these times	past/to the hour and draw the hands on a clock face to show these times	Tell and write the time from an analogue clock; 12-hour clocks	Read, write and convert time between analogue and digital 12-hour clocks			
		1M4b Sequence events in chronological order using language [e.g.: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]	2M4b Compare and sequence intervals of time	3M4b Tell and write the time from an analogue clock; 24-hour clocks	4M4b Read, write and convert time between analogue and digital 24-hour clocks			
		1M4c Recognise and use language relating to dates, including days of the week, weeks, months and years	2M4c Know the number of minutes in an hour and the number of hours in a day	3M4c Tell and write the time from an analogue clock, including using Roman numerals from I to XII	4M4c Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days	5M4 Solve problems involving converting between units of time		
				3M4d 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				
				3M4e Know the number of seconds in a minute and the number of days in each month, year and leap year				
				3M4f Compare durations of events, [e.g.: to calculate the time taken by particular events or tasks]				
M5 Convert between metric units					4M5 Convert between different units of measurement [e.g.: kilometre to metre; hour to minute]	5M5 Convert between different units of metric measure [e.g.: kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre]	6M5 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 of up to three decimal places	
M6 Convert metric/imperial						5M6 Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints	6M6 Convert between miles and kilometres	
M7 Perimeter, area				3M7 Measure the perimeter of simple 2-D shapes	4M7a Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres	5M7a Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres	6M7a Recognise that shapes with the same areas can have different perimeters and vice versa	

					4M7b Find the area of rectilinear shapes by counting squares	5M7b 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	6M7b Calculate the area of parallelograms and triangles
							6M7c Recognise when it is possible to use the formulae for the area of shapes
M8 Volume						5M8 Estimate volume [e.g.: using 1cm ³ blocks to build cuboids (including cubes)] and capacity [e.g.: using water]	6M8a Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm ³) and cubic metres (m ³), and extending to other units [e.g.: mm ³ and km ³]
							6M8b Recognise when it is possible to use the formulae for the volume of shapes
M9 Solve problems (a: money; b: length; c: mass / weight; d: capacity / volume)			2M9 Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change	3M9a Add and subtract amounts of money to give change, using both £ and p in practical contexts	4M9 Calculate different measures, including money in pounds and pence	5M9a Use all four operations to solve problems involving measure [money] using decimal notation, including scaling	6M9 Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate
				3M9b Add and subtract lengths (m/cm/mm)		5M9b Use all four operations to solve problems involving measure [e.g.: length] using decimal notation, including scaling	
				3M9c Add and subtract mass (kg/g)		5M9c Use all four operations to solve problems involving measure [e.g.: mass] using decimal notation, including scaling	
				3M9d Add and subtract volume / capacity (l/ml)		5M9d Use all four operations to solve problems involving measure [e.g.: volume] using decimal notation, including scaling	

Geometry: properties of shape

Strand	Early Years outcomes	National Curriculum reference Year 1	National Curriculum reference Year 2	National Curriculum reference Year 3	National Curriculum reference Year 4	National Curriculum reference Year 5	National Curriculum reference Year 6
G1 Recognise and name common shapes	Beginning to talk about the shapes of everyday objects, e.g. 'round' and 'tall'. Shows interest in shape by sustained construction activity or by talking about shapes or arrangements. Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners', 'straight', 'flat'.	1G1a Recognise and name common 2-D shapes [e.g.: rectangles (including squares), circles and triangles]	2G1a Compare and sort common 2-D shapes and everyday objects				
		1G1b Recognise and name common 3-D shapes [e.g.: cuboids (including cubes), pyramids and spheres]	2G1b Compare and sort common 3-D shapes and everyday objects				
G2 Describe properties and classify shapes			2G2a Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line	3G2 Identify horizontal, vertical lines and pairs of perpendicular and parallel lines	4G2a Compare and classify geometric shapes, including quadrilaterals and triangles based on their properties and sizes	5G2a Use the properties of rectangles to deduce related facts and find missing lengths and angles	6G2a Compare and classify geometric shapes based on their properties and sizes
			2G2b Identify and describe the properties of 3-D shapes including the number of edges, vertices and faces		4G2b Identify lines of symmetry in 2-D shapes presented in different orientations	5G2b Distinguish between regular and irregular polygons based on reasoning about equal sides and angles	6G2b Describe simple 3-D shapes
					4G2c Complete a simple symmetric figure with respect to a specific line of symmetry		
G3 Draw and make shapes and relate 2-D to 3-D shapes (including nets)			2G3 Identify 2-D shapes on the surface of 3-D shapes, [e.g.: a circle on a cylinder and a triangle on a pyramid]	3G3a Draw 2-D shapes			6G3a Draw 2-D shapes using given dimensions and angles
				3G3b Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them		5G3b Identify 3-D shapes including cubes and other cuboids, from 2-D representations	6G3b Recognise and build simple 3D shapes, including making nets
G4 Angles – measuring and properties				3G4a Recognise that angles are a property of shape or a description of a turn	4G4 Identify acute and obtuse angles and compare and order angles up to two right angles by size	5G4a Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	6G4a Find unknown angles in any triangles, quadrilaterals and regular polygons
				3G4b Identify right angles, recognise that two right		5G4b Identify:	6G4b Recognise angles where they meet at a point, are on a

