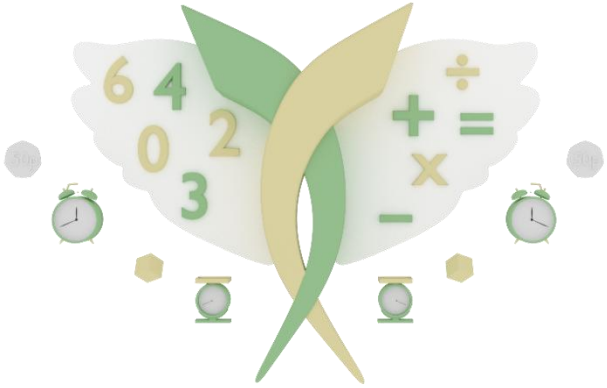
National Curriculum 2014

Planning Materials

Year 1



Purpose of study

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

Aims

The National Curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

The principal focus of mathematics teaching in Key Stage 1

- The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools].
- At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.
- By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.
- Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Year 1 programme of study (statutory requirements)

Number and place value	Addition and subtraction	Multiplication and division	Fractions
• count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • count, read and write numbers to 100 in numerals, count in multiples, twos, fives and tens • given a number, identify one more and one less • identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least • read and write numbers from 1 to 20 in numerals and words.	• read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs • represent and use number bonds and related subtraction facts within 20 • add and subtract one-digit and two-digit numbers to 20 including zero • solve simple one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ☐ - 9	• solve simple one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.	• recognise, find and name a half as one of two equal parts of an object, shape or quantity • recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.

Measurement	Geometry: properties of shapes	Geometry: position and direction
• compare, describe and solve practical problems for: – lengths and heights (e.g. long/short, longer/shorter, tall/short, double/half) – mass or weight (e.g. heavy/light, heavier than, lighter than) – capacity/volume (e.g. full/empty, more than, less than, half, half full, quarter) – time (e.g. 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 [e.g. 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.	• recognise and name common 2-D and 3-D shapes, including: – 2-D shapes [e.g. rectangles (including squares), circles and triangles] – 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres].	• describe position, directions and movements, including whole, half, quarter and three-quarter turns.

Year 1 Notes and Guidance (non-statutory)

Number and place value	Addition and subtraction	Multiplication and division	Fractions
• *Pupils practise counting (1, 2, 3), ordering (e.g. first, second, third), and to indicate a quantity (e.g. 3 apples, 2 centimetres), including solving simple concrete problems, until they are fluent.* • *Pupils begin to recognise place value in numbers beyond 20 by reading, writing, counting and comparing numbers up to 100, supported by concrete objects and pictorial representations.* • *They practise counting as reciting numbers and counting as enumerating objects, and counting in twos, fives and tens from different multiples to develop their recognition of patterns in the number system (e.g. odd and even numbers), including varied and frequent practice of increasingly complex questions.* • *They recognise and create repeating patterns with objects and with shapes*	• *Pupils memorise and reason with number bonds to 10 and 20 in several forms (e.g. 9 + 7 = 16; 16 – 7 = 9; 7 = 16 - 9). They should realise the effect of adding or subtracting zero. This establishes addition and subtraction as related operations.* • *Pupils combine and increase numbers, counting forwards and backwards.* • *They discuss and solve problems in familiar practical contexts, including using quantities. Problems should include the terms put together, add, altogether, total, take away, distance between, difference between, more than and less than so that pupils develop the concept of addition and subtraction and are enabled to use these operations flexibly.*	• *Through grouping and sharing small quantities, pupils begin to understand multiplication and division; doubling numbers and quantities, and finding simple fractions of objects, numbers and quantities.* • *They make connections between arrays, number patterns, and counting in twos, fives and tens.*	• *Pupils are taught half and quarter as 'fractions of' discrete and continuous quantities by solving problems using shapes, objects and quantities. For example, they could recognise and find half a length, quantity, set of objects or shape. Pupils connect halves and quarters to the equal sharing and grouping of sets of objects and to measures, as well as recognising and combining halves and quarters as parts of a whole.*

Measurement	Geometry: properties of shapes	Geometry: position and direction
• *The pairs of terms: mass and weight, volume and capacity are used interchangeably at this stage* • *Pupils move from using and comparing different types of quantities and measures using non-standard units, including discrete (e.g. counting) and continuous (e.g. liquid) measurement, to using manageable common standard units.* • *In order to become familiar with standard measures, pupils begin to use measuring tools such as a ruler, weighing scales and containers.* • *Pupils use the language of time, including telling the time throughout the day, first using o'clock and then half past.*	• *Pupils handle common 2-D and 3-D shapes, naming these and related everyday objects fluently. They recognise these shapes in different orientations and sizes, and know that rectangles, triangles, cuboids and pyramids are not always similar to each other.*	• *They use the language of position, direction and motion, including: left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close and far, up and down, forwards and backwards, inside and outside.* • *Pupils make whole, half, quarter and three-quarter turns in both directions and connect turning clockwise with movement on a clock face.*

