Mathematics Teaching Sequence – Year 2

Children should engage with appropriate number and practical problems **throughout each topic**.
Statements highlighted in yellow have been identified as 'ready to progress' objectives: key concepts which are essential building blocks for the next steps in learning. These objectives must be embedded across the year so that children are fluent.
Resources to support teaching of these specific objectives can be found here:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1017683/Maths_guidance_KS_1_and_2.pdf
https://www.ncetm.org.uk/classroom-resources/exemplification-of-ready-to-progress-criteria/

Year 2	
Autumn Term	**Key vocab for topic**
Number and Place value • Count sets of objects reliably to 100 • Read and write numerals to 100 in numerals and words • Count forwards in steps 0 of 10 from any number, forwards and backwards • Recognise the place value of each digit in a two-digit number (tens and ones) • Identify, represent, partition and estimate numbers in different ways (up to 100). • Reason about the location of any two digit number e.g. compare and order numbers from 0 to 100, identifying the next and previous multiple of 10. • Use the <> and = symbols to compare numbers up to 100 **Number and Place value review** **Addition and subtraction** **(Include appropriate reasoning using learnt facts/methods throughout e.g. missing numbers, comparing number sentences, finding totals to solve problems)** • Secure fluency in addition and subtraction facts within 10, through continued practice. • Recall and use the addition and subtraction facts to 20 fluently (representing this is different ways for example part whole model, dienes, progressing to number sentences). • Recall all number bonds to and within 10 and use these to reason with and calculate bonds to and within 20, recognising other associated additive relationships. • Add and subtract across 10:	Count, forwards, backwards, numerals, digits, represent, estimate, tens, ones, place value, partition, number line, compare, order, more than, less than, equal to. Add, plus, sum, more, total, altogether, subtract, less, difference, equals, parts, whole, altogether, bonds, relationship, inverse, partition, jump, pictorial, resources, commutative, inverse, equation, calculation, biggest, smallest, equal to, more than, less than, compare.

• Use known facts within 20 to add and subtract numbers to 100 • Add numbers using concrete objects and pictorial representations, including 2 digit numbers and ones and two digit numbers and tens • Add and subtract within 100 by applying related 1-digit addition and subtraction facts: add and subtract **only ones or only tens** to/from a 2 digit number, before adding and **subtracting any 2 digit numbers**: -Add numbers mentally including 2 digit numbers and ones and two digit numbers and tens -Show that addition of two numbers can be done in any order (commutative law). -Subtract numbers using concrete objects and pictorial representations, including 2 digit numbers and ones and two digit numbers and tens -Subtract numbers mentally including 2 digit numbers and ones and two digit numbers and tens • Understand that subtraction cannot be done in any order. • Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more…?". • Recognise and use the inverse relationship between addition and subtractions and use this to check calculations and missing number problems (only within addition and subtraction calculations previously learnt) • Compare addition and subtraction number sentences, saying which answer is the biggest/smallest/equal to **Review week - addition and subtraction** **Measurement** • To know that length and height can be measured in centimetres • To know that a ruler can be used to measure in centimetres. • Measure length of standard object in centimetres with a 30cm ruler • To know that length and height can be measured in metres when the object is longer or taller • Measure length of standard object in metres using a metre rule/trundle wheels • Compare and order heights and lengths in any direction using < > and = to record the results	Length, height, width, tall, taller, tallest, short, shorter, shortest, long longer, longest, small, ruler, accuracy, centimetres, metres, metre stick, more than, less than, equal to, unit of measurement.

• Choose and use appropriate standard units to estimate and measure lengths and height • Compare and order lengths in any direction using < > and = to record the results **Autumn term review and assess**	
Spring Term **Number, place value** • Count in steps of 5 from 0 forwards and backwards. • Count in steps of 2 from 0 forwards or backwards **Multiplication** • Make equal groups of 2, 5 and 10 and use these to find totals (including representing through bar models) • Recognise that combining groups of equal amounts can be done as repeated addition • Link repeated addition to multiplication number sentences and calculating the product in the 2, 5 and 10 times table • Calculate mathematical statements for multiplication statements within the 2, 5 and 10 time stables and write them using the multiplication (x) and equals (=) sign • Recall the multiplication facts for the 2, 5 and 10 times tables • Recognise odd and even numbers **Division** • To know that equal sharing into groups of the same size is called division • Practically share a group of objects into smaller groups of equal size and write the corresponding division calculation • Write division number sentences using the ÷ symbol • Recall the division facts for the 2, 5 and 10 times table • Show that multiplication of 2 numbers can be done in any order and that division cannot • Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods. Include relating grouping problems (where number of groups is unknown) to multiplication equations with a missing factor, and to division. **Review**	Steps, forwards, backwards, number track, jumps, bigger, smaller. Equal groups, total, bar model, equal amounts, repeated addition, multiplication, groups of, multiple of, times, lots of, multiply, times tables, equals, odd, even, commutative Divide, divided by, divide into, sharing, equal groups of, shared between, division facts, arrays, repeated addition, bar model