				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		<ul style="list-style-type: none"> - angles at a point and one whole turn (total 360°) - angles at a point on a straight line and ½ a turn (total 180°) - other multiples of 90° 	straight line, or are vertically opposite, and find missing angles
						5G4c Draw given angles and measure them in degrees (°)	
G5 Circles							6G5 Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius

Geometry: position and direction

Strand	Early Years outcomes	National Curriculum reference Year 1	National Curriculum reference Year 2	National Curriculum reference Year 3	National Curriculum reference Year 4	National Curriculum reference Year 5	National Curriculum reference Year 6
P1 Patterns	Talk about patterns in the environment. For example, stripes on clothes. Use informal language like 'pointy', 'spotty'. Continue, copy and create repeating patterns.		2P1 Order and arrange combinations of mathematical objects in patterns and sequences				
P2 Describe position, direction and movement	Understand positional language with focus on under, over, behind, in front, forwards, backwards.	1P2 Describe position, directions and movement, including half, quarter and three-quarter turns	2P2 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 (clock-wise and anti-clockwise)		4P2 Describe movements between positions as translations of a given unit to the left/right and up/down	5P2 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	6P2 Draw and translate simple shapes on the co-ordinate plane, and reflect them in the axes
P3 Coordinates					4P3a Describe positions on a 2-D grid as co-ordinates in the first quadrant		6P3 Describe positions on the full co-ordinate grid (all four quadrants)
					4P3b Plot specified points and draw sides to complete a given polygon		

Statistics

Strand	Early Years outcomes	National Curriculum reference Year 1	National Curriculum reference Year 2	National Curriculum reference Year 3	National Curriculum reference Year 4	National Curriculum reference Year 5	National Curriculum reference Year 6
S1 Interpret and represent data			2S1 Interpret and construct simple pictograms, tally charts, block diagrams and simple tables	3S1 Interpret and present data using bar charts, pictograms and tables	4S1 Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	5S1 Complete, read and interpret information in tables, including timetables	6S1 Interpret and construct pie charts and line graphs and use these to solve problems
S2 Solve problems involving data			2S2a Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity	3S2 Solve one-step and two step questions [e.g.: 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts, pictograms and tables	4S2 Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	5S2 Solve comparison, sum and difference problems using information presented in a line graph	
			2S2b Ask and answer questions about totalling and comparing categorical data				
S3 Mean average							6S3 Calculate and interpret the mean as an average

National Curriculum

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/381344/Master_final_national_curriculum_28_Nov.pdf

Year 1 programme of study

Number – number and place value

Statutory requirements

Pupils should be taught to:

- count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number; *(from Year 2)*
- count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens; *(from Year 2)*
- given a number, identify one more and one less;
- 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;
- read and write numbers from 1 to 20 in numerals and words.

Notes and guidance (non-statutory)

Pupils practise counting (1, 2, 3...), ordering (for example, first, second, third...), and to indicate a quantity (for example, 3 apples, 2 centimetres), including solving simple concrete problems, until they are fluent.