Number and Place Value

Yr 1 Statutory requirements

- **count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number**
- **count, read and write numbers to 100 in numerals, count in multiples, twos, fives and tens**
- **given a number, identify one more and one less**
- **identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least**
- **read and write numbers from 1 to 20 in numerals and words.**

Autumn 1

- count forwards and backwards in ones from 0 or 1 to 20 and beyond in different contexts
- know one more/less than a given number to 20 or more
- count reliably at least 20 objects *e.g. Count a group of objects, check by placing on a number line or track*
- compare and identify which of two sets contains more / less or has the same amount, by counting the number in each set. Consolidate by touching or moving each object in turn, recognising that the number of objects does not change if the set is rearranged
- compare and order numbers by counting *e.g. Find missing numbers on a track/line to 20 or more*
- estimate and recognise a small number of objects without counting, explain why using experience of visual patterns and arrays of objects
- estimate how many there are in a larger set of objects (up to 30) and check by counting
- read and write numerals from 0 to 10, then to 20 *e.g. Understand that, for example, the number 18 is written with two digits*
- count on and back in twos

Spring 1

- count forwards and backwards in ones towards 100 *e.g. continuing the count 42, 43, 44, … 34, 33, 32, …*
- count on from one number to another *e.g. from 25 to 30, counting 26, 27, 28, 29, 30, recording on fingers that 5 numbers have been counted*
- count on and back in twos, fives and tens
- know the number that is 10 more/less than a multiple of 10
- begin to understand place value in two-digit numbers *e.g. Count 17 straws, group a bundle of ten and identify 1 bundle of ten and 7 single straws, count out 34p using 10p and 1p coins*
- relate place value to how we read and write two-digit numbers
- compare and order numbers using place value *e.g. Locate numbers on a number line, explain how to identify a hidden or missing number, which two numbers have been swapped over 29, 31, 30, 32?*
- solve problems involving counting *e.g. If I count out 70 straws using bundles of ten, how many bundles of ten do I need? If we count in tens from zero, will the number 81 appear in the count? Why not?*
- read and write numbers from 1 to 20 in words

Summer 1

- count forwards and backwards in ones from any two-digit number, especially crossing boundaries e.g. Count on from 86 to 105, count back from 108
- count on and back in twos, fives and tens including identify missing numbers in a spoken sequence *e.g. 60, 55, 50, 45 [clap], 35, 30*
- know the number that is one more / less than a given two-digit number, and the number that is ten more / less than a multiple of 10 *e.g. There are 79 beads in the pot. I put in 1 more, how many are there now?*
- count on or back, for an identified number of steps *e.g. Count on three tens from 50… count back five tens from 80…*
- read and write numbers from 1 to 20 in words
- read and write two-digit numbers in numerals
- make two-digit numbers using place value equipment
- order a set of numbers within 100, explaining decisions referring to a number line or 100-square *e.g. Know which is worth the most, least*
- solve problems and puzzles *e.g. Identify all the numbers in a given set that are greater than 45, or all the numbers on a 100-square with a digit 4*

Autumn 2

- count forwards and backwards in ones from any given number to 50 and beyond
- compare and order numbers, saying which of two numbers is more and which is less *e.g. Pat has 6 pens. Alice has 8 pens. Who has fewer pens?* Say *numbers less than 20, numbers between 25 and 35, numbers more than 50 but less than 100*
- count on and back in tens from/to zero using equipment to develop conceptual understanding *e.g. 10p coins, bundles of ten straws, a 100-square*
- recognise the difference between 'ty' and 'teen' numbers
- extend understanding of one more/less to finding the number that is two or three more / less than a given number to at least 50 e.g. *What number comes three after 8? What number comes two before 14?*
- understand and use ordinal numbers in contexts *e.g. Who is the first, last, third… in the queue?*
- continue to count reliably at least 20 objects

Spring 2

- count forwards and backwards in ones from any given number to at least 100
- know one more/less than a given number within 100
- count on and back in twos, fives and tens
- recognise and create repeating patterns with objects and shapes
- describe and extend number *sequences e.g. 16, 14, 12, 10, … or 15, 17, 19, 21, …*
- fill in missing numbers in sequences *e.g. 15, 20, ☐, 30, 35, ☐ or 20, 18, 16, ☐, ☐*
- create number patterns with a given constraint *e.g. Make a number pattern which has the number 6 in it*
- recognise patterns when counting in twos, fives and tens *e.g. Using a 100-square or number lines*
- use the vocabulary and begin to understand the idea of odd and even numbers
- discover that when counting in twos from zero to 20, each of the numbers are even since they can be divided into two equal groups (halves_

