Long Term Plan -Mathematics KS1

HEARTS
Curriculum

We follow the Primary National Curriculum programme of study for Year 1 and Year 2.

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.

We teach number and place value, addition subtraction, multiplication, division and fractions in every term so that KS1 children can revisit learning regularly and consolidate small step progress throughout the year.

In addition to main teaching units, key skills and understanding in number and the four operations are revisited regularly throughout the term to ensure that skills are consolidated and children can apply their skills fluently.

AIMS

become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.

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

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1**.**

Termly Objectives

Year 1 **Autumn** **Problem solving and reasoning are taught in every unit.** Links are made between different aspects of maths and children are given opportunities to apply learning from differnet apects e.g. addition and subtraction in the context of money	**Number and place value** count to and across 50, forwards and backwards, beginning with 0 or 1, or from any given number count, read, write and order numbers to 20 in numerals; given a number, identify one more and one less than a number to 50 identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least	**Addition and subtraction** read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs add one-digit numbers up to 20, including zero by combing two sets Represent, use and memorise number bonds and related subtraction facts. Bonds of 3,4,5,10 solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations Solve problems involving missing numbers with addition subtract one-digit numbers up to 20, including zero by "taking away" Begin to understand the relationship between addition and subtraction Add by increasing on number line Subtract by decreasing using a number line	**Multiplication and division** count in multiples of two recognise odd and even numbers Recall doubles of numbers to 10 Divide using the sharing model solve one-step problems involving multiplication and division, **Fractions** recognise, find and name a half as one of two equal parts of an object, shape or quantity	**Basic skills** count to and across 50, forwards and backwards, beginning with 0 or 1, or from any given number Count in 2s to 20 Say the number that is one more or one less than a number up to 40 and two more or two less than a number Recall doubles of numbers to 10 number facts – bonds of 3,4, 5,10 mental maths strategy – adding by counting on, subtracting by counting back, identifying known facts	**Measurement** compare, describe and solve practical problems for lengths and heights compare, describe and solve practical problems for: time Tell the time to the hour and draw the hands on a clock face to show these times Calculate amounts up to 10p and know the value of 1p and 2p coins. Make totals and calculate amounts up to 10p **Geometry** Recognise and name common 2-D and 3-D shapes, Reason about shapes as they sort and classify shapes **Data handling** gather and record simple data, and talk about what they have found out and how they found it out present outcomes using practical resources, pictures, block graphs or pictograms

Year 1	Number and place value	Addition and subtraction	Multiplication and division	Basic skills	Measurement
Spring **Problem solving and reasoning are taught in every unit.** Links are made between different aspects of maths and children are given opportunities to apply learning from differnet apects e.g. addition and subtraction in the context of money	**count to and across 100**, forwards and backwards, beginning with 0 or 1, or from any given number count, read, write and order numbers to 20 in numerals; given a number, identify one more and one less than a **number to 70.** Extend to two more, two 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 **Begin to recognise place value in numbers to 20** Begin to know what each digit in a two-digit number represents	read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs **including 6=4+2** **develop fluency and independence** in adding and subtracting one-digit numbers up to 20, including zero by combing two sets Add three single digit numbers Represent, use and memorise number bonds and related subtraction facts. Bonds of 3,4,5,6.7.10 solve one-step problems that involve addition, using concrete objects and pictorial representations **Solve problems involving missing numbers with addition and subtraction** Begin to understand the relationship between addition and subtraction Add by increasing on number line Subtract by decreasing using a number line **Begin to use efficient ways to add and subtract mentally by counting on, using known facts**	count in multiples of two recognise odd and even numbers Recall doubles of numbers to 10 Divide using the sharing and **grouping model** solve one-step problems involving multiplication and division, **Fractions** recognise, find and name a half **and a quarter** as one of two equal parts of an object, shape or quantity	count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number Count in 2s to 20 Doubles of numbers to 10 number facts – bonds of 3,4, 5,6.7 10 mental maths strategy – adding by counting on, subtracting by counting back, identifying known facts Say the number that is one more or one less than a number up to 70 and two more or two less than a number	compare, describe and solve practical problems for mass or weight compare, describe and solve practical problems for: time Tell the time to the hour and half hour and draw the hands on a clock face to show these times recognise and use language relating to dates, including months recognise and know the value of different denominations of coins and notes solve problems involving money **Geometry** Recognise and name common 2-D and 3-D shapes, Reason about shapes as they sort and classify shapes **Data handling** interpret and construct simple pictograms, and block diagrams