Statistics • Interpret data in a tally chart • Present data in the form of a tally chart • Interpret data simple pictograms • Present data in simple pictograms • Ask and answer simple questions by counting the number of objects in each category and sorting the category by numbers • Ask and answer simple questions about totalling and comparing categorical data	Data, interpret, present, tally chart, pictograms, categories, sorting, totalling, amount, compare, difference.
Money • Recognise and use symbols for pounds (£) and pence (p). • Count money (coins and notes) and combine amounts to make a particular value, progressing to working with pounds and pence. • Identify and find different combinations of coins that equal the same amounts of money. • Compare amounts of money. • Identify language in word problems which require addition or subtraction of amounts eg. total cost, altogether, how much more? • Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.	Amount, total, pence, pound, coin, note, total cost, altogether, compare, more than, less than, equal to, change, pay, spent
Properties of shape • Use precise language to identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. • Know that a line of symmetry is a line between two halves. • Know that when something is folded on its line of symmetry, the two parts match exactly; the shape is symmetrical. • Compare and sort common 2-D shapes by reasoning about similarities and differences in properties and everyday objects. • Order and arrange combinations of mathematical objects eg. 2D shapes in patterns and sequences (geometry – position and direction).	Properties, 2 dimensional, sides, corners, lines of symmetry, vertical line, halves, fold, parts, match, compare
3D shapes • Know that a face is a flat surface on a 3D shape. • Know that each fact is a 2D shape. • Know that an edge is where two faces on a 3D shape meet. • Identify and describe the properties of 3-D shapes including the number of edges, vertices and faces.	3 dimensional, faces, vertices, edges, meet, compare, sort, 2 dimensional face, sphere, cone, cube, cuboid, prism, cylinder, pyramid, patterns.

• Compare shapes by reasoning about similarities and differences of properties; sort common 3-D shapes and everyday objects based on their properties. • Identify 2-D shapes on the surface of 3-D shapes, (eg: a circle on a cylinder and a triangle on a pyramid). • Make patterns with 3D shapes. **Review**	
Summer term **Fractions** • Identify and recognise a whole and equal parts**.** • Recognise, find, name and write a half of a length, shape, set of objects or quantity. • Recognise, find, name and write a quarter of a length, shape, set of objects or quantity. • Recognise, find, name and write a quarter of a length, shape, set of objects or quantity. • Recognise, find, name and write three quarters of a length, shape, set of objects or quantity. • Recognise that $\frac{1}{2}$ and $\frac{2}{4}$ are equivalent. • Write simple fractions of amounts e.g ½ of 6 = 3 • Know that a unit fraction is where the numerator is 1. • Know that that a whole can be split into a different number of equal parts and associate this with recognising unit fractions E.g. If a whole is split into 3 parts, 1 part = $\frac{1}{3}$ **Position and direction** • Use mathematical vocabulary to describe position and direction e.g. to the left/right of, in the middle of, in one of the etc. • Use mathematical vocabulary to describe movement e.g. forwards, backwards, left and right. • Use mathematical vocabulary to describe movement in a straight line. • Recognise that clockwise and anticlockwise describes a turn (direction of rotation). • Describe turns in terms of clockwise and anti-clockwise and turns at right angles for quarter, half and three-quarter turns.	Whole, part, deominator, numerator, half, quarter, third, three quarters, equivalent Left, right, forwards, backwards, in the middle of, in front of, next to, clockwise, anti-clockwise, right angle, quarter turn, half turn, 3 quarter turn, rotate.