Pupils begin to recognise place value in numbers beyond 20 by reading, writing, counting and comparing numbers up to 100, supported by objects and pictorial representations.

They practise counting as reciting numbers and counting as enumerating objects, and counting in twos, fives and tens from different multiples to develop their recognition of patterns in the number system (for example, odd and even numbers), including varied and frequent practice through increasingly complex questions.

They recognise and create repeating patterns with objects and with shapes.

Number – addition and subtraction

Statutory requirements

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; *(from Year 2)*
- 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 such as $7 = \square - 9$.

Notes and guidance (non-statutory)

Pupils memorise and reason with number bonds to 10 and 20 in several forms (for example, $9 + 7 = 16$; $16 - 7 = 9$; $7 = 16 - 9$). They should realise the effect of adding or subtracting zero. This establishes addition and subtraction as related operations.

Pupils combine and increase numbers, counting forwards and backwards.

They discuss and solve problems in familiar practical contexts, including using quantities. Problems should include the terms: put together, add, altogether, total, take away, distance between, difference between, more than and less than, so that pupils develop the concept of addition and subtraction and are enabled to use these operations flexibly.

Number – multiplication and division

Statutory requirements

Pupils should be taught to:

- 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. *(from Year 2)*

Notes and guidance (non-statutory)

Through grouping and sharing small quantities, pupils begin to understand: multiplication and division; doubling numbers and quantities; and finding simple fractions of objects, numbers and quantities.

They make connections between arrays, number patterns, and counting in twos, fives and tens.

Number – fractions

Statutory requirements

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.

Notes and guidance (non-statutory)

Pupils are taught half and quarter as 'fractions of' discrete and continuous quantities by solving problems using shapes, objects and quantities. For example, they could recognise and find half a length, quantity, set of objects or shape. Pupils connect halves and quarters to the equal sharing and grouping of sets of objects and to measures, as well as recognising and combining halves and quarters as parts of a whole.

Measurement

Statutory requirements

Pupils should be taught to:

- compare, describe and solve practical problems for:
 - lengths and heights [for example, long/short, longer/shorter, tall/short, double/half];
 - mass/weight [for example, heavy/light, heavier than, lighter than];
 - capacity and volume [for example, full/empty, more than, less than, half, half full, quarter];
 - time [for example, quicker, slower, earlier, later];
- measure and begin to record the following:
 - lengths and heights;
 - mass/weight;
 - capacity and volume;
 - time (hours, minutes, seconds);
- recognise and know the value of different denominations of coins and notes;
- sequence events in chronological order using language [for example, before and after, next, first, today yesterday, tomorrow, morning, afternoon and evening];
- recognise and use language relating to dates, including days of the week, weeks, months and years.
- tell the time to the hour and half past the hour and draw the hands on a clock face to show these times

Notes and guidance (non-statutory)

The pairs of terms: mass and weight, volume and capacity, are used interchangeably at this stage.

Pupils move from using and comparing different types of quantities and measures using non-standard units, including discrete (for example, counting) and continuous (for example, liquid) measurement, to using manageable common standard units.

In order to become familiar with standard measures, pupils begin to use measuring tools such as a ruler, weighing scales and containers.

Pupils use the language of time, including telling the time throughout the day, first using o'clock and then half past.

Geometry – properties of shapes

Statutory requirements

Pupils should be taught to:

- recognise and name common 2-D and 3-D shapes, including:
 - 2-D shapes [for example, rectangles (including squares), circles and triangles];
 - 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].

Notes and guidance (non-statutory)

Pupils handle common 2-D and 3-D shapes, naming these and related everyday objects fluently. They recognise these shapes in different orientations and sizes, and know that rectangles, triangles, cuboids and pyramids are not always similar to each other.

Geometry – position and direction

Statutory requirements

Pupils should be taught to:

- Describe position, direction and movement, including whole, half, quarter and three-quarter turns.
(from Year 2)

Notes and guidance (non-statutory)

Pupils use the language of position, direction and motion, including: left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close and far, up and down, forwards and backwards, inside and outside.

Pupils make whole, half, quarter and three-quarter turns in both directions and connect turning clockwise with movement on a clock face.