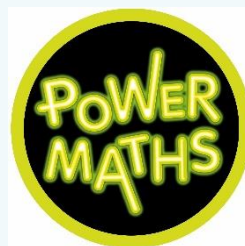


# Woodfield Primary School

## Mathematics Planning

## Progression – Power Maths



## Maths at Woodfield Primary School

Our vision in maths is for all pupils to become confident, competent and resilient mathematicians who relish the challenge of maths, and have a sense of enjoyment and curiosity about the subject. We aim to provide a curriculum that is accessible for all, will maximise the development of every child's ability and provide the opportunity for all children to fulfil their potential in maths. It is our aim to prepare children to recognise structures within maths helping to develop their fluency and knowledge of 'how the maths works.' We aim to promote a love of maths in all children by ensuring that all pupils:

- become fluent in the fundamentals of maths through varied and frequent practice so pupils develop conceptual understanding and the ability to recall knowledge rapidly and accurately
- develop an understanding of their own metacognition through a focus on providing opportunities for them to plan what they are going to do when faced with a maths problem, monitor how well they are doing as they try to solve and evaluate how well they did once they have solved it or not
- use their understanding to reason mathematically including explaining, justifying or providing evidence using mathematical language
- make the relevant links to how maths can be applied in everyday life. Maths is taught across the school in daily maths lessons and through cross-curricular links within our topics.

We use the 'Power Maths' scheme of work to ensure all pupils become fluent in the fundamentals of mathematics, reason mathematically and can solve problems by applying their mathematics to a variety of problems. When solving problems, we want our children to:

- make links to the fluency as this is highly connected and is how children develop their conceptual and procedural fluency
- use and compare different approaching and strategies
- interrogate and use their existing knowledge

At Woodfield Primary, we believe it is very important for every child to establish a secure foundation in mental calculation and to be able recall number facts. To promote the importance of this, all children participate in regular retrieval through activities designed to help children by revisiting previous learning and embedding their understanding. In the teaching of maths in our school, we seek to consider not only the importance of understanding the content being delivered but also the ways in which we teach it, the common misconceptions and the most appropriate models. In our teaching of the subject, we consider a 'learning journey' that can focus on one objective over one lesson or a series of lessons. The learning journey enables all children to make progress using concrete, visual and abstract approaches including application and reasoning opportunities for all children at the level at which they are working. Through this journey, we not only value the importance of understanding the content being delivered but also the ways in which to teach it, the common misconceptions and the most appropriate models. We endeavour to ensure that our maths curriculum provides children with an opportunity to see the value of the subject and its role in everyday life, and give them the confidence and motivation to further develop their skills into the next stage of their education, life experiences and career selections.



## Power Maths and Mastery

Power Maths makes mastery practical and achievable by providing the structures, pathways, content, tools and support needed.

To develop mastery in maths children need to be enabled to acquire a deep understanding of maths concepts, structures and procedures, step by step. Complex mathematical concepts are built on simpler conceptual components and when children understand every step in the learning sequence, maths becomes transparent and makes logical sense. Interactive lessons establish deep understanding in small steps, as well as effortless fluency in key facts such as tables and number bonds. The whole class works on the same content and no child is left behind – children are supported to keep up, not catch up.

### Power Maths:

Builds every concept in small, progressive steps.

- Is built with interactive, whole-class teaching in mind.
- Provides the tools needed to develop growth mindsets.
- Helps check understanding and ensure that every child is keeping up.
- Establishes core elements such as intelligent practice and reflection

## The Power Maths approach

### Everyone can!

Founded on the conviction that every child can achieve, *Power Maths* enables children to build number fluency, confidence and understanding, step by step.

### Child-centred learning

Children master concepts one step at a time in lessons that embrace a Concrete-Pictorial-Abstract (C-P-A) approach, avoid overload, build on prior learning and help them see patterns and connections. Same-day intervention ensures sustained progress.

### Continuing professional development

Embedded teacher support and development offer every teacher the opportunity to continually improve their subject knowledge and manage whole-class teaching for mastery.

### Whole-class teaching

An interactive, whole-class teaching model encourages thinking and precise mathematical language and allows children to deepen their understanding as far as they can.

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## Nursery

Autumn	Spring	Summer
Number- cardinality, composition, subitising and counting.	Number- cardinality, composition, subitising and counting.	Number- cardinality, composition, subitising and counting.
Patterns.	Patterns.	Measure.
Shape.	Shape.	Positional language.
	Measures.	Time.

### Nursery: Objectives- From NCETM Progression of Skills document.

<b>Number- cardinality, composition, subitising and counting:</b>
<ul style="list-style-type: none"> <li>Counting: saying number words in sequence:</li> <li>Counting: tagging each object with one number word.</li> <li>Counting: knowing the last number counted gives the total so far.</li> <li>Explore Numeral meanings.</li> <li>Conservation: knowing that the number does not change if things are rearranged (as long as none have been added or taken away)</li> <li>To recognise a regular arrangement on how many are in a group without counting them to 2.</li> <li>To recognise small amounts when they are not in a regular arrangement e.g a handful of objects.</li> <li>Part-whole: identifying smaller numbers within a number (conceptual subitising – seeing groups and combining to a total to 2)</li> <li>Number bonds: knowing which pairs make a given number within play and using contextual knowledge.</li> <li>To recognise a regular arrangement on how many are in a group without counting them to 3.</li> <li>Part-whole: identifying smaller numbers within a number (conceptual subitising – seeing groups and combining to a total to 3).</li> <li>CARDINALITY AND COUNTING – to 10 and beyond.</li> <li>Understand numbers 1-3 in depth.</li> </ul>
<b>Patterns:</b>
<ul style="list-style-type: none"> <li>To see and talk about a AB pattern.</li> <li>To continue an AB Pattern</li> <li>To see and talk about an ABC Pattern.</li> <li>To continue an ABC Pattern.</li> <li>To talk about and identifies the patterns around me. For example: stripes on clothes, designs on rugs and wallpaper.</li> <li>To use informal language like ‘pointy’, ‘spotty’, ‘blobs’ etc.</li> <li>To be able to follow and make own patterns like stick, leaf, stick, leaf.</li> </ul>
<b>Shape:</b>
<ul style="list-style-type: none"> <li>To identify 2d shapes.</li> <li>To talk about and identify their properties.</li> <li>To select a shape that I need and talk about my reasons.</li> <li>To count how many sides a circle has.</li> <li>To count how many long sides a rectangle has.</li> </ul>



<ul style="list-style-type: none"> <li>• To count how many short sides a rectangle has.</li> <li>• To identify 3D shapes.</li> <li>• To talk about and identify properties of 3D shapes.</li> <li>• To select a shape and talk about my reasons.</li> </ul>
<b>Measures:</b>
<ul style="list-style-type: none"> <li>• To make comparisons between objects relating to size, length.</li> <li>• Make comparisons between objects relating to weight and capacity.</li> </ul>
<b>Positional language:</b>
<ul style="list-style-type: none"> <li>• To use positional language in my play.</li> <li>• To understand and use words/signs such as, in, under, behind, in front, beside, next to and use them in my play</li> <li>• To understand position through words alone – for example, “The bag is under the table,” – with no pointing.</li> <li>• To be able to tell you a familiar route I know.</li> <li>• To discuss routes and locations, using words like ‘in front of’ and ‘behind’.</li> </ul>
<b>Time:</b>
<ul style="list-style-type: none"> <li>• To begin to describe a sequence of events, real or fictional, using words such as ‘first’, ‘then...’</li> </ul>

### Nursery Autumn Term

<b>Autumn</b>
Number- cardinality, composition, subitising and counting.
<ul style="list-style-type: none"> <li>• Counting: saying number words in sequence:</li> <li>• Counting: tagging each object with one number word.</li> <li>• Counting: knowing the last number counted gives the total so far.</li> <li>• Explore Numeral meanings.</li> <li>• Conservation: knowing that the number does not change if things are rearranged (as long as none have been added or taken away)</li> <li>• To recognise a regular arrangement on how many are in a group without counting them to 2.</li> <li>• To recognise small amounts when they are not in a regular arrangement e.g a handful of objects.</li> <li>• Part-whole: identifying smaller numbers within a number (conceptual subitising – seeing groups and combining to a total to 2)</li> <li>• Number bonds: knowing which pairs make a given number within play and using contextual knowledge.</li> </ul>
<b>Patterns.</b>
<ul style="list-style-type: none"> <li>• To see and talk about a AB pattern.</li> <li>• To continue an AB Pattern</li> </ul>
<b>Shape.</b>
<ul style="list-style-type: none"> <li>• To identify 2d shapes.</li> <li>• To talk about and identify their properties.</li> <li>• To select a shape that I need and talk about my reasons.</li> <li>• To count how many sides a circle has.</li> <li>• To count how many long sides a rectangle has.</li> <li>• To count how many short sides a rectangle has.</li> </ul>