Summer 2

- count on and back in tens from any starting number, using a 100-square to support
- recognising the digits that change and those that remain the same when counting in tens
- count repeated groups of objects by counting in twos, fives or tens
- investigate multiples of 2, 5 and 10 *e.g. Write down the first ten multiples of 10 and the first ten multiples of 5 and comment on what they notice*
- test a number such as 30 for evenness by finding out whether 30 counters can be shared into two equal groups
- solve problems and puzzles *e.g. What numbers can be made with two different digits, with 2 and 3, I can make 22, 23, 32, 33*
- use properties of number to sort a set of number cards according to a given *criterion e.g. 'is even', 'is between 35 and 42', is more/less than 50'*

Apply knowledge to solve mathematical problems or puzzles

Addition and Subtraction

Yr 1 Statutory requirements

- **read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs**
- **represent and use number bonds and related subtraction facts within 20**
- **add and subtract one-digit and two-digit numbers to 20 including zero**
- **solve simple one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ☐ - 9.**

Autumn 1

- consolidate understanding of addition as combining sets and subtraction as taking away from a set
- add a single digit to a single digit without crossing 10
- subtract a single digit from a single digit
- understand that adding or subtracting zero leaves a number unchanged
- use the vocabulary and signs of addition and subtraction *e.g. more than, add, put together, all together, total, equal to, less than, take away, +, -, =*
- count on or back, using a number track or line, to find a number that is more/*less e.g. one more/less than 6, 3 more/less than 5*
- associate finding 'more' with addition and counting on *e.g. 2 more than 5 is 7, 5 add 2 is 7' and record it in a number sentence 5 + 2 = 7*
- associate finding 'less' with subtraction and counting back *e.g. 2 less than 5 is 3, 5 take away 2 is 3 and record it in a number sentence 5 - 2 = 3*
- know by heart addition facts up to 5

Autumn 2

- add and subtract two single digit numbers
- recognise that addition can be done in any order but that subtraction can not
- add by counting on from the larger number, using a number line for support if necessary
- use practical apparatus to model a problem or represent a problem pictorially
- explore patterns of similar calculations, finding fact families *e.g. 7 + 0 = 7, 6 + 1 = 7, 5 + 2 = 7…*
- know pairs of numbers with a total of 10, using fingers to support if necessary
- make up a story to describe a given number sentence, *e.g.* 5 + 7 = 12 *'In a bag, there are 5 red balloons and 7 blue ones. There are 12 balloons altogether.'*
- solve 'missing-number' problems using objects to help *e.g. There are 5 pencils in the pot. How many more pencils are needed for a group of 9 children? Ann is 2 years older than Tom. How old could each of them be?*

Spring 1

- add and subtract a single digit to or from a single digit or 'teens' number, without crossing 20 *e.g. There are 8 pencils in a pot. 5 more are added. How many are there altogether? There are 15 toys in a box. 4 toys are taken out. How many are in the box now?*
- understand and use a range of vocabulary related to addition and subtraction
- add by counting on from the larger number *e.g. 14 + 3*
- subtract by counting back, using a number line for support if necessary *e.g. 17 – 3*
- explain how a problem was worked out, record the problem and answer using the +, - and = symbols
- begin to relate addition and subtraction, noticing the effect of adding and then subtracting the same number *e.g. 12 + 7 = 19, 19 – 7 = 12*
- identify whether a one-step problem involves addition or subtraction, including missing number problems *e.g. There are 11 pegs on the coat hanger. 5 are showing. How many are hidden under the cloth?*

Spring 2

- introduce 'difference' in a range of practical activities, *e.g. Find out how many more / less cubes there are by comparing two towers, recognising that you need to count the extra cubes*
- find the difference, using a number line, by counting up from the smaller to the larger number
- solve problems involving difference e.g. *Jane has six pencils. Tom has two pencils. How many pencils do Jane and Tom have altogether? How many more does Jane have than Tom?*
- know and use number facts with a total of 10 *e.g. Say how many more are needed to make 10, 7 = 10 - ☐*
- extend knowledge of addition and related subtraction facts within 10 *e.g. 6 + 3, 7 - 5*
- add and subtract a single digit to a 'teens' number using known facts within 10 *e.g. 12 + 3, 15 - 3*
- begin to add three small digits *e.g. 2 + 1 + 5*
- practically investigate ways of making a number *e.g. Different ways of putting 7 cubes in 3 boxes*