Review **Time** • Tell and write the time to the hour, the half hour, including quarter past/to the hour. • Draw the hands on a clock face to show these times. • Tell and write the time to 5 minute intervals. • Compare and sequence intervals of time. • Know the number of minutes in an hour and number of hours in a day. **Weight, volume and temperature** • Know that mass can be measured accurately by weighing (e.g. using balance/weighing scales). • Compare mass, using vocabulary of heaviest, lightest, heavier and lighter, greater than, less than and equals signs. • Know that a gram is a unit for measuring mass. • Know that a kilogram is a heavier unit than grams for measuring mass (and is used to measure heavier objects). • Choose and use appropriate standard units to estimate and measure mass (kg/g). • Know that volume can be measured accurately using measuring vessels/jugs, spoonfuls. • Compare volume, using vocabulary of most, least, how many 'spoonfuls', container A holds half as much as container B, greater than, less than and equals signs etc. • Know that millilitres is a unit for measuring volume. • Know that a litre is a larger unit than millilitres for measuring volume. • Choose and use appropriate standard units to estimate and measure volume (l/ml). • Know that temperature can be measured accurately using a thermometer in degrees. • To know that degrees is represented by the symbol °. • Read thermometers and write temperatures in degrees. • Compare temperature, using vocabulary of highest, lowest, increase and decrease. • Choose and use appropriate standard units to estimate and measure volume (l/ml). **Review**	Hour, minutes, half hour, quarter past, half past, quarter to, 5 minute intervals, sequence, days, weeks, months, years, minute hand, hour hand, seconds. Mass, balance, weight, weighing scales, lightest, heaviest, greater than, less than equal to, grams, kilograms, unit of measurements, Volume, vessels, jugs, spoonfuls, compare, greater than, less than, equal to, millilitres, litres Thermometer, degrees, symbol, temperatures, highest, lowest, increase, decrease,

Statistics • Interpret data in block diagrams. • Present data in block diagrams. • Ask and answer simple questions by counting the number of objects in each category and sorting the category by numbers • Ask and answer simple questions about totalling and comparing categorical data	Block diagram, axes, present, interpret, category, sort, totalling, categorical data, compare.
Review	.
Addition and subtraction • Add numbers using concrete objects and pictorial representations, including 2, 2 digit numbers and 3, 1 digit numbers • Add numbers mentally including 2, 2 digit numbers and 3, 1 digit numbers • Subtract numbers using concrete objects and pictorial representations, including 2, 2 digit numbers and 3, 1 digit numbers • Subtract numbers mentally including 2, 2 digit numbers and 3, 1 digit numbers	Add, plus, sum, more, total, altogether, subtract, less, difference, equals, parts, whole, altogether, bonds, relationship, partition, jump, pictorial, resources, commutative, equation, calculation,
Review and assess	

Year 2

Facts (declarative knowledge)	Processes (methods)
Number and Place value • Know the numbers up to 100. • Know that numbers can be counted in tens (forward and backwards). • Know that numbers can be partitioned (decomposed and composed). • Know the <,> and = are signs used to compare. **Number and Place value review** **Addition and subtraction** • Secure fluency in addition and subtraction facts within 10, through continued practice. • Recall addition and subtraction facts to 20 fluently. • Recall all number bonds to and within 10 • Know that numbers can be added and subtracted across 10: • Know facts within 20. • Know that adding and subtracting can be done using concrete objects and pictorial representations. • Know that addition of two numbers can be done in any order (commutative law). • Understand that subtraction cannot be done in any order. • Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more…?". • Recognise the inverse relationship between addition and subtractions	**Number and Place value** • Count sets of objects reliably to 100 • Read and write numerals to 100 in numerals and words • Count forwards in steps 0 of 10 from any number, forwards and backwards • Recognise the place value of each digit in a two-digit number (tens and ones) • Identify, represent, partition and estimate numbers in different ways (up to 100). • Reason about the location of any two digit number e.g. compare and order numbers from 0 to 100, identifying the next and previous multiple of 10. • Use the <> and = symbols to compare numbers up to 100 **Addition and subtraction** • Secure fluency in addition and subtraction facts within 10, through continued practice. • Use addition and subtraction facts to 20 fluently (representing this is different ways for example part whole model, dienes, progressing to number sentences). • Use all number bonds to and within 10 to reason with and calculate bonds to and within 20, recognising other associated additive relationships. • Add and subtract across 10: • Use known facts within 20 to add and subtract numbers to 100. • Add numbers using concrete objects and pictorial representations, including 2 digit numbers and ones and two digit numbers and tens • Add and subtract within 100 by applying related 1-digit addition and subtraction facts: add and subtract **only ones or only**