## Nursery Spring Term

<b>Spring</b>
<b>Number- cardinality, composition, subitising and counting.</b>
<ul style="list-style-type: none"><li>• I can recognise small amounts when they are not in a regular arrangement e.g a handful of objects.</li><li>• Part-whole: identifying smaller numbers within a number (conceptual subitising – seeing groups and combining to a total to 2)</li><li>• Number bonds: knowing which pairs make a given number within play and using contextual knowledge.</li><li>• I can recognise a regular arrangement on how many are in a group without counting them to 3.</li><li>• Part-whole: identifying smaller numbers within a number (conceptual subitising – seeing groups and combining to a total to 3).</li></ul>
<b>Patterns.</b>
<ul style="list-style-type: none"><li>• To see and talk about an ABC Pattern.</li><li>• To continue an ABC Pattern.</li></ul>
<b>Shape.</b>
<ul style="list-style-type: none"><li>• To count how many sides a circle has.</li><li>• To count how many long sides a rectangle has.</li><li>• To count how many short sides a rectangle has.</li><li>• To identify 3D shapes.</li><li>• To talk about and identify properties of 3D shapes.</li><li>• To select a shape and talk about my reasons.</li></ul>
<b>Measures.</b>
<ul style="list-style-type: none"><li>• To make comparisons between objects relating to size, length.</li></ul>

## Nursery Summer Term

<b>Summer</b>
<b>Number- cardinality, composition, subitising and counting.</b>
<ul style="list-style-type: none"><li>• CARDINALITY AND COUNTING – to 10 and beyond.</li><li>• Understand numbers 1-3 in depth.</li></ul>
<b>Measure.</b>
<ul style="list-style-type: none"><li>• Make comparisons between objects relating to weight and capacity.</li></ul>
<b>Positional language.</b>
<ul style="list-style-type: none"><li>• To use positional language in my play.</li><li>• To understand and use words/signs such as, in, under, behind, in front, beside, next to and use them in my play</li><li>• To understand position through words alone – for example, “The bag is under the table,” – with no pointing.</li><li>• To be able to tell you a familiar route I know</li><li>• To discuss routes and locations, using words like ‘in front of’ and ‘behind’.</li></ul>
<b>Time.</b>
<ul style="list-style-type: none"><li>• To begin to describe a sequence of events, real or fictional, using words such as ‘first’, ‘then...’</li></ul>



## Reception

Autumn	Spring	Summer
Number and place value - numbers to 5	Number and place value – numbers to 10	Number: addition and subtraction – counting on and counting back
Number and place value – comparing groups within 5	Number and place value – comparing numbers within 10	Number and place value – numbers to 20
Geometry: properties of shape – 2D and 3D shapes	Number: addition and subtraction – addition to 10	Number: multiplication and division- numerical patterns
Number: addition and subtraction - change within 5	Number and place value – measure. Length, height, distance, weight	Geometry: properties of shape – composing and decomposing shapes
Number: addition and subtraction – number bonds within 5	Number: addition and subtraction – number bonds to 10	Number and place value – measure. Volume and capacity
Geometry: properties of shape – spatial awareness	Number: addition and subtraction - subtraction	<b>Optional</b> Number: addition and subtraction - sorting
	Geometry: properties of shape - exploring patterns	<b>Optional</b> Measurement - time

## Reception Objectives- Statutory ELGS

<b>Number – number and place value</b>
<ul style="list-style-type: none"> <li>• Have a deep understanding of number to 10, including the composition of each number;</li> <li>• Subitise (recognise quantities without counting) up to 5;</li> </ul>
<b>Number – addition and subtraction</b>
<ul style="list-style-type: none"> <li>▪ - Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.</li> </ul>
<b>Number – multiplication and division</b>
<ul style="list-style-type: none"> <li>▪ Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.</li> </ul>
<b>Number Fractions</b>
<ul style="list-style-type: none"> <li>▪ Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.</li> </ul>
<b>Measurement- Non statutory- NCETM Progression of skills document.</b>
<ul style="list-style-type: none"> <li>▪ Comparing indirectly</li> <li>▪ Recognising the relationship between the size and number of units.</li> <li>▪ Show awareness of comparison in estimating and predicting.</li> </ul>
<b>Time:</b>
<ul style="list-style-type: none"> <li>• Beginning to use time to sequence events.</li> <li>• To sequence different things that happen in the school day.</li> <li>• To use the vocab yesterday and tomorrow when describing events.</li> <li>• To name and order the days of the week.</li> <li>• Begin to tell the time to o'clock.</li> </ul>
<b>Geometry – properties of shapes- Non statutory. NCETM Progression of skills document.</b>
<ul style="list-style-type: none"> <li>▪ Showing awareness of properties of shape.</li> <li>▪ I can name and identify the properties of a 2d shape- Recap.</li> </ul>



- I can name and identify the properties of a 3d shape.
- Developing an awareness of relationships between shapes,
- I can talk about what shapes I can see inside another shapes.
- I can talk about and recognise shapes within shapes.

**Geometry – position and direction- Non Statuary. NCETM Progression of skills document.**

- Explore the language of direction when exploring bee bot and map work through World Wide adventures topic- build on positional language from Nursery.

Reception Autumn Term

**Number and place value - numbers to 5**

- start to count to 3 and back from 3. Link the skill of counting 3 concrete objects to the pictorial representation of 3, and then to the abstract numerals 1, 2 and 3
- build on knowledge of counting to 3, by counting to 4. Link the skill of counting 4 concrete objects to the pictorial representation of 4, and then to the abstract numeral 4. The five frame is introduced for the first time.
- count to 5 using the counting principles developed in previous learning. Represent numbers up to 5 in concrete and pictorial ways as well as linking an amount to the numerals 1, 2, 3, 4 and 5

**Number and place value – comparing groups within 5**

- compare groups of identical objects using the language more, fewer and less. Identical objects are compared in different orientations, and include equal-quantity groups to prompt more creative thinking about how identical groups can be compared.
- compare two groups of non-identical objects saying which group of objects has more, fewer or the same. Build on learning from the previous week, matching objects to compare quantities, but focusing on matching non-identical objects to draw out the misconception that objects must be the same to compare them

**Geometry: properties of shape – 2D and 3D shapes**

- focus on properties of 3D shapes through hands on exploration and play
- introduce the names of 2D shapes and some of the words to describe their properties. Children will see common 2D shapes shown in different orientations and be encouraged to look for examples of 2D shapes in the world around them.

**Number: addition and subtraction – change within 5**

- learn about one more within 5. They will use role play and *first, then, now* story structures to explore adding one more. Children will learn to recognise that the next number they count is one more than the previous number
- learn about finding one less than a given number within 5 using concrete objects and pictures to help them. Children will use role play and *first, then, now* stories to explore one less. Crossing out, not rubbing out, should be used when representing one less pictorially

**Number: addition and subtraction – number bonds within 5**

- children will be introduced to the vocabulary of whole and part, and practise the concept of breaking a whole into parts using a part-whole model

**Geometry: properties of shape – spatial awareness**

- children will develop their vocabulary to describe the position of objects. They will look at items from different viewpoints and draw representations of the items they see





**Number and place value: numbers to 10**

- count up to 8 objects and show them using concrete representations, including the ten frame. Children are introduced to counters as a representation of an amount for the first time
- count to 10. They will be introduced to the numbers 9 and 10 and use the ten frame to scaffold their counting to 10.

**Number and place value: comparing numbers within 10**

- Children will compare numbers up to 10. They will focus on comparing groups of objects where the objects differ in size.