Summer 1

- add and subtract a single digit to or from a 'teens' number, crossing the 10 or 20 boundary
- solve missing number addition and subtraction questions using known facts *e.g. 9 + ☐ = 13, 17- ☐ = 9*
- explain how solutions were worked out, using the language of addition and subtraction
- know that the answer can be written either side of the equals sign *e.g. 13 + 5 = 18 is 18 = 13 + 5*
- use knowledge of number bonds to 10 and fact families to subtract a single digit from 10 and 20 *e.g. 10 – 6 = 4 so 20 – 6 = 14*
- find a small difference by counting up from one 'teens' number to another *e.g. 16 – 13, 15p – 12p*
- make up difference calculations with a given answer *e.g. two numbers with a difference of 4*
- solve problems that show addition and subtraction as related operations *e.g. I think of a number. I add 3. The answer is 7. What is my number?*

Summer 2

- add and subtract 10 to any two-digit number, initially using equipment *e.g. Bundles of ten and single art-straws, then using knowledge of counting in tens*
- explore patterns within calculation, using tens and ones equipment *e.g. I know 3 + 2 = 5 so 13 + 2 = 15, 23 + 2 = 25, 33 + 2 = 35 and that 5 – 2 can be used to work out 15 - 2, 25 - 2, 35 - 2*
- use the skill of counting on in tens and ones or place value begin to add a 'teens' number to a 'teens' number, without crossing the tens boundary *e.g. 17 + 11*
- solve simple one-step problems involving addition and subtraction, choosing the right operation *e.g. Lisa has 14 pens and Tim has 6 pens. How many pens do they have altogether? How many more pens has Lisa than Tim?*
- solve number puzzles *e.g. Find out how many birthday candles they have blown out since they were born, explore different ways of making 12 by adding two or more numbers*

Apply knowledge to solve mathematical problems or puzzles

Multiplication and Division

Yr 1 Statutory requirements	Autumn 2	Spring	Summer
solve simple one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.	count on from zero in twos and then back to zero count on from zero in tens, and then back to zero *e.g. Adding bundles of 10 straws to a pile as you count in tens, then taking away a bundle of as you count back* identify missing numbers in a counting sequence *e.g. 10, 20, 30, [one clap], 50, 60, or 6, 8, 10, [one clap], 14, [one clap]* solve problems using objects e.g. *I have three pairs of socks in the bag. How many socks is this?* use pictorial representations to show the answer to a multiplication problem *e.g. Showing hops on a number line* answer questions *e.g. Show me 6p using 2p coins. How many 2p coins do you need?* develop understanding of doubling using concrete objects to make simple arrays *e.g. Double 4 is 8*  double numbers to 10 in practical situations *e.g. Find the dominoes that show doubles* record doubles in number sentences *e.g. 6 + 6 = 12* understand finding the sum of two identical numbers is the same as doubling	count forwards and backwards in twos, fives and tens count repeated groups of objects *e.g. Count the socks in nine pairs of socks and count 5p coins in a money box and work out how much money there is altogether* explore what numbers will be landed on after a given number of hops from zero on a number line *e.g. 2, 5 or 10* explore arrays in practical contexts *e.g. Pairs of eggs in an egg box, rows of three cakes in a patty tin "3 and 3 more, 3 more, 3 more, we have 4 lots of 3"* solve simple multiplication problems using objects and models *e.g. How many pens in two packs of three?*  know that when 'sharing' equally there will be the same number in each group *e.g. Practically share a set of pencils equally among three pots and count how many pencils are in each pot* represent answers to problems pictorially *e.g. Share 12 grapes fairly among four children and work out how many each child gets* recognise that sharing into two equal groups is the same as halving *e.g. Find half of the bag of crayons by sharing them equally into two sets*	count forwards and backwards in twos, fives and tens count repeated groups of objects by counting in twos, fives or tens *e.g. The amount of money in a line of 2p coins* solve practical problems involving repeated addition of groups *e.g. Find out how many fingers are there are on four hands* use objects, diagrams including arrays or numbers to represent and support solving a problem recall doubles of numbers to 10 *e.g. Peter rolled double 6 on his two dice. What was his score?* know that when solving division problems by 'grouping' groups of the same size are taken from the original set *e.g. Practically make groups of a given number of pencils and count how many groups have been made* represent answers to grouping problems pictorially *e.g. 15 biscuits, 5 biscuits on each plate, how many plates there will be?* solve practical division problems involving grouping, *e.g. How many bicycles have a total of 12 wheels? There are 18 apples in a box. How many bags of 3 apples can be filled? The giant has 12 eggs; he puts them in boxes of 6. How many boxes does he need? 12 socks make how many pairs?*

Apply knowledge to solve mathematical problems or puzzles

Fractions

Yr 1 Statutory requirements

- **recognise, find and name a half as one of two equal parts of an object, shape or quantity**
- **recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.**

Autumn

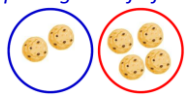
- use halves in context *e.g. Cut objects such as a cake or ball of play dough in half to make two identical pieces*
- find half by folding *e.g. Shapes, pieces of string, strips of paper or ribbon*
- recognise half of shapes *e.g. What fraction is shaded?*