Review - addition and subtraction **Measurement** • to know that length and height can be measured in centimetres • To know that a ruler can be used to measure in centimetres. • To know that length and height can be measured in metres when the object is longer or taller • Know the appropriate standard units to measure and estimate lengths and height. **Autumn term review and assess**	**tens** to/from a 2 digit number, before adding and **subtracting any 2 digit numbers**: -Add numbers mentally including 2 digit numbers and ones and two digit numbers and tens -Subtract numbers using concrete objects and pictorial representations, including 2 digit numbers and ones and two digit numbers and tens -Subtract numbers mentally including 2 digit numbers and ones and two digit numbers and tens • Use the inverse relationship between addition and subtractions to check calculations and missing number problems (only within addition and subtraction calculations previously learnt) • Compare addition and subtraction number sentences, saying which answer is the biggest/smallest/equal to **Measurement** • Measure length of standard object in centimetres with a 30cm ruler • Measure length of standard object in metres using a metre rule/trundle wheels • Compare and order heights and lengths in any direction using < > and = to record the results • Decide on the most appropriate standard units to estimate and measure lengths and height • Compare and order lengths in any direction using < > and = to record the results.
Spring Term **Number, place value** • Know that counting can involves steps of 5 from 0 forwards and backwards. • Know that counting can involve steps of 2 from 0 forwards or backwards **Multiplication** • Recognise that combining groups of equal amounts can be done as repeated addition • Link repeated addition to multiplication number sentences and calculating the product in the 2, 5 and 10 times table	**Number, place value** • Count in steps of 5 from 0 forwards and backwards. • Count in steps of 2 from 0 forwards or backwards **Multiplication** • Make equal groups of 2, 5 and 10 and use these to find totals (including representing through bar models) • Calculate mathematical statements for multiplication statements within the 2, 5 and 10 time stables and write them using the multiplication (x) and equals (=) sign

- Recall the multiplication facts for the 2, 5 and 10 times tables
- Know that numbers can be odd or even.

Division

- To know that equal sharing into groups of the same size is called division
- Know that the division symbol is ÷
- Recall the division facts for the 2, 5 and 10 times table
- Know that multiplication of 2 numbers can be done in any order and that division cannot

Review

Statistics

- Know that data can be represented in a tally chart and pictogram.

Money

- Recognise symbols for pounds (£) and pence (p).
- Identify language in word problems which require addition or subtraction of amounts eg. total cost, altogether, how much more?

Properties of shape

- Know and use precise language to identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.

- Recognise odd and even numbers

Division

- Practically share a group of objects into smaller groups of equal size and write the corresponding division calculation
- Write division number sentences using the ÷ symbol

- Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods. Include relating grouping problems (where number of groups is unknown) to multiplication equations with a missing factor, and to division.

Statistics

- Interpret data in a tally chart
- Present data in the form of a tally chart
- Interpret data simple pictograms
- Present data in simple pictograms
- Ask and answer simple questions by counting the number of objects in each category and sorting the category by numbers
- Ask and answer simple questions about totalling and comparing categorical data

Money

- Use symbols for pounds (£) and pence (p).
- Count money (coins and notes) and combine amounts to make a particular value, progressing to working with pounds and pence.
- Identify and find different combinations of coins that equal the same amounts of money.
- Compare amounts of money.
- Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.

Properties of shape

- Compare and sort common 2-D shapes by reasoning about similarities and differences in properties and everyday objects.

