Heamoor School Non-Negotiables (Maths)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn	● To count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. ● To 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. ● To read and write numbers from 1 to 20 in numerals and words. ● When given a number, identify one more and one less. ● To read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs. ● To add and subtract one-digit and two-	● To count in steps of 2, 3, and 5 from 0, and count in tens from any number, forward or backward. ● To recognise the place value of each digit in a two-digit number (tens, ones). ● To identify, represent and estimate numbers using different representations, including the number line. ● To compare and order numbers from 0 up to 100; use <, > and = signs. ● To read and write numbers to at least 100 in numerals and in words. ● To use place value and number facts to solve problems. ● To solve problems with addition and subtraction: ● Using concrete objects and pictorial	● ● To recognise the place value of each digit in a three-digit number (hundreds, tens, ones). ● To compare and order numbers up to 1000. ● To read and write numbers up to 1000 in numerals and in words. ● To count from 0 in multiples of 4, 8, 50 and 100; finding 10 or 100 more or less than a given number. ● To identify, represent and estimate numbers using different representations. ● To add and subtract numbers mentally, including: ● a three-digit number and ones ● a three-digit number and tens ● a three-digit number and hundreds.	● To recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). ● To identify, represent and estimate numbers using different representations. ● To order and compare numbers beyond 1000. ● To round any number to the nearest 10, 100 or 1000. ● To count in multiples of 6, 7, 9, 25, 1000. ● To find 1000 more or less than a given number. ● To add and subtract numbers with up to four digits using the efficient written methods of columnar addition and subtraction where appropriate.	. ● To read, write, order and compare numbers at least to 1,000,000 and determine the value of each digit. ● To count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000. ● To add and subtract whole numbers with more than 4 digits, including using efficient written methods (columnar addition and subtraction). ● To add and subtract numbers mentally with increasingly large numbers. ● To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. ● To identify multiples and factors, including	● To read, write, order and compare numbers at least to 10,000,000 and determine the value of each digit. ● To round any whole number to a required degree of accuracy. ● To solve number problems and practical problems that involve all of the above. ● To perform mental calculations, including with mixed operations and large numbers. ● To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. ● To perform mental calculations, including with mixed operations and large numbers. ● To identify common factors, common

	digit numbers to 20, including zero. ● To add and subtract one-digit and two-digit numbers to 20, including zero. ● To solve simple one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems. ● To read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs. ● To represent and use number bonds and related subtraction facts within 20. ● To add and subtract one-digit and two-digit numbers to 20 (9 + 9, 18 – 9), including zero. ● To recognise and name common 2D and 3D shapes, including: ● 2D shapes (rectangles (including	representations, including those involving numbers, quantities and measures ● Applying their increasing knowledge of mental and written methods. ● To recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. ● To add and subtract using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two- digit numbers; adding three one-digit numbers. ● To show that addition can be done in any order (commutative) and subtraction cannot. ● To recognise and use the inverse relationship between addition and subtraction and use this to check	● To solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. ● To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. ● To write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. ● To solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects.	● To solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. ● To recall multiplication facts for multiplication tables up to 12 × 12. ● To use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. ● To solve problems involving multiplying and adding, including using the distributive law and harder multiplication problems such as which n objects are connected to m objects. ● To recall multiplication facts for multiplication tables up to 12 × 12. ● To use place value, known and derived facts to multiply and divide mentally,	finding all factor pairs of a number, and common factors of two numbers. ● To multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. ● To solve problems involving multiplication and division where larger numbers are used by decomposing them into factors. ● To know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. ● To establish whether a number up to 100 is prime and recall prime numbers up to 19. ● To multiply and divide numbers mentally drawing upon known facts. ● To multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. ● To solve problems	multiples and prime numbers. ● To solve problems involving addition, subtraction, multiplication and division. ● To multiply multi-digit numbers up to 4 digits by a two-digit whole number using the efficient written method of long multiplication. ● To divide numbers up to 4 digits by a two-digit whole number using the efficient written method of long division, and interpret remainders as whole number remainders, fractions or by rounding, as appropriate for the context. ● To solve problems involving addition, subtraction, multiplication and division. ● To use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.