- know that folding or cutting into two unequal pieces is not halving *e.g.*

- use halves in the context of measures *e.g. This bottle is half full/empty*
- reinforce halving groups of objects in practical contexts *e.g. Break a tower of 8 blocks to make 2 equal towers*

Spring

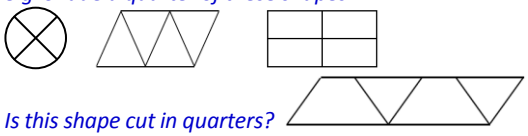
- consolidate halves by folding *e.g. How many different ways can we fold this square in half?*
- know that sharing into two equal groups is the same as halving *e.g. Find half of the pencils by sharing equally between 2 pots. Count half the number of eggs in a box of six eggs*
- know when a set of objects has been split into two unequal groups it has not been halved *e.g. Has each plate got half of the 6 cookies?*



- know that two halves make one whole
- begin to link doubling and halving *e.g. Select all the 'doubles dominoes', explain how many dots are on each half. Use this to say, for example, that double 4 is 8, half of 8 is 4*

Summer

- know that when folding squares, rectangles and circles into half and then half again, gives four equal parts each being one quarter
- recognise or show a quarter of a shape, strip or picture *e.g. Shade a quarter of these shapes*



Is this shape cut in quarters?

Tell me how can I find a quarter of a shape?

- make whole, half and quarter turns in PE
- know that four quarters make one whole turn
- recognise half past the hour on an analogue clock
- secure understanding that sharing a set of objects between two is equivalent to finding one half of the original set
- link doubling and halving, derive corresponding halves to known doubles *e.g. Use pictures of ladybirds with the same number of spots on each wing to show that double 8 is 16, then folding the ladybird to show that half of 16 is 8*
- understand that when sharing into four equal groups is the same as finding a quarter *e.g. 12 counters shared in to 4 pots, recognising that one quarter of the counters is in each pot*

Apply knowledge to solve mathematical problems or puzzles

Measures

Yr 1 Statutory requirements

- **compare, describe and solve practical problems for:**
  - **lengths and heights (e.g. long/short, longer/shorter, tall/short, double/half)**
  - **mass or weight (e.g. heavy/light, heavier than, lighter than)**
  - **capacity/volume (e.g. full/empty, more than, less than, half, half full, quarter)**
  - **time (e.g. quicker, slower, earlier, later)**
- **measure and begin to record the following:**
  - **lengths and heights**
  - **mass/weight**
  - **capacity and volume**
  - **time (hours, minutes, seconds).**

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

Autumn 1 or Autumn 2 or Spring 1

Length and height

- make direct comparison of the length and heights of two objects by placing objects together, using appropriate language *e.g. Long/short, longer/shorter*
- compare and order more than two objects by length or height, using direct comparison *e.g. Put the pencils in order from shortest to longest, group of children in height order*
- use and suggest uniform non-standard units to measure length and height *e.g. Straws, cubes, rulers*
- recognise whether or not a non-standard unit is an appropriate unit to use *e.g. Would cubes or metre sticks be better to measure the length of the classroom?*
- record measurements *e.g. 'about 20 blocks tall'*
- solve measures problems involving length and height *e.g. Find four things in the classroom that are longer than your pencil and four that are not. If the book is 24 cubes long, will it also be 24 counters long?*

Autumn 1 or Autumn 2 or Spring 1

Capacity/volume

- compare the capacity/volume of containers by pouring rice, sand or water from one to the other, using appropriate language to describe the comparison *e.g. More than, less than*
- identify and describe when a container is full, half full or empty
- compare and order the capacity/volume of more than two containers *e.g. Put the bottles in order*
- use and suggest uniform non-standard units to measure capacity/volume *e.g. Eggcups, cups, bottles, spoons*
- record measurements *e.g. 'about 4 cups'*
- recognise whether or not a non-standard unit is an appropriate unit to use *e.g. Would teaspoons or cups be better to measure the capacity/volume of the saucepan?*
- solve measures problems involving capacity/volume *e.g. Which of these bottles holds the most? Find four things in the classroom that hold less than your water bottle?*

Summer 1

- begin to measure, compare and record capacity/volume using the standard unit of litres *e.g. Identify different bottles or containers those which hold 1 litre, more/less than a litre; use a litre jug to fill three different large bowls or buckets, use a litre jug to measure how much more the washing-up bowl holds than the cola bottle*
- explore what one litre can look like in a variety of practical contexts *e.g. 1 litre in 2 different containers*
- begin to understand the relationship between the size of the unit and the number of units needed for the measurement *e.g. Discover, that a watering can holds 4 jugs but 20 beakers, so fewer are needed of the larger unit and more are needed of the smaller unit*
- solve problems using calculation skills in a measures context *e.g. How much further can you jump than your friend? How much less does the thin mug hold than the short fat one? How much heavier is the red parcel than the blue parcel?*