• Know that a line of symmetry is a line between two halves. • Know that when something is folded on its line of symmetry, the two parts match exactly; the shape is symmetrical. **3D shapes** • Know that a face is a flat surface on a 3D shape. • Know that each fact is a 2D shape. • Know that an edge is where two faces on a 3D shape meet. • Identify 2-D shapes on the surface of 3-D shapes, (eg: a circle on a cylinder and a triangle on a pyramid). **Review and assess**	• Order and arrange combinations of mathematical objects eg. 2D shapes in patterns and sequences (geometry – position and direction). **3D shapes** • Identify and describe the properties of 3-D shapes including the number of edges, vertices and faces. • Compare shapes by reasoning about similarities and differences of properties; sort common 3-D shapes and everyday objects based on their properties. • Make patterns with 3D shapes.
Summer term **Fractions** • Identify and recognise a whole and equal parts**.** • Recognise and name a half, quarter or three quarters of a length, shape, set of objects or quantity. • Recognise that $\frac{1}{2}$ and $\frac{2}{4}$ are equivalent. • Know that a unit fraction is where the numerator is 1. • Know that that a whole can be split into a different number of equal parts and associate this with recognising unit fractions E.g. If a whole is split into 3 parts, 1 part = $\frac{1}{3}$ **Position and direction** • Know that mathematical vocabulary can be used to describe position and direction e.g. to the left/right of, in the middle of, in one of the etc. • Know that mathematical vocabulary can be used to describe movement e.g. forwards, backwards, left and right. • Know that mathematical vocabulary can be used to describe movement in a straight line and • Recognise that clockwise & anticlockwise describes turn (direction of rotation).	**Fractions** • Find and write a half, a quarter or three quarters of a length, shape, set of objects or quantity. • Write simple fractions of amounts e.g ½ of 6 = 3 **Position and direction** • Use mathematical vocabulary to describe position and direction e.g. to the left/right of, in the middle of, in one of the etc. • Use mathematical vocabulary to describe movement e.g. forwards, backwards, left and right. • Use mathematical vocabulary to describe movement in a straight line and • Describe turns in terms of clockwise and anti-clockwise and turns at right angles for quarter, half and three-quarter turns.

Time Know that telling the time can involve the mathematical vocabulary: half hour, including quarter past/to the hour, 5 minutes • Know that there are two hands (one showing hour; one showing minutes) on a clock face • Know the number of minutes in an hour and number of hours in a day.	**Time** • Tell and write the time to the hour, the half hour, including quarter past/to the hour. • Draw the hands on a clock face to show these times. • Tell and write the time to 5 minute intervals. • Compare and sequence intervals of time.
Weight, volume and temperature • Know that mass can be measured accurately by weighing (e.g. using balance/weighing scales). • Know that a gram is a unit for measuring mass. • Know that a kilogram is a heavier unit than grams for measuring mass (and is used to measure heavier objects). • Know the appropriate standard units to estimate and measure mass are (kg/g) • Know that volume can be measured accurately using measuring vessels/jugs, spoonfuls. • Know that millilitres is a unit for measuring volume. • Know that a litre is a larger unit than millilitres for measuring volume. • Choose and use appropriate standard units to estimate and measure volume are (l/ml). • Know that temperature can be measured accurately using a thermometer in degrees. • To know that degrees is represented by the symbol ^{o}. • Know that appropriate standard units to estimate and measure volume are (l/ml).	**Weight, volume and temperature** • Compare mass, using vocabulary of heaviest, lightest, heavier and lighter, greater than, less than and equals signs. • Choose and use appropriate standard units to estimate and measure mass (kg/g). • Compare volume, using vocabulary of most, least, how many 'spoonfuls', container A holds half as much as container B, greater than, less than and equals signs etc. • Choose and use appropriate standard units to estimate and measure volume (l/ml). • Read thermometers and write temperatures in degrees. • Compare temperature, using vocabulary of highest, lowest, increase and decrease. • Choose and use appropriate standard units to estimate and measure volume (l/ml).
Statistics • Know that data can be presented in block diagrams.	**Statistics** • Interpret data in block diagrams. • Present data in block diagrams. • Ask and answer simple questions by counting the number of objects in each

Addition and subtraction • Know that adding numbers makes them larger. • Know that subtracting numbers makes them smaller.	category and sorting the category by numbers • Ask and answer simple questions about totalling and comparing categorical data **Addition and subtraction** Add numbers using concrete objects and pictorial representations, including 2, 2 digit numbers and 3, 1 digit numbers • Add numbers mentally including 2, 2 digit numbers and 3, 1 digit numbers • Subtract numbers using concrete objects and pictorial representations, including 2, 2 digit numbers and 3, 1 digit numbers • Subtract numbers mentally including 2, 2 digit numbers and 3, 1 digit numbers