squares), circles and triangles) ● 3D shapes (cuboids (including cubes), pyramids and spheres). ● To represent and use number bonds and related subtraction facts within 20. ● To solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = - 9 ● To count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. ● To count, read and write numbers to 100 in numerals, count in multiples of twos, fives and tens. ● To identify and represent numbers using objects and pictorial representations	calculations and missing number problems. ● To solve problems with addition and subtraction: ● Using concrete objects and pictorial representations, including those involving numbers, quantities and measures ● Applying their increasing knowledge of mental and written methods. ● To recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. ● To add and subtract using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a 2-digit number and tens; two two-digit numbers; adding three one-digit numbers. ● To recognise and use the inverse relationship between	● To measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml). ● To measure the perimeter of simple 2D shapes. ● To draw 2D shapes and make 3D shapes using modelling materials; recognise 3D shapes in different orientations and describe them with increasing accuracy. ● To identify horizontal, vertical, perpendicular and parallel lines in relation to other lines. ● To add and subtract numbers mentally, including: ● a three-digit number and ones ● a three-digit number and tens ● a three-digit number and hundreds. ● To solve problems, including missing number problems,	including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. ● To compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. ● To identify lines of symmetry in 2D shapes presented in different orientations. ● To complete a simple symmetric figure with respect to a specific line of symmetry. ● To convert between different units of measure (for example, kilometre to metre; hour to minute). ● To measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. ● To solve problems involving converting from hours to minutes; minutes to	involving multiplication and division, including scaling by simple fractions and problems involving simple rates. ● To know angles are measured in degrees; estimate and compare acute, obtuse and reflex angles ● To draw given angles, and measure them in degrees (º). ● To identify: ● angles at a point and one whole turn (total 360º) ● angles at a point on a straight line and 1/2 a turn (total 180º) ● other multiples of 90º. ● To convert between different units of measure (for example, kilometre and metre; metre and centimetre; centimetre and millimetre; kilogram and gram; litre and millilitre). ● To understand and use equivalences between metric units and common imperial	● To illustrate and name parts of circles, including radius, diameter and circumference. ● To recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. ● To solve problems involving the calculation and conversion of units of measure, using decimal notation to three decimal places where appropriate. ● To use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa using decimal notation to three decimal places. ● To convert between miles and kilometres. ● To multiply multi-digit numbers up to 4 digits by a two-digit

	including the number line, and use the language of: equal to, more than, less than (fewer), most, least. ● To read and write numbers from 1 to 20 in numerals and words. ● When given a number, identify one more and one less. ● To 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. ● To read and write numbers from 1 to 20 in numerals and words. ● To read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs. ● To represent and use number bonds and related subtraction facts within 20.	addition and subtraction and use this to check calculations and missing number problems. ● To recall and use multiplication and division facts for the 2,5 and 10 multiplication tables, including recognising odd and even numbers. ● To calculate mathematical statements for multiplication and division within the multiplication tables and write them using multiplication, division and equals signs. ● To recognise and use the inverse relationship between multiplication and division in calculations. ● To show that multiplication of two numbers can be done in any order (commutative) and division for one number by another cannot.	using number facts, place value, and more complex addition and subtraction. ● To add and subtract numbers with up to three digits, using the efficient written methods of columnar addition and subtraction. ● To estimate the answer to a calculation and use inverse operations to check answers. ● To solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. ● To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. ● To write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-	seconds; years to months; weeks to days. ● To estimate, compare and calculate different measures, including money in pounds and pence. ● To add and subtract numbers with up to four digits using the efficient written methods of columnar addition and subtraction where appropriate. ● To estimate and use inverse operations to check answers to a calculation. ● To solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. ● To recall multiplication facts for multiplication tables up to 12 × 12. ● To use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by	units such as inches, pounds and pints. ● To use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling. ● To measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. ● To calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes. ● To multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. ● To multiply numbers up to 4 digits by a one- or two-digit number using an efficient written	whole number using the efficient written method of long multiplication. ● To divide numbers up to 4 digits by a two-digit whole number using efficient written methods of long division and interpret remainders as whole numbers, remainders, fractions or by rounding as appropriate in the context. ● To compare and order fractions, including fractions >1. ● To use common factors to simplify fractions; use common multiples to express fractions in the same denomination. ● To identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100, 1000 where the answers are up to three decimal places. ● To solve problems which require answers to be