**Number: addition and subtraction – addition to 10**

- Children will develop confidence in using the part-whole model, being able to identify the whole and the parts in different orientations and understanding that the combined parts make the whole. The key vocabulary altogether is introduced as a term to describe the combined parts

**Number and place value: measure. Length, height, distance, weight**

- Children will be introduced to length, height and distance. They use the words longer, shorter and taller to compare length. Children will focus on lining up objects to compare them and begin to explore non-standard units of measurement
- Children will be introduced to the concept of weight. They may already have some previous understanding of the meaning of heavy and light objects. They will begin to compare two items and learn how balance scales show which item is lighter or heavier

**Number: addition and subtraction – number bonds to 10**

- Children will explore number bonds to 10 using a variety of representations. Children will progress from seeing concrete representations to pictorial representations (counters), finally using counters on a ten frame to show all number bonds to 10. They will answer 'how many altogether' and 'how many more' questions
- Children will explore all the different ways to make 10 on a part-whole model, and gain confidence with the concept and vocabulary of parts and wholes: that the whole can be made up of two or more parts, and that the parts are combined to make the whole

**Number: addition and subtraction - subtraction**

- children will continue exploring subtraction, now looking specifically at the number bonds to 10. These are shown using counters and the part-whole model, which have both been used before. Children begin to work with subtraction number bonds, following the 'missing part' structure

**Geometry: properties of shape - exploring patterns**

- Children will focus on recognising, continuing and building simple patterns. Children will have the opportunity to learn about AB patterns specifically. They will be encouraged to discover that patterns can be created using various shapes, colours, sizes, actions and sounds
- children will focus on recognising, continuing and building more complex patterns. Children will have the opportunity to learn about ABB and AAB patterns specifically. They will be encouraged to discover that patterns can be formed using various shapes, colours, sizes, actions and sounds



**Number: addition and subtraction – counting on and counting back**

- Children will learn how to count on from a given number in order to add. Children will use the *first, then, now* structure to identify what number they are counting on from, and how many they are counting on
- Children will learn how to count back from a given number in order to subtract. Children will use the *first, then, now* structure in order to identify what number they are counting back from, and how many they are counting back

**Number and place value – numbers to 20**

- Children will focus on counting forwards and backwards to and from 20. Children will explore one more and one less than numbers to 20, as well as comparing numbers. During this unit, children will also have the opportunity to represent numbers within 20

**Number: multiplication and division- numerical patterns**

- Children will explore what is meant by doubling and will learn to recognise and represent doubles to double 5 in a range of contexts
- Children will focus on halving quantities by sharing into two equal groups. They will make links to the fact that halving is the opposite, or inverse, of doubling
- Children will continue their work on numerical patterns to explore odd and even numbers in familiar contexts. They will use their understanding of equal groups to identify odd and even numbers

**Geometry: properties of shape – composing and decomposing shapes**

- children will explore how shapes can be composed and decomposed and be able to recognise that a shape can have other shapes within it, just as a number can. Children will explore the attributes of shapes through many hands-on activities while discovering, describing, proving and predicting. They will experience building a combination of figures as a single new figure

**Number and place value – measure. Volume and capacity**

- Children will use simple everyday language to compare volume and capacity using the terms *full, empty, nearly full* and *nearly empty* in the context of liquids (water) and solids (sand)

**Optional**

**Number: addition and subtraction – sorting**

- Children will focus on similarities and differences in sets of objects found in the classroom. Children will sort objects into two groups based on size, colour and shape. They will discover that groups can be sorted in different ways and into more than two groups.

**Optional**

**Measurement - time**

- children will be introduced to the concept of times of the day and the order of events in a day. They will begin to order familiar events using clues from pictures and will be introduced to the idea that the clock tells the time of the day, without having to read the clock



## Year 1

Week	Term		
	Autumn	Spring	Summer
1	Unit 1: Numbers to 10 (14 lessons)	Unit 6: Numbers to 20 (12 lessons)	Unit 11: Multiplication and division (9 lessons)
2			Unit 12: Halves and quarters (4 lessons)
3			Unit 13: Position and direction (5 lessons)
4	Unit 2: Part-whole within 10 (7 lessons)	Unit 7: Addition and subtraction within 20 (11 lessons)	Unit 14: Numbers to 100 (6 lessons)
5			Unit 15: Money (3 lessons)
6	Unit 3: Addition within 10 (4 lessons)	Unit 8: Numbers to 50 (7 lessons)	Unit 16: Time (5 lessons)
7	Unit 4: Subtraction within 10 (8 lessons)		Unit 9: Introducing length and height (4 lessons)
8		Unit 5: 2D and 3D shapes (5 lessons)	Unit 10: Introducing weight and volume (7 lessons)
9			
10			
11			
12			



## Year 1 Objectives

Number – number and place value
<ul style="list-style-type: none"> <li>count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>count, read and write numbers to 100 in numerals;</li> <li><b>count in multiples of twos, fives and tens</b></li> <li><b>given a number, identify one more and one less</b> (under 100)</li> <li>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</li> <li><b>read and write numbers from 1 to 20 in numerals and words.</b></li> </ul>
Number – addition and subtraction
<ul style="list-style-type: none"> <li>read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs</li> <li><b>represent and use number bonds and related subtraction facts within 20</b></li> <li>add and subtract one-digit and two-digit numbers to 20, including zero</li> <li>solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as <math>7 = \square - 9</math>.</li> </ul>
Number – multiplication and division
<ul style="list-style-type: none"> <li>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.</li> </ul>
Number Fractions
<ul style="list-style-type: none"> <li>recognise, find and name a half as one of two equal parts of an object, shape or quantity</li> <li>recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.</li> </ul>
Measurement
compare, describe and solve practical problems for:
<ul style="list-style-type: none"> <li>lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]</li> <li>mass/weight [for example, heavy/light, heavier than, lighter than]</li> <li>capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]</li> </ul>



- 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.

#### Geometry – properties of shapes

- 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].

#### Geometry – position and direction

- describe position, direction and movement, including whole, half, quarter and three quarter turns.

### Year 1 Autumn Term

#### **Number – place value**

#### **Numbers to 10 (14 lessons)**

What to teach:

- be able to recognise and explain different ways of sorting objects and that a single group of objects can be sorted in multiple ways
- relate the amount of objects to the correct number in digits and the correct number in words
- represent numbers using objects such as cubes or counters, focussing on more abstract objects rather than pictures or objects of real-life things.
- count objects from a larger group
- develop understanding of counting by counting on from any given starting number; link the skill of counting concrete materials to the abstract numerals
- learn to find one more than a given number; investigate further the place value of numbers from 0 to 10 and consider what 'one more' means.
- use their knowledge and understanding of counting forwards to 10 to help them count backwards from 10
- learn to find one less than a given number. They; investigate further the place value of numbers from 0 to 10 and consider what 'one less' means
- compare groups of objects; identify, when given two groups of objects, whether one group has more objects than the other
- use the and = signs to compare two groups of objects; explain their comparisons using the correct mathematical language.
- compare more abstract numbers where they are not given countable objects; choose the best representation or resource to help them compare.
- compare three or more groups of objects and order them in both ascending and descending order.
- recognise and use the representation of a number line to help answer questions based on all of the learning in this unit.



### ***End of unit check – numbers to 10***

#### **Number – addition and subtraction**

##### **Part-whole within 10 (7 lessons)**

What to teach:

- see that a whole group can be made up of two (or more) parts; build on their knowledge of counting or subitising objects in a group.
- that a number can be partitioned into two parts using a part-whole model; explore that numbers can be partitioned in different ways.
- build on part-whole knowledge by writing a part-whole as an addition number sentence. For each number in the sentence, understand what the number represents
- consolidate learning on number sentences; explore related facts, understand the term 'fact family' and are able to write one down for a part-whole model.
- start to look at number bonds to 10; understand the term 'bond' and write down number bonds.
- Learn about number bonds within 10; learn strategies for organising thinking and begin to spot patterns
- find and represent number bonds to 10 by finding a missing part

### ***End of unit check – part-whole within 10***

#### **Number – addition and subtraction**

##### **Addition within 10 (4 lessons)**

What to teach:

- combine two parts into a whole and understand how the part-whole model represents addition; make links between concrete representations, part-whole models and abstract addition calculations.
- be able to find a total by counting on from one amount rather than having to start at 0.
- find solutions to simple word and picture problems involving additions to 10
- use what they have learnt about addition to solve missing number problems; think about addition and parts and wholes to help solve these problems rather than be formally introduced to subtraction at this stage

### ***End of unit check – addition within 10***

#### **Number – addition and subtraction**

##### **Subtraction within 10 (8 lessons)**

What to teach:

- work out simple 'how many are left?' subtractions within 10 by crossing out
- work out simple 'how many are left?' subtractions within 10 by using part-whole models and ten frames; use the minus symbol
- find two parts of a whole by breaking up a total; find one part by thinking about the whole and the other part
- continue to find a missing part from the whole and the other part; use a part-whole model and sentence scaffolds to help complete subtractions.
- find four addition and four subtraction facts from the same context; see the = sign in different parts of number sentences and be able to explain the meaning of each part of the number sentences
- calculate subtraction number sentences using a number line to count back from the bigger number.
- add or subtract 1 or 2 using a number line to help them; draw on their knowledge of addition and subtraction from previous lessons in the unit
- answer a range of addition, subtraction and 'finding the difference' questions; make up their own word problems based on a pictorial prompt.