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Autumn 1 or Autumn 2 or Spring 1

Mass or weight

- compare the mass /weight of two objects by holding one of the items in each hand and feeling the difference, using appropriate language to describe comparison *e.g. Heavy/light, heavier/ lighter than*
- compare and order more than two objects by mass/weight *e.g. Put the parcels in order from lightest to heaviest*
- compare mass/weight using a balance identifying which is heavier/lighter *e.g. Explain how you know which is the heavier object*
- use and suggest uniform non-standard units to measure mass/weight *e.g. Cubes, cotton reels, conkers*
- record measurements *e.g. 'about 3 blocks'*
- solve measures problems involving mass/weight *e.g. Which of these things is heavier than the pencil? Find four things in the classroom that are lighter than your book.*

Spring 2

- solve problems using and applying calculation skills involving non-standard measures *e.g. One bottle of water will fill 4 cups. How many cups will two bottles fill? How much wider is the table or the doorway? A full bottle will fill 16 cups and 4 cups have already been filled from it, how many more cups can be filled? How many cubes longer is the pencil than the paintbrush?*
- explore how using non-standard units *(such as hand spans, strides)* can lead to different results *e.g. Using the story of building a bed for the queen*
- begin to measure and compare objects using standard units *e.g. Identify objects that are taller than 1 metre or not, use a metre stick to measure and compare how far a bean bag can be thrown; find out how much wider the hall is than the classroom*
- measure, describe and record lengths and heights *e.g. The shelf is 2 and a bit metres long. Is it nearer to 2 or 3 metres?*

Summer 2

- begin to measure, compare and record mass/weight using the standard unit of kilograms *e.g. Find objects that weigh less than 1kg, make a collection of objects that together weigh just over 1 kilogram*
- know what a kilogram can look like in a variety of contexts *e.g. 1kg of flour and a 1kg weight*
- solve problems using calculation skills in a measures context *e.g. The telegraph pole is 7m tall. The tree is 11m tall. How much taller is the tree? Tom bought 18 litres of lemonade for a party. Children at the party drank 15 litres of lemonade. How many litres were left?*
- make realistic estimates using experience of standard units *e.g. Is the table taller or shorter than 1 metre? Is this doll taller or shorter than one of the class 30cm rulers? Does this bottle hold more or less than the litre jug? Which of these things do you think will weigh less than 1 kilogram?*

Apply knowledge of measures to solve mathematical problems or puzzles

Measures: Time

Yr 1 Statutory requirements	Autumn	Spring	Summer
compare, describe and solve practical problems for: … – **time (e.g. quicker, slower, earlier, later)** **measure and begin to record the following:** – **time (hours, minutes, seconds)** **sequence events in chronological order using language [e.g. 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.**	develop the concept of time passing and sequence events in familiar stories or day-to-day routines *e.g. The Very Hungry Caterpillar* discuss how often events occur, using appropriate vocabulary *e.g. often, sometimes, always, usually, never…* discuss when events happen, using appropriate vocabulary such as morning, afternoon and evening, yesterday, today and tomorrow *e.g. Tomorrow is my birthday. Yesterday I went to the dentist.* know that days, weeks and months are measurements of time know that there are 7 days in a week order the days of the week and know that Saturday and Sunday are weekend days *e.g. What day comes after Friday? What day comes before Tuesday? What day is it today? What day will it be tomorrow? We don't usually come to school on what days?* begin to know the months of the year *e.g. What month are we in now? Make a classroom 'calendar' with pictures representing each month, writing significant events, such as dates of their birthdays, Divali, Pancake Day* compare and describe time events e.g. *Discuss who took more/less time to get changed for P.E, who was the quickest to get ready? Which wind-up toy is the slowest? Who can write their name the quickest? I was ready quicker than you* become familiar with minutes and seconds *e.g. Count each second as a second hand moves round a clock, then use what they have learned to count how many seconds it takes a friend to write their name or put on their shoes. Estimate how many times in 1 minute they can jump on the spot, then use a minute timer to check*	use the language of time in rhymes and stories *e.g. Hickory Dickory Dock, Mr Wolf's Week by Colin Hawkins, The Clock Struck One: A Time-Telling Tale by Trudy Harris* know that there are 12 months in a year know and order the days of the week *e.g. Which day is missing: Wednesday, Thursday,____, Saturday?* know and order the months in the year *e.g. Say the months in order from January. What month are we in now? Which month comes after March?* sequence day-to-day events using appropriate vocabulary *e.g. Yesterday I went see my friend. This evening I'm going round my friend's house* know key times of the day *e.g. Assembly is at 9 o'clock, get ready to go home at 3 o'clock, bed time at 8 o'clock. Put times on visual timetables* read and write the time to the hour on an analogue clock record o'clock times by drawing hands on a clock face solve time problems *e.g. It's 5 o'clock. What time will it be in two hours' time? What time was it three hours ago? The time is between 3 o'clock and 8 o'clock. What time could it be? How long is it from 2 o'clock to 6 o'clock?* solve time problems in a range of context *e.g. Mum cooked a fruit cake. She put it in the oven at 8 o'clock. She took it out at 10 o'clock. How long was the cake in the oven? Today is Monday; it's my birthday in 3 days. What day is my birthday on?*	know and order of the days, months and seasons of a year *e.g. Which month comes before June? Before September? Find out what the third month is by saying the months in order* know that there are 7 days in a week and 12 months in a year read time to the hour and half hour on a clock with hands and recognise half past the hour in day-to-day routines *e.g. Play time is half past 10* record o'clock and half past times by drawing hands on a clock face solve time problems in different contexts using time lines or clocks to help *e.g. It's half past seven. What time will it be in four hours' time? What time was it two hours ago? John went to the park at 9 o'clock. He left the park at half past eleven. How long was he there? It now July, how many months until October?* measure events in minutes *e.g. Time to run a race. How long to tidy up? Use sand timers to time activities* suggest a suitable unit of time to measure the time needed to walk home, sleep each night, get changed for P.E suggest activities that take about 10 seconds, 1 minute, 1 hour. In 1 minute I can… In 10 seconds I can…