● To solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems. ● To read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs. ● To represent and use number bonds and related subtraction facts within 20. ● To add and subtract one-digit and two-digit numbers to 20, including zero. ● To solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems. ● To compare, describe and solve practical problems for:	● To solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts. ● To identify and describe the properties of 2D shapes, including the number of sides and symmetry in a vertical line. ● To identify and describe the properties of 3D shapes including the number of edges, vertices and faces. ● To identify 2D shapes on the surface of 3D shapes, for example circle on a cylinder and a triangle on a pyramid. ● To compare and sort common 2D and 3D shapes and everyday objects. ● To choose and use appropriate standard units to estimate and	digit numbers, using mental and progressing to formal written methods. ● To solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects. ● To recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. ● To recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. ● To compare and order unit fractions, and fractions with the same denominators. ● To solve problems that involve all of the above. ● To tell and write the	1; multiplying together three numbers. ● To recognise and use factor pairs and commutativity in mental calculations. ● To multiply two-digit and three-digit numbers by a one-digit number using formal written layout. ● To solve problems involving multiplying and adding, including using the distributive law and harder multiplication problems such as which n objects are connected to m objects. ● To recall multiplication facts for multiplication tables up to 12 × 12. ● To use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. ● To solve problems involving multiplying	method, including long multiplication for two-digit numbers. ● To solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. ● To divide numbers up to 4 digits by a one-digit number using the efficient written method of short division and interpret remainders appropriately for the context. ● To multiply and divide numbers mentally drawing upon known facts. ● To solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. ● To compare and order fractions whose denominators are all multiples of the same number. ● To identify, name	rounded to specified degrees of accuracy. ● To perform mental calculations, including with mixed operations and large numbers. ● To use their knowledge of the order of operations to carry out calculations involving the four operations. ● To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. ● To solve problems involving addition, subtraction, multiplication and division. ● To use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. ● To draw 2D shapes using given dimensions and angles. ● To compare and classify geometric shapes based on their

	● lengths and heights (long/short, longer/shorter, tall/short, double/half) ● mass or weight (heavy/light, heavier than, lighter than) ● capacity/volume (full/empty, more than, less than, quarter) ● time (quicker, slower, earlier, later). ● To recognise and know the value of different denominations of coins and notes. ● To read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs. ● To represent and use number bonds and related subtraction facts within 20. ● To add and subtract one-digit and two-digit numbers to 20, including zero. ● To solve one-step problems that involve addition and	measure length/ height in any direction; mass; temperature; volume and capacity to the nearest appropriate unit using rulers, scales, thermometers and measuring vessels. ● To compare and order lengths, mass, volume/capacity and record the results using >, < and =. ● To recognise and use the symbols for pounds and pence; combine amounts to make a particular value ● To find different combinations of coins that equal the same amounts of money ● To solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change ● To count in steps of 2, 3, and 5 from 0, and count in tens from any number,	time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks. ● To estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as am/pm, morning, afternoon, noon and midnight. ● To know the number of seconds in a minute and the number of days in each month, year and leap year. ● To compare durations of events, for example to calculate the time taken by particular events or tasks. ● To interpret and present data using bar charts, pictograms and tables ● To solve one-step and two-step questions such as	and adding, including using the distributive law and harder multiplication problems such as which n objects are connected to m objects. ● To count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten. ● To solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. ● To recognise and show, using diagrams, families of common equivalent fractions. ● To describe positions on a 2D grid as coordinates in the first quadrant. ● To plot specified points and draw sides to complete a given polygon.	and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. ● To read and write decimal numbers as fractions (for example, 0.71 = 71/100). ● To read, write, order and compare numbers with up to three decimal places. ● To read and write decimal numbers as fractions (for example, 0.71 = 71/100). ● To round decimals with two decimal places to the nearest whole numbers and to one decimal place. ● To recognise and use thousandths and relate them to tenths, hundredths and decimals equivalents. ● To solve problems involving number up to three decimal places. ● To distinguish between regular and irregular polygons based on reasoning	properties and sizes and find unknown angles in any triangles, quadrilaterals and regular polygons. ● To recognise, describe and build simple 3D shapes, including making nets. ● To interpret and construct pie charts and line graphs and use these to solve problems.