***End of unit check – subtraction within 10***

***Consolidation/review***

***Autumn termly assessment***

### Year 1 Spring Term

**Number – place value**

**Numbers to 20 (12 lessons)**

**Number – addition and subtraction**

**Addition and subtraction within 20 (11 lessons)**

**Number – place value**

**Numbers to 50 (7 lessons)**

**Measurement**

**Introducing length and height (4 lessons)**

**Measurement**

**Introducing weight and volume (7 lessons)**

***Consolidation/review***

***Spring termly assessment***

### Year 1 Summer Term

**Number – multiplication and division**

**Multiplication and division (9 lessons)**

**Number – fractions**

**Halves and quarters (9 lessons)**

**Geometry – position and direction**

**Position and direction (5 lessons)**

**Number – place value**

**Numbers to 100 (6 lessons)**

**Measurement**

**Money (3 lessons)**

**Measurement**



**Time (6 lessons)**

***Consolidation/review***  
***Summer termly assessment***



## Year 2

Week	Term		
	Autumn	Spring	Summer
1	Unit 1: Numbers to 100 (17 lessons)	Unit 5: Money (10 lessons)	Unit 10: Statistics (7 lessons)
2		Unit 6: Multiplication and division (1) (8 lessons)	Unit 11: Fractions (12 lessons)
3			
4			
5	Unit 2: Addition and subtraction (1) (13 lessons)	Unit 7: Multiplication and division (2) (10 lessons)	Unit 12: Position and direction (5 lessons)
6			Unit 13: Time (5 lessons)
7	Unit 3: Addition and subtraction (2) (12 lessons)	Unit 8: Length and height (5 lessons)	Unit 14: Problem solving (11 lessons)
8			
9	Unit 4: Properties of shapes (12 lessons)	Unit 9: Mass, capacity and temperature (8 lessons)	
10			
11			
12			



## Year 2 Objectives

### Number – number and place value

- **count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward**
- **recognise the place value of each digit in a two-digit number (tens, ones)**
- identify, represent and estimate numbers using different representations, including the number line
- compare and order numbers from 0 up to 100; use  $<$ ,  $>$  and  $=$  signs
- read and write numbers to at least 100 in numerals and in words
- use place value and number facts to solve problems.

### Number – addition and subtraction

- 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
- **recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100**
- **add and subtract numbers using concrete objects, pictorial representations, and mentally, including:**
  - a two-digit number and ones
  - a two-digit number and tens
  - two two-digit numbers
  - adding three one-digit numbers
- **show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot**
- recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

### Number – multiplication and division





<ul style="list-style-type: none"> <li>• <b>recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</b></li> <li>• calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (<math>\times</math>), division (<math>\div</math>) and equals (<math>=</math>) signs</li> <li>• <b>show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot</b></li> <li>• solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.</li> </ul>
Number Fractions
<ul style="list-style-type: none"> <li>• <b>recognise, find, name and write fractions <math>\frac{1}{3}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math>, <math>\frac{3}{4}</math> of a length, shape, set of objects or quantity</b></li> <li>• write simple fractions for example, <math>\frac{1}{2}</math> of 6 = 3 and recognise the equivalence of <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math></li> </ul>
Measurement
<ul style="list-style-type: none"> <li>• choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (<math>^{\circ}\text{C}</math>); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels</li> <li>• compare and order lengths, mass, volume/capacity and record the results using <math>&gt;</math>, <math>&lt;</math> and <math>=</math></li> <li>• recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value</li> <li>• <b>find different combinations of coins that equal the same amounts of money</b></li> <li>• solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change</li> <li>• compare and sequence intervals of time</li> <li>• <b>tell and write the time</b> to five minutes, <b>including quarter past/to the hour</b> and draw the hands on a clock face to show these times</li> <li>• know the number of minutes in an hour and the number of hours in a day.</li> </ul>
Geometry – properties of shapes
<ul style="list-style-type: none"> <li>• <b>identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line</b></li> <li>• <b>identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces</b></li> <li>• identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]</li> <li>• compare and sort common 2-D and 3-D shapes and everyday objects.</li> </ul>
Geometry – position and direction
<ul style="list-style-type: none"> <li>• order and arrange combinations of mathematical objects in patterns and sequences</li> <li>• use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).</li> </ul>
Statistics
<ul style="list-style-type: none"> <li>• interpret and construct simple pictograms, tally charts, block diagrams and simple tables</li> <li>• ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity</li> <li>• ask and answer questions about totalling and comparing categorical data.</li> </ul>



**Number – number and place value**

**Numbers to 100**

What to teach:

- rehearse key number skills in the range 0 to 20: counting up and down, reading and writing numerals, partitioning 2-digit numbers into 10 and some 1s. Also compare numbers as greater or less on a number line.
- count in multiples of 10 up to 100, using a variety of representations to support fluency and understanding (for example, that 5 tens make 50, 7 tens make 70, and 90 is made up of 9 tens)
- learn to count in 10s, then count on in 1s, in order to count a certain number of objects or items, already arranged into 10s and 1s
- count in 10s and 1s, to and from 2-digit numbers
- develop skills of counting in 10s and 1s, to form their own 10s and 1s, and represent and build an understanding of the number of 10s and 1s comprising a given 2-digit number
- learn to use a place value grid to show the value of digits within a 1- or 2-digit number
- develop understanding of the place value for 10s and 1s to partition 2-digit numbers
- partition 2-digit numbers flexibly, by finding multiple partitions of 10s and 1s
- build on partitioning skills to write a 2-digit number as an addition of 10s and 1s (for example  $43 = 40 + 3$ )
- develop a deeper understanding of number lines, including number lines that do not show every number, only multiples of 10
- develop a deeper understanding of number lines, including number lines that do not start on 0, but start instead on a multiple of 10
- further develop understanding of number lines for representing numbers within the range 0 to 100
- develop understanding of comparing numbers; start to use understanding of place value to aid them in their comparisons
- continue developing their ability to compare numbers, using more abstract representations
- draw on skills in comparing and place value, and use them to find effective and efficient ways to order three or more 1- and 2-digit numbers
- learn to count forwards and backwards in 2s, 5s and 10s
- learn to count forwards and backwards in 3s.

***End of unit check – numbers to 100***

**Number – addition and subtraction**

**Addition and subtraction (1) – 13 lessons**

What to teach:

- focus on bonds within 20, using the part-whole diagram to help them see these visually. Find fact families and record known facts in different ways within addition and subtraction calculations
- explore strategies for learning number bonds and consider which facts they need to learn off by heart
- use known facts with 1s to determine other facts with corresponding multiples of 10
- use knowledge of number bonds to learn complements of 100 (e.g.  $10 + 90$ ,  $20 + 80$ ,  $30 + 70$ )



- add and subtract 1s to or from a 2-digit number without exchanging, using number bonds to help them
- add two single-digit numbers that total more than 10, by breaking one number into two parts to bridge the 10
- deepen understanding and proficiency in adding two single-digit numbers by bridging 10
- add three numbers presented in a variety of ways, including concrete and pictorial representations; select the most appropriate resource to help them and rearrange the numbers to add efficiently
- add from a 2-digit number to the next multiple of 10, in order to prepare for learning how to do additions that bridge 10s
- add 2-digit and 1-digit numbers together, with the focus on bridging 10; represent this using ten frames and jumps on a number line
- learn how to subtract by crossing 10 (the range stays within 20, so the subtractions cross the 10 barrier)
- begin to build up understanding of how to subtract from 2-digit numbers more flexibly, by subtracting from a given multiple of 10
- build on subtraction skills to subtract across a multiple of 10

### ***End of unit check – addition and subtraction (1)***

#### **Number – addition and subtraction**

#### **Addition and subtraction (2) – 12 lessons**

What to teach:

- find 10 more and 10 less than a number and notice which digit changes during this process.
- build on what was learnt in the previous lesson; focus on addition and subtraction of more than 1 ten to and from a 2-digit number
- add two 2-digit numbers by adding the 10s and the 1s separately, and then recombining
- add a 2-digit number to another 2-digit number by first adding on more 10s and then adding on more 1s
- learn to subtract a 2-digit number from a 2-digit number by counting back in 10s, and then counting back in 1s (no crossing of tens in this lesson)
- build on the method from the previous lesson and begin to subtract 2-digit numbers with calculations that include crossing 10s
- answer questions worded ‘how many more?’ and ‘how many fewer?’; compare quantities of objects to find the difference and represent this on a number line or bar model
- more formally link ‘finding the difference’ with subtraction, building on work from the previous lesson about finding ‘how many more’ or ‘how many fewer’
- recognise that two calculations can be compared using the symbols =, < and >
- use their calculation skills to solve missing number problems such as  $\bigcirc + 12 = 25$
- represent word problems using single bar models; use the words ‘part’ and ‘whole’ to help identify whether the calculation is addition or subtraction
- represent word problems using single bar models; use the words ‘part’ and ‘whole’ to help identify whether the calculation is addition or subtraction