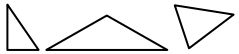
Use everyday activities and opportunities, throughout the year, to practice telling the time and time concepts.

Measures: Money

Yr 1 Statutory requirements	Autumn	Spring	Summer
recognise and know the value of different denominations of coins and notes.	distinguish coins by sorting them and start to understand their value recognise that some coins have a greater value than others and will buy more *e.g. 2p is worth more than 1p; 5p is worth more than 2p; £2 is worth more than £1; 10p is worth less than 20p* understand that a 2p coin has the same value as two 1p coins, and that a £2 coin has the same value as two £1 coins use the vocabulary of money *e.g. coins, pence, pound, cost, price, value*	recognise and understand the value of all coins and start to understand the value of notes *e.g. Find the coin with the smallest/greatest value in a collect of coins* sort coins and count by make piles of 10p using 1p, 2p, and 5p coins exchange coins up to 10p for an equivalent value in smaller coins. Extend to 20p. *e.g. exchange 5p for five 1p coins or 2p and 2p and 1p*	recognise, use and understand the value of all coins and notes know that there are 8 different coins give the value of each coin and note begin to know that 100 pence is the same as £1 exchange 50p using just 10p or just 5p coins
Use money as a context to apply and consolidate content covered in Number and Place Value, Addition and Subtraction, Multiplication and Division	pay for items using counting skills *e.g. Use only 1p coins or only £1 coins to 'pay' in the classroom shop, counting out the coins for an object to be bought* make amounts using just 2p or £2 coins linking to counting in twos *e.g. Buy a number of 2p stamps using 2p coins, buy a piece of fruit for 6p* begin to read and write prices such as 18p or £4 *e.g. A toy car costs 9p. Find / write a price label to match how much, read the price of an item from a menu* compare prices *e.g. Which is more/less 12p or 21p?* find totals of two or three coins with values up to 10p by counting on *e.g. 5p + 2p* solve problems using addition and subtraction skills *e.g. Michael had £9. He spent £3. How much did he have left? Ellie bought two stickers for 5p and 3p, how much did they cost altogether?*	reinforce counting in the context of money *e.g. Counting 10p coins as they are dropped into a pot* make amounts using just 10p coins linking to counting in tens *e.g. Buy a book for 50p using 10p coins* explore prices that can be bought using one value of coin *e.g. Items cost 1p, 3p, 4p, or 8p which could you pay for exactly using only 2p coins?* begin to count up 'how much this is altogether' *e.g. Play money games and collect 1p or 2p coins to the value of 10p then 20p* know when adding coins it is usually easier to start with the largest value coin or coins, and finish with the smallest, link this to putting the larger number first when adding find totals of a small number of coins using addition skills *e.g. How much altogether is 2p and 5p and 1p? An apple costs 12p, which two coins would pay for it.* solve problems using addition and subtraction skills *e.g. Susie spent 5p and 7p on toffees. What did she pay altogether?; Chews cost 2p each. How much do three chews cost? Rosie had 15p. She spent 6p. How much does she have left?*	make amounts with the same coin using counting skills *e.g. 20p in pennies, or using 2p, 5p, 10p coins* find 'how much altogether' linking the counting to counting in twos, fives and tens *e.g. Find the amount in a purse of several 2p coins, or 5p coins or10p coins* find the total amount in a purse *e.g. Containing some small value mixed coins 10p, 5p, 5p, 2p* pay exactly for items costing less than 50p using 10p and 1p coins using knowledge of place value identify items that may be bought using a given amount of money using knowledge of number *e.g. With 20p you can buy a book costing 17p but not one costing 25p* compare and order amounts of money *e.g. 21p, 49p, 42p, 15p. Which is the most expensive thing on the menu? Tilly has 74p and Hardeep has 47p, who has the most money?* solve practical problems involving addition and subtraction *e.g. Robert had a 20p coin. He spent 3p. How much has he got left? How much altogether is 5p and 10p and 10p? Ahmed spent 14p and 12p on apples. What did he pay altogether? Peter has 18p, Mick has 15p, how much more does Peter have than Mick? Gita paid 6p for chews with no change. What coins could she have used? Which three coins make: 14p, 15p, 16p, 17p? Can you make 18p using 3 coins?* solve practical multiplication and division problems *e.g. Chews cost 5p each. What do 3 chews cost? I've got 30p in 10ps, how many 10ps have I got?*