	subtraction, using concrete objects and pictorial representations, and missing number problems.	forward or backward. ● To recognise the place value of each digit in a two-digit number (tens, ones). ● To identify, represent and estimate numbers using different representations, including the number line. ● To compare and order numbers from 0 up to 100; use <, > and = signs. ● To read and write numbers to at least 100 in numerals and in words. ● To use place value and number facts to solve problems. ● To solve problems with addition and subtraction: ●　Using concrete objects and pictorial representations, including those involving numbers, quantities and measures ●　Applying their increasing knowledge of mental and written methods. ● To add and subtract	'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables. ● To add and subtract numbers with up to three digits, using the efficient written methods of columnar addition and subtraction. ● To estimate the answer to a calculation and use inverse operations to check answers. ● To solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. ● To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. ● To write and calculate mathematical statements for multiplication and	● To compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. ● To identify acute and obtuse angles and compare and order angles up to two right angles by size. ● To read, write and convert time between analogue and digital 12- and 24-hour clocks. ● To solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. ● To interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. ● To solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and simple line	about equal sides and angles. ● To use the properties of rectangles to deduce related facts and find missing lengths and angles. ● To identify 3D shapes including cubes and cuboids from 2D representations. ● To complete, read and interpret information in tables, including timetables.	

using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two- digit numbers; adding three one-digit numbers.

● To show that addition can be done in any order (commutative) and subtraction cannot.

● To recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.

● To recall and use multiplication and division facts for the 2,5 and 10 multiplication tables, including recognising odd and even numbers.

● To calculate mathematical statements for multiplication and division within the

division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.

● To solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects.

● To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.

● To write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-

graphs.

multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs.
● To recognise and use the inverse relationship between multiplication and division in calculations.
● To show that multiplication of two numbers can be done in any order (commutative) and division for one number by another cannot.
● To solve one-step problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts.
● To recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4.
● To write simple fractions for example, 1/2 of 6 = 3 and recognise the

digit numbers, using mental and progressing to formal written methods.
● To solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects.
● To count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10.
● To recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators.
● To recognise and show, using diagrams, equivalent fractions with small denominators.
● To add and subtract fractions with the same denominator

		equivalence of two quarters and one half. ● To order and arrange combinations of mathematical objects in patterns. ● To use mathematical vocabulary to describe position, direction and movement, including distinguishing between rotation as a turn and in terms of right angles for quarter, half and three quarter turns (clockwise and anti-clockwise) and movement in a straight line. ● To compare and sequence intervals of time. ● 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. ● To interpret and construct simple pictograms, tally charts, block diagrams and simple tables. ● To ask and answer	within one whole (5/7 + 1/7 = 6/7). ● To solve problems that involve all of the above. ● To tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks. ● To estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as am/pm, morning, afternoon, noon and midnight. ● To know the number of seconds in a minute and the number of days in each month, year and leap year. ● To compare durations of events, for example to calculate the time taken by particular events or tasks. ● To interpret and			

		simple questions by counting the number of object in each category and sorting the categories by quantity. ● To ask and answer questions about totalling and compare categorical data.	present data using bar charts, pictograms and tables. ● To solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables.			
Spring	● To count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. ● To count, read and write numbers to 100 in numerals, count in multiples of twos, fives and tens. ● When given a number, identify one more and one less. ● To read and write numbers from 1 to 20 in numerals and words. ● To represent and use number bonds and related subtraction facts within 20.	● To count in steps of 2, 3, and 5 from 0, and count in tens from any number, forward or backward. ● To recognise the place value of each digit in a 2-digit number (tens, ones). ● To identify, represent and estimate numbers using different representations, including the number line. ● To compare and order numbers from 0 up to 100; use <, > and = signs. ● To read and write numbers to at least 100 in numerals and in words.	● To count from 0 in multiples of 4, 8, 50 and 100; finding 10 or 100 more or less than a given number. ● To recognise the place value of each digit in a three-digit number (hundreds, tens, ones). ● To compare and order numbers up to 1000. ● To identify, represent and estimate numbers using different representations. ● To read and write numbers up to 1000 in numerals and in words. ● To solve number problems and	● To find 1000 more or less than a given number. ● To recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). ● To order and compare numbers beyond 1000. ● To identify, represent and estimate numbers using different representations. ● To round any number to the nearest 10, 100 or 1000. ● To solve number and practical problems that involve	● To read, write, order and compare numbers at least to 1,000,000 and determine the value of each digit. ● To count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000. ● To interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers through zero. ● To round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and	● To round any whole number to a required degree of accuracy. ● To use negative numbers in context, and calculate intervals across zero. ● To solve number problems and practical problems that involve all of the above. ● To read, write, order and compare numbers to at least 10,000 and determine the value of each digit. ● To perform mental calculations, including with mixed operations and large numbers. ● To solve addition and subtraction multi-