### ***End of unit check – addition and subtraction (2)***

#### **Geometry – properties of shape**

#### **Properties of shape - 12 lessons**

What to teach:

#### ***Autumn term assessment***



Year 2 Spring Term

**Measurement**

**Money – 10 lessons**

**Number – multiplication and division**

**Multiplication and division (1) – 8 lessons**

**Number – multiplication and division**

**Multiplication and division (2) – 8 lessons**

**Measurement**

**Length and height – 5 lessons**

**Measurement**

**Mass, capacity and temperature – 8 lessons**

Year 2 Summer Term

**Statistics**

**Statistics – 7 lessons**

**Number – fractions**

**Fractions – 15 lessons**

**Geometry – position and direction**

**Position and direction – 5 lessons**

**Measurement**

**Time – 8 lessons**

**Number – addition and subtraction**

**Problem solving and efficient methods – 12 lessons**



## Year 3

Week	Term		
	Autumn	Spring	Summer
1	Unit 1: Place value within 1,000 (13 lessons)	Unit 6: Multiplication and division (3) (13 lessons)	Unit 11: Fractions (2) (8 lessons)
2			Unit 12: Money (5 lessons)
3			
4	Unit 2: Addition and subtraction (1) (10 lessons)	Unit 7: Length and perimeter (11 lessons)	Unit 13: Time (12 lessons)
5			
6	Unit 3: Addition and subtraction (2) (13 lessons)	Unit 8: Fractions (1) (10 lessons)	Unit 14: Angles and properties of shapes (9 lessons)
7			
8			
9	Unit 4: Multiplication and division (1) (5 lessons)	Unit 9: Mass (7 lessons)	Unit 15: Statistics (7 lessons)
10			
11	Unit 5: Multiplication and division (2) (13 lessons)	Unit 10: Capacity (6 lessons)	
12			



## Year 3 Objectives

### Number – number and place value

- **count from 0 in multiples of 3, 4, 8, 50 and 100**
- **find 10 or 100 more or less than a given number**
- **recognise the place value of each digit in a three-digit number (hundreds, tens, ones)**
- compare and order numbers up to 1000
- identify, represent and estimate numbers using different representations
- read and write numbers up to 1000 in numerals and in words
- solve number problems and practical problems involving these ideas.

### Number – addition and subtraction

- **add and subtract numbers mentally, including:**
  - a three-digit number and ones
  - a three-digit number and tens
  - a three-digit number and hundreds
- **add and subtract numbers with up to three digits**, using formal written methods of columnar addition and subtraction
- estimate the answer to a calculation and use inverse operations to check answers
- **solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.**

### Number – multiplication and division

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

### Number Fractions



- count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10
- **recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators**
- recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators
- recognise and show, using diagrams, equivalent fractions with small denominators
- add and subtract fractions with the same denominator within one whole [for example,  $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$ ]
- **compare and order unit fractions**, and fractions with the same denominators
- solve problems that involve all of the above.

#### Measurement

- measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)
- **measure the perimeter of simple 2-D shapes**
- add and subtract amounts of money to give change, using both £ and p in practical contexts
- **tell and write the time from an analogue clock**, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks
- estimate and read time with increasing accuracy to the nearest minute;
  - record and compare time in terms of seconds, minutes and hours;
  - use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight
- **know the number of seconds in a minute and the number of days in each month, year and leap year**
- compare durations of events [for example to calculate the time taken by particular events or tasks].

#### Geometry – properties of shapes

- draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them
- recognise angles as a property of shape or a description of a turn
- **identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle**
- identify horizontal and vertical lines and pairs of perpendicular and parallel lines.

#### Statistics

- interpret and present data using bar charts, pictograms and tables
- solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.



**Number – number and place value**

**Place value within 1000 – 13 lessons**

What to teach:

- recap representing and partitioning numbers to 100 using a variety of representations such as base 10 equipment and part-whole models. This will prepare for later learning in the unit.
- identify and label numbers within 100 on a number line. Children should be able to identify and label numbers made up of only 10s as well as numbers with both 10s and 1s
- Learn how to count in 100s from 0 to 1,000. Children will write the numbers in both numerals and words
- Represent numbers in place value grids using counters. Children will write numbers represented with counters in a place value grid
- Understand that a number up to 1,000 is made up of some 100s, some 10s and some 1s. Use base 10 equipment and part-whole models to represent numbers
- Build on understanding of 3-digit numbers and learn that they can be partitioned in different ways. Use base 10 equipment and part-whole models to represent 3-digit numbers.
- Represent numbers in place value grids using counters. Write numbers represented with counters in a place value grid
- Identify values and mark points on number lines that go up in 100s, 10s and 1s
- Begin to understand where numbers lie on a number line; identify numbers that lie between two points
- Find 1, 10 and 100 more or less than a given number (including cases that require an exchange); find the original number given the increase or decrease
- Compare two 3-digit numbers; be able to work out missing digits to make an inequality statement correct
- Order three or more numbers up to 3-digits; work out missing digits in lists of ordered numbers
- Count on and back in 50s from 0 to 1,000 and count from any multiple of 50; work out how many 50s there are in a number.

***End of unit check – place value within 1000***

**Number – addition and subtraction**

**Addition and subtraction (1) – 10 lessons**

What to teach:

- use knowledge of number bonds within 10 to add and subtract multiples of 100, up to 1,000
- add and subtract a 1-digit number to and from a 3-digit number, using understanding of place value, without being expected to cross 10s
- add and subtract multiples of 10 to and from a 3-digit number by using their knowledge of number bonds to add and subtract the 10s digits
- add a multiple of 100 to a 3-digit number by using knowledge of number bonds to add the 100s digits.
- explore patterns in addition and subtraction and the effect on different digits of adding or subtracting 1s, 10s or 100s. At this stage, calculations including exchanging are not required
- understand how to recognise additions where a 10 is crossed, and know how to use exchange of 10 ones for 1 ten
- develop understanding of adding 10s to a 3-digit number, including examples which require exchange of 10 tens for 1 hundred



- subtract a 1-digit number where the subtraction crosses a 10; understand how to exchange 1 ten for 10 ones
- subtract a multiple of 10 from a 3-digit number, including where they have to exchange 1 hundred for 10 tens.
- focus on using simple calculations to find the answer to more complex calculations. Use number bonds within 10 to break calculations down into more manageable steps and then use related facts to work out other calculations.

***End of unit check – addition and subtraction (1)***

**Number – addition and subtraction**

**Addition and subtraction (2) – 13 lessons**

What to teach:

- add two 3-digit numbers where no exchange is necessary. Use a written column method and begin with the 1s, then the 10s and then the 100s
- subtract a 3-digit number from another 3-digit number where no exchange is necessary; represent the subtraction as a written column subtraction
- add two 3-digit numbers where exchange may be necessary, and to recognise when it is or is not necessary
- build on the learning from the previous lesson to add 3-digit numbers where exchanges may be necessary in the 1s, 10s or both
- develop fluency with column subtraction of 3-digit numbers to include calculations where exchange is necessary across one or two columns
- further develop fluency with column subtraction of 3-digit numbers, to include calculations where an exchange is necessary across one or two columns
- develop written methods for addition, including exchange of 10s and 1s
- subtract using column methods with exchange where necessary
- make number bonds to 100 using a 100 square
- develop skills of estimation and approximation to allow simple checks of additions and subtractions; as rounding has not yet been learned, the approach builds on number sense and approximate position on a number line
- learn to use inverse operations and fact families as checking strategies; use them to help make appropriate calculations more efficient as mental strategies
- use single bar model to represent word problems that require addition or subtraction
- develop use of the bar model to include two bars to represent comparison and to tackle problems with two or more steps