Apply knowledge of money to solve mathematical problems or puzzles

Geometry: properties of shapes

Yr 1 Statutory requirements	Autumn	Spring	Summer
recognise and name common 2-D and 3-D shapes, including: **– 2-D shapes [e.g. rectangles (including squares), circles and triangles]** **– 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres].**	recognise 2-D and 3-D shapes in the environment *e.g. Talk about the shapes in patterns, buildings, ornaments* identify what's the same and different between 2-shapes *e.g. They both have straight sides but that shape has got 4 sides and that one's got 3* recognise and name common 3-D shapes *e.g. Cubes, cuboids, cylinder, pyramids and spheres* name the faces of 3-D shapes *e.g. These faces are all the same, this face is a circle* describe the features of 2-D and 3-D shapes using everyday language and mathematical terms *e.g. Round, curved, corner, straight, edge, face* use 3-D solids to build, make and talk about models, pictures and patterns *e.g. The top of this tree is a sphere and its trunk is a cylinder* develop imagery of shapes *e.g. Identify a shape that has been taken from a collection of shapes* identify a shape from a collection of shapes from its description *e.g. The shape has six faces, and each face is a rectangle*	identify shapes in the environment *e.g. Where in the classroom you can see a cube, sphere, triangle, rectangle* make and describe a picture or pattern and say which 2-D shapes have been used *e.g. This house is made from a square and a triangle*  name 2-D shapes and describe their features *e.g. This shape has four corners and two short and two long sides. This shape has four sides of the same length* refine everyday language to include mathematical terms *e.g. Flat, solid, side, straight, curved, corner* know that rectangles, triangles, cuboids and pyramids may look different *e.g. These may look different but are all triangles*  sort shapes in different ways based on their appearance *e.g. Separate squares from rectangles, cubes from cuboids, shapes with only straight sides*	identify and visualise 2-D and 3-D shapes using an understanding of their properties *e.g. Name and describe a shape being held behind their back. Imagine a square, imagine cutting off one of the corners. Describe and draw it.* recognise shapes in different orientations and sizes *e.g. A square with a corner pointing down* sort and classify shapes in different ways *e.g. Identify all the 2-D shapes with a square corner or all the 3-D solids with a rectangular face* begin to relate 3-D shapes to pictures of them *e.g. Match familiar solids to their pictures. Uuse bricks to build models from pictures*

Geometry: direction and movement

Yr 1 Statutory requirements	Autumn	Spring	Summer
describe position, directions and movements, including whole, half, quarter and three-quarter turns.	describe position using everyday language *e.g. Place objects above, below, to the right of and to the left of other objects on a magnetic board or putting play-people in a scene* describe directions using everyday language *e.g. In PE, follow and give instructions to move in particular directions: forwards, backwards or sideways… … turn to the left or right* describe movements using everyday language *e.g. In PE, slide down the bench, roll over on the mat, turn towards the windows, move in a straight line or talk about a journey from home from school*	develop the use of everyday language to describe position, direction and movement, using classroom games *e.g. Playing 'Simon says …' or 'Follow my leader'* describe the position of objects *e.g. In a picture, on shelves or in a cupboard using language such as top, middle, bottom, on top of, in front of, above, between, around, near, close and far* recognise whole turns and half turns *e.g. In PE make 2 whole turns to the left, make a half turn to the right or move the windmill sails through a whole turn* know that two half turns make one whole turn	follow and give instructions to make whole, half, quarter and three quarter turns to the left or right connect turning clockwise with movement on a clock face and moving the minute hand of the clock through one whole turn, through half a turn, through a quarter turn and talk about times like 'half past three' describe and follow a route through a simple maze or journey using directional language *e.g. left, right, forwards and backwards* increase accuracy of instructions relating to direction and movement *e.g. Program a floor robot to follow a route marked on the floor, use previous moves and 'trial and improvement' to estimate how many 'robot steps' are needed*

Apply knowledge of geometry to solve mathematical problems or puzzles