	Partition a 'teens' number into tens and ones	**and place value knowledge**			
Year 1 **Summer** **Problem solving and reasoning are taught in every unit.** **Teaching of Problem solving skills is a focus in this term.** Links are made between different aspects of maths and children are given opportunities to apply learning from differnet apects e.g. addition and subtraction in the context of money	**Number and place value** count to and across 100, forwards and backwards, from any given number **given a number, identify one more and one less than a number to 100.** Extend to two more, two 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 **Begin to recognise place value in numbers to 100** **Begin to know what each digit in a two-digit number represents Partition a 'teens' number into tens**	**Addition and subtraction** read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs **including 6=4+2** develop fluency and independence in adding and subtracting one-digit and two-digit numbers up to 20, including zero **Add three single digit numbers** **Represent and use number bonds and related subtraction facts within 20** **Represent, use and memorise Bonds of 3,4,5,6.7,9,10** **solve a range of one-step problems that involve addition, including target number and logic problems** **Solve problems involving missing numbers with addition and subtraction** solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, Develop understanding of the relationship between addition	**Multiplication and division** count in multiples of twos, fives and tens make connections between arrays, number patterns, and counting in twos, fives and tens. recognise odd and even numbers Recall doubles of numbers to 10 Divide using the sharing and grouping models solve one-step problems involving multiplication and division, by calculating the answer using concrete objects and pictorial representations **and arrays** with the support o**f the teacher** **Fractions** recognise, find and name a half and a quarter as one of two equal parts of an object, shape or	**Basic skills** count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number Count in 2s to 20 Doubles of numbers to 10 number facts – bonds of 3,4, 5,6.7 10 mental maths strategy – adding by counting on, subtracting by counting back, identifying known facts Say the number that is one more or one less than a number up to 70 and two more or two less than a number	**Measurement** compare, describe and solve practical problems for capacity and volume compare, describe and solve practical problems for: time Tell the time to the hour and half hour and draw the hands on a clock face to show these times recognise and use language relating to dates, including months recognise and know the value of different denominations of coins and notes Solve problems involving money **Geometry** Recognise and name common 2-D and 3-D shapes, Reason about shapes as they sort and classify shapes describe position, direction and movement, including whole, half, quarter and three-quarter turns (CCL

	and ones	and subtraction Add by increasing on number line Subtract by decreasing using a number line **Begin to choose and use efficient ways to add and subtract mentally by counting on, using known facts and place value knowledge, using inverse. Extend to adding near doubles**	quantity		computing) **Data handling** interpret and construct simple pictograms, and block diagrams
Year 2 **Autumn** **Problem solving and reasoning are taught in every unit.** **Teaching of Problem solving skills is a focus in this term.** Links are made between different aspects of maths and children are given opportunities to apply learning from differnet apects e.g. addition and subtraction in the context of	**Number and place value** recognise the place value of each digit in a two-digit number identify, represent and estimate numbers using different representations, 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	**Addition and subtraction** add and subtract numbers using concrete objects, pictorial representations, and mentally, including: • a two-digit number and ones using PV and number facts and by counting on mentally • a two-digit number and tens using PV and by counting on mentally in 10s ▪ two two-digit numbers without crossing tens boundaries (subtraction) ▪ two two-digit numbers crossing tens boundaries (addition) Add and subtract two-digit numbers using concrete objects and pictorial representations and expanded written method use place value and number facts to solve problems and support	**Multiplication and division** calculate mathematical statements for multiplication and division solve problems involving multiplication and division using materials, repeated addition (represented on a number line) arrays, mental methods, and multiplication facts, recall and use multiplication and division facts for the 2, and 10 multiplication tables, including recognising odd and even numbers show that multiplication of two	**Basic skills** count forwards and backwards in steps of 2, 10 and 5 from 0: count forwards and backwards in tens from any number Say the number that is ten more or ten less than a number up to 90 recall and use number facts multiplication and division facts for x2 and x 10, and addition and subtraction facts11,12 ,20 mental maths strategies –count on and back in 1s and 10s, Bridge through 10, Bridge through a multiple	**Measurement** Solve problems involving with money, solve simple problems in a practical context involving addition and subtraction of money of the same unit solve simple problems in a practical context involving addition and subtraction of money of the same unit choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); to the nearest appropriate unit, using rulers compare and order lengths and record the results using >, < and = interpret and construct simple pictograms, tally charts, block diagrams and