***End of unit check – addition and subtraction (2)***

**Number – multiplication and division**

**Multiplication and division (1) – 5 lessons**

**Number – multiplication and division**

**Multiplication and division (2) – 13 lessons**

***Consolidation and review***

***Autumn term assessment***





### Year 3 Spring Term

**Number – multiplication and division**  
**Multiplication and division (3) – 13 lessons**

**Measurement**  
**Length and perimeter – 11 lessons**

**Number – fractions**  
**Fractions (1) – 10 lessons**

**Measurement**  
**Mass – 7 lessons**

**Measurement**  
**Capacity – 6 lessons**

***Consolidation and review***  
***Spring term assessment***

### Year 3 Summer Term

**Number – fractions**  
**Fractions (2) – 8 lessons**

**Measurement**  
**Money – 5 lessons**

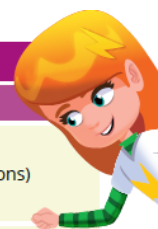
**Measurement**  
**Time – 12 lessons**

**Geometry – properties of shapes**  
**Angles and properties of shapes – 10 lessons**

**Statistics – 7 lessons**

***Consolidation and review***  
***Spring term assessment***





Week	Term		
	Autumn	Spring	Summer
1	Unit 1: Place value – 4-digit numbers (1) (8 lessons)	Unit 6: Multiplication and division (2) (16 lessons)	Unit 11: Decimals (2) (7 lessons)
2			Unit 12: Money (6 lessons)
3	Unit 13: Time (5 lessons)		
4			
5	Unit 3: Addition and subtraction (16 lessons)	Unit 7: Perimeter (6 lessons)	Unit 14: Geometry – angles and 2D shapes (8 lessons)
6		Unit 8: Fractions (1) (9 lessons)	Unit 15: Statistics (6 lessons)
7			
8		Unit 9: Fractions (2) (8 lessons)	
9	Unit 4: Area (5 lessons)	Unit 10: Decimals (1) (12 lessons)	Unit 16: Position and direction (6 lessons)
10	Unit 5: Multiplication and division (1) (12 lessons)		
11			
12			

Year 4 Objectives

<p>Number – number and place value</p> <ul style="list-style-type: none"> <li>count in multiples of 6, 7, 9, 25 and 1000</li> <li>find 1000 more or less than a given number</li> <li>count backwards through zero to include negative numbers</li> <li>recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)</li> <li>order and compare numbers beyond 1000</li> <li>identify, represent and estimate numbers using different representations</li> <li>round any number to the nearest 10, 100 or 1000</li> <li>solve number and practical problems that involve all of the above and with increasingly large positive numbers</li> <li>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.</li> </ul>
<p>Number – addition and subtraction</p> <ul style="list-style-type: none"> <li>add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate</li> <li>estimate and use inverse operations to check answers to a calculation</li> <li>solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</li> </ul>
<p>Number – multiplication and division</p> <ul style="list-style-type: none"> <li>recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math></li> <li>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</li> <li>recognise and use factor pairs and commutativity in mental calculations</li> <li>multiply two-digit and three-digit numbers by a one-digit number using formal written layout</li> <li>divide three digit numbers by a one-digit number using the formal written layout of short division</li> </ul>



<ul style="list-style-type: none"> <li>• <b>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.</b></li> </ul>
Number Fractions (including decimals)
<ul style="list-style-type: none"> <li>• <b>recognise and show, using diagrams, families of common equivalent fractions</b></li> <li>• count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.</li> <li>• <b>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</b></li> <li>• <b>add and subtract fractions with the same denominator</b></li> <li>• recognise and write decimal equivalents of any number of tenths or hundredths</li> <li>• recognise and write decimal equivalents to <math>\frac{1}{4}, \frac{1}{2}, \frac{3}{4}</math></li> <li>• <b>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</b></li> <li>• round decimals with one decimal place to the nearest whole number</li> <li>• compare numbers with the same number of decimal places up to two decimal places</li> <li>• solve simple measure and money problems involving fractions and decimals to two decimal places.</li> </ul>
Measurement
<ul style="list-style-type: none"> <li>• Convert between different units of measure [for example, kilometre to metre; hour to minute]</li> <li>• <b>measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres</b></li> <li>• <b>find the area of rectilinear shapes by counting squares</b></li> <li>• estimate, compare and calculate different measures, including money in pounds and pence</li> <li>• <b>read, write and convert time between analogue and digital 12- and 24-hour clocks</b></li> <li>• solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.</li> </ul>
Geometry – properties of shapes
<ul style="list-style-type: none"> <li>• compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes</li> <li>• <b>identify acute and obtuse angles and compare and order angles up to two right angles by size</b></li> <li>• <b>identify lines of symmetry in 2-D shapes presented in different orientations</b></li> <li>• <b>complete a simple symmetric figure with respect to a specific line of symmetry.</b></li> </ul>
Geometry – position and direction
<ul style="list-style-type: none"> <li>• <b>describe positions on a 2-D grid as coordinates in the first quadrant</b></li> <li>• describe movements between positions as translations of a given unit to the left/right and up/down</li> <li>• plot specified points and draw sides to complete a given polygon.</li> </ul>
Statistics
<ul style="list-style-type: none"> <li>• <b>interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</b></li> <li>• solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</li> </ul>



### **Number and place value**

#### **4-digit numbers (1) – 8 lessons**

What to teach:

- rehearse the place value of 3-digit numbers and explore different ways to partition them; make the numbers using different equipment and representations and find the value of each digit
- rehearse finding the position of 3-digit numbers on a variety of number lines, including some real-life contexts
- count in 1,000s from 0 to 10,000, forwards and backwards and recognise multiples of 1,000 in different representations
- develop their understanding of place value by working with 4-digit numbers and understanding the place value of the 1,000s position
- further explore the value of each digit in a 4-digit number by partitioning into 1,000s, 100s, 10s and 1s
- explore partitioning 4-digit numbers in various ways, not necessarily just into 1,000s, 100s, 10s and 1s, in preparation for conceptual work with written calculation methods
- find 1,000 more or less than a given number, using knowledge of place value to help; recap learning on 10 and 100 more
- develop understanding of the relationship between 1,000s, 100s, 10s and 1s, and explore the concept of exchange more fully

***End of unit check – 4-digit numbers (1)***

### **Number and place value**

#### **4-digit numbers (2) – 8 lessons**

What to teach:

- locate and identify multiples of 1,000, 100 and 10 on number lines
- identify numbers in a range between two multiples of 1,000, 100 or 10; identify the previous and next multiple of 1,000, 100 or 10 that a given number lies between
- develop knowledge of place value and comparison of numbers to make sensible estimates on a number line
- order 4-digit numbers, focusing on the value of the digits and using a place value grid to support understanding
- round 4-digit numbers to the nearest 1,000, building on work with finding previous and next multiples of 10, 100 and 1,000
- round 3- and 4-digit numbers to the nearest 100
- rounding to the nearest multiple of 10
- build on knowledge of rounding to 1,000, 100 and 10, including working out numbers that round to a particular degree of accuracy

***End of unit check – 4-digit numbers (2)***

### **Number – addition and subtraction**

#### **Addition and subtraction – 16 lessons**

What to teach:

- use knowledge of place value to add and subtract 1, 10, 100 and 1,000 to and from 4-digit numbers.
- add 4-digit numbers using the column method (without exchanging), paired with a place value grid to ensure children have a deeper understanding
- add 4-digit numbers using the column method with an exchange in one column
- add 4-digit numbers using the column method with exchanges across more than one column



- subtract 4-digit numbers using the column method where there are no exchanges
- subtract 4-digit numbers using the column method where an exchange is required
- subtract 4-digit numbers using the column method where more than one exchange is required
- subtract 4-digit numbers using the column method with exchanges, when there is a zero in the column to be exchanged from
- consider different methods for solving calculations, thinking about how to work efficiently and accurately
- learn the equivalent difference method of subtraction
- learn to make choices about whether to round to the nearest 10, 100 or 1,000 and how to use that to decide if a calculation is accurate
- learn strategies for checking answers, using the inverse operation and estimating by rounding
- apply addition and subtraction strategies learnt previously to solve simple problems
- explore single bar models and comparison bar models to interpret and solve simple problems
- apply addition and subtraction strategies that they have learnt previously, to solve two-step problems
- continue to apply the addition and subtraction strategies previously learnt to solve multi-step problems

***End of unit check – addition and subtraction***

**Measurement**

**Area – 5 lessons**

What to teach:

**Number - multiplication and division**

**Multiplication and division (1) – 12 lessons**

What to teach:

***Autumn term assessment***

Year 4 Spring Term

**Number - multiplication and division**

**Multiplication and division (2) – 12 lessons**

**Measurement**

**Length and perimeter – lessons**

**Number – fractions**

**Fractions (1) – 9 lessons**

**Number – fractions**

**Fractions (2) – 8 lessons**

**Number – fractions (including decimals and percentages)**

**Decimals (1) – 12 lessons**

***Spring term assessment***



## Year 4 Summer Term

### **Number – fractions (including decimals and percentages)**

**Decimals (2) – 7 lessons**

### **Measure**

**Money – 6 lessons**

### **Measure**

**Time – 5 lessons**

### **Geometry – properties of shapes**

**Angles and 2D shapes – 8 lessons**

### **Statistics**

**Statistics – 4 lessons**

### **Geometry – position and direction**

**Position and direction – 4 lessons**

***Summer term assessment***



## Year 5



Week	Term		
	Autumn	Spring	Summer
1	<b>Unit 1: Place value within 1,000,000 (1)</b> (8 lessons)	<b>Unit 7: Multiplication and division (2)</b> (10 lessons)	<b>Unit 12: Geometry – properties of shapes (12 lessons)</b>
2			
3	<b>Unit 2: Place value within 1,000,000 (2)</b> (6 lessons)	<b>Unit 8: Fractions (3) (7 lessons)</b>	<b>Unit 13: Geometry – position and direction (6 lessons)</b>
4			
5	<b>Unit 3: Addition and subtraction (12 lessons)</b>	<b>Unit 9: Decimals and percentages (15 lessons)</b>	<b>Unit 14: Decimals (15 lessons)</b>
6			
7	<b>Unit 4: Multiplication and division (1) (10 lessons)</b>	<b>Unit 10: Measure – perimeter and area (8 lessons)</b>	<b>Unit 15: Negative numbers (4 lessons)</b>
8			
9	<b>Unit 5: Fractions (1) (8 lessons)</b>	<b>Unit 11: Graphs and tables (6 lessons)</b>	<b>Unit 16: Measure – converting units (10 lessons)</b>
10			
11	<b>Unit 6: Fractions (2) (11 lessons)</b>		<b>Unit 17: Measure – volume and capacity (3 lessons)</b>
12			

## Year 5 Objectives

### Number – number and 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
- interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero
- round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000
- solve number problems and practical problems that involve all of the above
- read Roman numerals to 1000 (M) and recognise years written in Roman numerals.

### Number – addition and subtraction

- **add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)**
- add and subtract numbers mentally with increasingly large numbers
- use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

### Number – multiplication and division

- **identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers**
- know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers
- establish whether a number up to 100 is prime and recall prime numbers up to 19
- **multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers**



- **multiply and divide numbers mentally drawing upon known facts**
- **divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context**
- **multiply and divide whole numbers and those involving decimals by 10, 100 and 1000**
- recognise and use square numbers and cube numbers, and the notation for squared ( $^2$ ) and cubed ( $^3$ )
- solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes
- solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign
- solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple ratio.

#### Number Fractions (including decimals and percentages)

- **compare and order fractions whose denominators are all multiples of the same number**
- identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths
- **recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements  $> 1$  as a mixed number [for example,  $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$ ]**
- add and subtract fractions with the same denominator and denominators that are multiples of the same number
- multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
- read and write decimal numbers as fractions [for example,  $0.71 = \frac{71}{100}$ ]
- recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
- round decimals with two decimal places to the nearest whole number and to one decimal place
- read, write, order and compare numbers with up to three decimal places
- solve problems involving number up to three decimal places
- **recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal**
- solve problems which require knowing percentage and decimal equivalents of  $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}, \frac{2}{5}, \frac{4}{5}$  and those fractions with a denominator of a multiple of 10 or 25.

#### Measurement

- **convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)**
- understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints
- measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres
- calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres ( $cm^2$ ) and square metres ( $m^2$ ) and estimate the area of irregular shapes
- estimate volume [for example, using  $1\text{ cm}^3$  blocks to build cuboids (including cubes)] and capacity [for example, using water]
- solve problems involving converting between units of time





<ul style="list-style-type: none"> <li>use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.</li> </ul>
Geometry – properties of shapes
<ul style="list-style-type: none"> <li>identify 3-D shapes, including cubes and other cuboids, from 2-D representations</li> <li>know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles</li> <li>draw given angles, and measure them in degrees (<math>^{\circ}</math>)</li> <li><b>identify:</b> <ul style="list-style-type: none"> <li><b>angles at a point and one whole turn (total <math>360^{\circ}</math>)</b></li> <li><b>angles at a point on a straight line and <math>\frac{1}{2}</math> a turn (total <math>180^{\circ}</math>)</b></li> <li><b>other multiples of <math>90^{\circ}</math></b></li> </ul> </li> <li>use the properties of rectangles to deduce related facts and find missing lengths and angles</li> <li>distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</li> </ul>
Geometry – position and direction
<ul style="list-style-type: none"> <li>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.</li> </ul>
Statistics
<ul style="list-style-type: none"> <li><b>solve comparison, sum and difference problems using information presented in a line graph</b></li> <li>complete, read and interpret information in tables, including timetables.</li> </ul>

### Year 5 Autumn Term

#### **Number and place value**

#### **Place value within 1,000,000 (1) – 8 lessons**

What to teach:

- revisit Roman numerals to 100 and learn the numerals M (1,000) and D (500); explore reading and writing numbers using Roman numerals, and use the numerals M and D to recognise and represent years
- revisit numbers to 10,000 with a focus on place value and count in 1,000s from different numbers; build numbers and break them down using what is known about the value of each digit and knowledge of zero as a place holder
- work with numbers to 100,000, focusing on the position and value of each digit; represent numbers in different ways and break them down, explaining the value of each part
- develop understanding of place value up to the 100,000s, learning to read and write numbers accurately; count in steps of 100,000, 10,000, 1,000, 100, 10 and 1
- learn to write 5- and 6-digit numbers using both numerals and words; focus on the correct positioning of commas in numbers and understand that this helps to accurately write numbers in words
- focus on different powers of 10, such as 100 and 1,000, and consider how many other powers of 10 make up these numbers or any multiple of them (e.g. they should already know that there are 10 hundreds in 1,000, and they will use this to find how many hundreds there are in a 4-digit number)
- develop ability to count forwards and backwards in steps of 10, 100, 1,000 and 10,000
- use understanding of the place value of numbers with up to 6 digits to partition and recombine numbers to solve number problems

***End of unit check - Place value within 100,000 (1)***



## **Number and place value**

### **Place value within 1,000,000 (2) – 6 lessons**

What to teach:

- estimate and accurately identify where numbers to 1,000,000 would lie on a number line; use understanding of place value to help achieve this
- compare and order numbers to 100,000 using what they know about place value and identify which digits they need to compare first each time, explaining what to do when the digits are the same; use the signs  $<$  and  $>$  to show comparisons and order
- use understanding of place value and numbers up to 1,000,000 to compare and order numbers
- learn how to round numbers to the nearest 100,000, through the real life context of the distance between the moon and earth and other planets; use number lines to help decide which 100,000 a number is closest to before rounding
- learn to round to the nearest 10,000 and identify the next and previous multiple, reasoning about which digit to check in a number to help make decisions on rounding
- use understanding of place value to help round numbers to the nearest 10, 100 and 1,000; discuss when rounding is appropriate and which multiple of 10 to round to in a given context.

### ***End of unit check - Place value within 100,000 (2)***

## **Number – addition and subtraction**

### **Addition and subtraction – 12 lessons**

What to teach:

- learn how to mentally add whole numbers by choosing the most efficient method from a variety of strategies
- learn how to mentally subtract whole numbers by choosing the most efficient method from a variety of strategies
- use the formal written method to add whole numbers with more than four digits, recognising the importance of place value
- identify large numbers in the context of distance and will use the formal written method to add two or more whole numbers with more than four digits.
- use the formal written method to subtract whole numbers with more than four digits, in the context of taking away and of finding a difference. This includes examples where an exchange is required
- explore how and why exchanges can occur in subtractions; use the formal written method to subtract whole numbers with more than four digits, including where exchanges are needed in some or all columns
- learn how to use rounding to help make estimates, identify sensible answers, find mistakes and check answers to calculations
- learn how to use the inverse operation in order to check the answers to addition and subtraction calculations
- learn what strategies to use to solve problems that involve adding and subtracting whole numbers with more than four digits
- learn how to solve more complex addition and subtraction multi-step problems that involve interpreting and identifying the information in order to solve the problem
- solve missing number problems involving addition and subtraction. A variety of contexts will be used and children should use the most appropriate and efficient strategies learned in the previous lessons
- solve problems involving comparison (children should see links between numbers to help them work out missing numbers rather than rely on formal written methods for calculating)