money		reasoning e.g. solving missing number problems using place value 30+ _ = 37 recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 **Solve problems with subtraction by** applying their increasing knowledge of mental and written methods recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems	numbers can be done in any order (commutative) and division of one number by another cannot **Fractions** recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, of a length, shape, set of objects or quantity Count in halves and quarters to 10	of 10, use patterns (e.g. 4 +3, 40 +30, 14+3), using the inverse, revision of mental methods for adding and subtracting a two-digit number and ones, a two-digit number and tens, adding three one-digit numbers revision of written methods for adding and subtracting two-digit numbers	simple tables ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity ask and answer questions about totalling and comparing categorical data.
Year 2 **Spring** **Problem solving and reasoning are taught in every unit.** **Teaching of Problem solving skills is a focus in this term.** Links are made between different aspects of maths and children are	**Number and place value** recognise the place value of each digit in a two-digit number Partition numbers in different ways identify, represent and estimate numbers using different representations, compare and order numbers from 0 up to 100; use <, > and = signs	**Addition and subtraction** add and subtract numbers using pictorial representations, mentally and using written methods, including: • a two-digit number and ones using PV and number facts and by counting on mentally • a two-digit number and tens using PV and by counting on mentally in 10s ▪ two two-digit numbers without crossing tens boundaries (subtraction) ▪ two two-digit numbers crossing tens boundaries (addition)	**Multiplication and division** calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs solve problems involving multiplication and division using materials, repeated addition (represented on a number line) arrays, mental methods, and multiplication facts	**Basic skills** count forwards and backwards in steps of 2, 10 and 5 from 0: count forwards and backwards in tens from any number recall and use number facts multiplication and division facts for x2, x5 and x 10, mental maths strategies –count on and back in 1s and 10s, Bridge through 10, Bridge through a multiple of 10, use patterns	**Measurement** To tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times compare and order lengths, volume/capacity and mass and record the results using >, < and = Solve problems involving with money recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value find different combinations

given opportunities to apply learning from differnet apects e.g. addition and subtraction in the context of money	read and write numbers to at least 100 in numerals and in words use place value and number facts to solve problems.	use place value and number facts to solve problems and support reasoning e.g. solving missing number problems using place value 30+ _ = 37 recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 **Solve problems with addition and subtraction** apply their increasing knowledge of mental and written methods recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems use inverse to check calculations and solve missing number problems	recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot **Fractions** recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$. Count in halves and quarters to 10	(e.g. 4 +3, 40 +30, 14+3), using the inverse, revision of mental methods for adding and subtracting a two-digit number and ones, a two-digit number and tens, adding three one-digit numbers revision of written methods for adding and subtracting two-digit numbers	of coins that equal the same amounts of money solve simple problems in a practical context involving addition and subtraction of money of the same unit choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); to the nearest appropriate unit, using rulers identify and describe the properties of 2-D and 3D shapes, including the number of sides and line symmetry in a vertical line Construct simple pictograms, tally charts, block diagrams and simple tables Ask and answer questions about totalling and comparing categorical data. To apply addition and subtraction of 2-digit numbers to solve problems involving data
Year 2 **Summer** **Problem solving and reasoning are taught in**	**Number and place value** Partition numbers in different ways Count over 100. Begin to represent	**Addition and subtraction** develop fluency and accuracy in applying their knowledge of mental and written methods for addition and subtraction of two-digit number	**Multiplication and division** develop fluency and accuracy in applying their knowledge of mental and written methods for	**Basic skills** count forwards and backwards in steps of 2, 3,10 and 5 from 0: count forwards and backwards in tens	**Measurement** choose and use appropriate standard units to measure length/height (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit,

every unit. **Teaching of Problem solving skills is a focus in this term.** Links are made between different aspects of maths and children are given opportunities to apply learning from differnet apects e.g. addition and subtraction in the context of money	numbers over 100 identify, represent and estimate numbers using different representations, compare and order numbers from 0 up to 100; use <, > and = signs Read scales in divisions of ones, twos, fives and tens in a practical situation where all numbers on the scale are given use place value and number facts to solve problems.	recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 **Use a number line to represent addition and subtraction and support mental calculation** Apply their increasing knowledge of mental and written methods including bridging through 10 and multiples of 10 **Solve problems with addition and subtraction** apply their increasing knowledge of mental and written methods recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems use inverse to check calculations and solve missing number problems	multiplication, division solve problems involving multiplication and division using materials, repeated addition (represented on a number line) arrays, mental methods, and multiplication facts, including problems in contexts. recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers **<u>Fractions</u>** Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$. Count in halves and quarters to 10	from any number recall and use number facts multiplication and division facts for x2, x5 and x 10, mental maths strategies –count on and back in 1s and 10s, Bridge through 10, Bridge through a multiple of 10, use patterns (e.g. 4 +3, 40 +30, 14+3), using the inverse, revision of mental methods for adding and subtracting a two-digit number and ones, a two-digit number and tens, adding three one-digit numbers revision of written methods for adding and subtracting two-digit numbers	using rulers, scales, thermometers and measuring vessels compare and order lengths, mass, volume/capacity and record the results using >, < and = tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times Solve problems involving with money Recognise combine amounts to make a particular value find different combinations of coins that equal the same amounts of money **<u>Shape</u>** identify and describe the properties of 2-D and 3D shapes, including the number of sides and line symmetry in a vertical line **<u>Data handling</u>** Ask and answer questions about totalling and comparing categorical data. apply addition and subtraction of 2-digit numbers to solve problems involving data