### ***End of unit check – addition and subtraction***



**Number – multiplication and division**  
**Multiplication and division (1) – 10 lessons**

**Number – fractions**  
**Fractions (1) – 8 lessons**

**Number – fractions**  
**Fractions (2) – 11 lessons**

***Autumn term assessment***

#### Year 5 Spring Term

**Number – multiplication and division**  
**Multiplication and division (2) – 7 lessons**

**Number – fractions**  
**Fractions (3) – 7 lessons**

**Number – fractions (including decimals and percentages)**  
**Decimals and percentages – 15 lessons**

**Measure**  
**Perimeter – 8 lessons**

**Statistics**  
**Statistics – 6 lessons**

***Spring term assessment***

#### Year 5 Summer Term

**Geometry – properties of shapes**  
**Properties of shapes – 12 lessons**

**Geometry – position and direction**  
**Position and direction – 6 lessons**

**Number – fractions (including decimals and percentages)**  
**Decimals - 14 lessons**

**Number and place value**  
**Negative numbers – 6 lessons**

**Measure**  
**Converting units – 6 lessons**

**Measure**  
**Volume and capacity – 3 lessons**



## Year 6

Week	Term		
	Autumn	Spring	Summer
1	<b>Unit 1: Place value within 10,000,000</b> (8 lessons)	<b>Unit 7: Ratio and proportion</b> (9 lessons)	<b>Unit 12: Statistics</b> (11 lessons)
2			
3	<b>Unit 2: Four operations (1)</b> (8 lessons)	<b>Unit 8: Algebra</b> (11 lessons)	<b>Unit 13: Geometry – properties of shape</b> (12 lessons)
4			
5	<b>Unit 3: Four operations (2)</b> (12 lessons)	<b>Unit 9: Decimals</b> (9 lessons)	<b>Unit 14: Position and direction</b> (5 lessons)
6			
7		<b>Unit 10: Percentages</b> (8 lessons)	<b>Unit 15: Problem solving</b> (14 lessons)
8			
9	<b>Unit 4: Fractions (1)</b> (9 lessons)	<b>Unit 11: Measure – perimeter, area and volume</b> (11 lessons)	<b>CONSOLIDATION AND SATS PREP</b>
10			
11	<b>Unit 5: Fractions (2)</b> (9 lessons)		
12			
	<b>Unit 6: Imperial and metric</b> (5 lessons)		



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## Year 6 Objectives

### Number – number and place value

- **read, write, order and compare numbers up to 10 000 000 and determine the value of each digit**
- round any whole number to a required degree of accuracy
- use negative numbers in context, and calculate intervals across zero
- **solve number and practical problems that involve all of the above.**

### Number – addition, subtraction, multiplication and division

- **multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication**
- **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**
- 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
- **perform mental calculations, including with mixed operations and large numbers**
- 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
- **solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why**
- use their knowledge of the order of operations to carry out calculations involving the four operations
- **solve problems involving addition, subtraction, multiplication and division**

### Number Fractions (including decimals and percentages)



- 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**
- multiply simple pairs of proper fractions, writing the answer in its simplest form [for example,  $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$ ]
- divide proper fractions by whole numbers [for example,  $\frac{1}{3} \div 2 = \frac{1}{6}$ ]
- **associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example,  $\frac{3}{8}$ ]**
- recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
- **identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places**
- multiply one-digit numbers with up to two decimal places by whole numbers
- use written division methods in cases where the answer has up to two decimal places
- **solve problems which require answers to be rounded to specified degrees of accuracy**

#### Ratio and proportion

- **solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison**
- solve problems involving 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

#### Algebra

- **use simple formulae**
- **generate and describe linear number sequences**
- express missing number problems algebraically
- find pairs of numbers that satisfy an equation with two unknowns
- enumerate possibilities of combinations of two variables.

#### Measurement

- **use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places**
- convert between miles and kilometres
- **solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate**
- recognise when it is possible to use formulae for area and volume of shapes
- calculate the area of parallelograms and triangles
- recognise that shapes with the same areas can have different perimeters and vice versa
- calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres ( $cm^3$ ) and cubic metres ( $m^3$ ), and extending to other units [for example,  $mm^3$  and  $km^3$ ].

#### Geometry – properties of shapes

- **compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons**
- draw 2-D shapes using given dimensions and angles



- illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
- **recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.**
- recognise, describe and build simple 3-D shapes, including making nets

Geometry – position and direction

- **describe positions on the full coordinate grid (all four quadrants)**
- draw and translate simple shapes on the coordinate plane and reflect them in the axes.

Statistics

- interpret and construct pie charts and line graphs and use these to solve problems
- calculate and interpret the mean as an average.

## Year 6 Autumn Term

### **Number and place value**

#### **Place value within 10,000,000 – 8 lessons**

What to teach:

- learn about the place value in numbers to 1,000,000; learn to read and write these numbers fluently and identify their place value.
- learn about the place value of numbers to 10,000,000; learn to read and write these numbers fluently and identify their place value.
- use understanding of place value and numbers up to 10,000,000 to partition numbers and solve problems in real-life contexts
- deepen understanding of the key place value units: 10s, 100s, and 1,000s
- accurately identify and estimate where numbers up to 10,000,000 lie on a number line; use understanding of place value to help achieve this
- use understanding of place value and numbers up to 10,000,000 to compare and order numbers
- use understanding of place value to help round numbers up to 10,000,000; discuss when rounding is appropriate and which power of 10 to round to in a given context
- learn about negative numbers and their relationship with positive numbers; use negative numbers in context and use a number line to identify negative numbers and begin calculating with them

***End of unit check - Place value within 10,000,000***

### **Number – addition, subtraction, multiplication and division**

#### **Four operations (1) – 8 lessons**

What to teach:

- rehearse and refine efficient written methods for the addition of whole numbers
- rehearse and refine use of the column method of subtraction for whole numbers
- develop their understanding of the columnar written methods of addition and subtraction where exchanges are sometimes necessary
- develop understanding of factors and how common factors link two or more numbers; use this understanding to find common factors
- develop understanding of multiples and how common multiples link two or more numbers; use this understanding to find common multiples
- recognise the properties of numbers that can be used to deduce their divisibility by 2, 3, 5 and other factors
- learn to recognise and identify prime numbers; explore how these numbers are different from other numbers



- learn to recognise and identify square and cube numbers; explore how these numbers are different from others

***End of unit check – four operations (1)***

**Number – addition, subtraction, multiplication and division**

**Four operations (2) – 12 lessons**

What to teach:

- develop understanding of the multiplication of 4-digit numbers by 1-digit numbers; use multiple representations and methods to solve these calculations
- develop understanding of the multiplication of numbers with up to four digits by 2-digit numbers; use multiple representations and methods to solve these calculations
- learn to use a written short division method
- use factors of the divisor in order to divide efficiently
- learn to recognise and identify square and cube numbers; explore how these numbers are different from others
- use long division to divide by 2-digit numbers
- develop understanding of division with remainders; learn how the written methods for division they have learnt can represent and solve a division calculation that has a remainder. They will also learn that representing a remainder as a fraction can give a more accurate answer
- learn the correct order of operations and use this to help solve multi-step calculations
- extend understanding of the order of operations by investigating what effect brackets can have on a calculation
- learn efficient mental methods for solving calculations with smaller numbers, including decimals
- learn efficient mental methods for solving calculations with larger numbers, up to 1,000,000s
- draw upon learning throughout the unit to read, understand and solve mathematical puzzles and problems; use number facts they know to help solve more complicated problems

***End of unit check – four operations (2)***

**Number – fractions**

**Fractions (1) – 9 lessons**

**Number – fractions**

**Fractions (2) – 9 lessons**

**Measurement**

**Imperial and metric – 5 lessons**

***Autumn term assessment***



## Year 6 Spring Term

### **Ratio and proportion**

**Ratio and proportion – 9 lessons**

### **Algebra**

**Algebra – 11 lessons**

**Number – fractions (including decimals and percentages)**

**Decimals – 9 lessons**

**Number – fractions (including decimals and percentages)**

**Percentages – 8 lessons**

### **Measurement**

**Perimeter, area and volume – 11 lessons**

***Spring term assessment***

## Year 6 Summer Term

### **Statistics**

**Statistics – 11 lessons**

### **Geometry**

**Properties of shape – 12 lessons**

### **Geometry**

**Position and direction – 5 lessons**

**Number - addition, subtraction, multiplication and division**

**Problem solving – 14 lessons**

***Consolidation and SATs revision***