● To add and subtract one-digit and two-digit numbers to 20, including zero. ● To solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems. ● To solve one-step problems involving multiplication and division, calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. ● To recognise, find and name a half as one of two equal parts of an object, shape or quantity. ● To sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening. ● To tell the time to	● To use place value and number facts to solve problems. ● To solve problems with addition and subtraction: ● Using concrete objects and pictorial representations, including those involving numbers, quantities and measures ● Applying their increasing knowledge of mental and written methods. ● To recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. ● To add and subtract using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a 2-digit number and tens; two 2-digit numbers; adding three one-digit numbers. ● To show that addition can be done in any order (commutative) and	practical problems involving these ideas. ● To add and subtract numbers mentally, including: ● a three-digit number and ones ● a three-digit number and tens ● a three-digit number and hundreds. ● To estimate the answer to a calculation and use inverse operations to check answers. ● To solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. ● To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. ● To write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit	all of the above and with increasingly large positive numbers. ● To read Roman numerals to 100 (I to C) and understand how, over time, the numeral system changed to include the concept of zero and place value. ● To add and subtract numbers with up to four digits using the efficient written methods of columnar addition and subtraction where appropriate. ● To estimate and use inverse operations to check answers to a calculation. ● To solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. ● To estimate, compare and calculate different measures, including money in pounds and pence. ● To recall multiplication and	100,000. ● To solve number problems and practical problems that involve all of the above. ● To add and subtract whole numbers with more than 4 digits, including using efficient written methods (columnar addition and subtraction). ● To add and subtract numbers mentally with increasingly large numbers. ● To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. ● To use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. ● To solve problems involving numbers up to three decimal places. ● To multiply and divide numbers mentally drawing	step problems in contexts, deciding which operations and methods to use and why. ● To use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. ● To perform mental calculations, including with mixed operation and large numbers. ● To identify common factors, common multiples and prime numbers (Children could practise using mental methods that involve using factors, for example.) ● To use their knowledge of the order of operations to carry out calculations involving the four operations. ● To use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. ● To add and subtract fractions with different

the hour and half past the hour and draw the hands on a clock face to show these times. ● To measure and begin to record the following: ● lengths and heights ● mass/weight ● capacity and volume ● time (hours, minutes, seconds). ● To add and subtract one-digit and two-digit numbers to 20, including zero. ● To solve one-step problems that involve addition and subtraction, using objects and pictorial representations, and missing number problems. ● To count, read and write numbers to 100 in numerals, count in different multiples including ones, twos, fives and tens. ● When given a number, identify one more and one less. ● To identify and represent numbers using objects and	subtraction cannot. ● To recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems. ● To solve problems with addition and subtraction: ● Using concrete objects and pictorial representations, including those involving numbers, quantities and measures ● Applying their increasing knowledge of mental and written methods. ● To add and subtract using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a 2-digit number and tens; two 2-digit numbers; adding three one-digit numbers. ● To show that addition can be done in any order	numbers times one-digit numbers, using mental and progressing to formal written methods. ● To solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects. ● To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. ● To write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. ● To solve problems, including missing	division facts for multiplication tables up to 12 × 12. ● To use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. ● To multiply two-digit and three-digit numbers by a one-digit number using formal written layout. ● To solve problems involving multiplying and adding, including using the distributive law and harder multiplication problems such as which n objects are connected to m objects. ● To recall multiplication and division facts for multiplication tables up to 12 × 12. ● To use place value, known and derived facts to multiply and divide mentally, including: multiplying	upon known facts. ● To multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. ● To solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. ● To multiply numbers up to 4 digits by a one- or two-digit number using an efficient written method, including long multiplication for two-digit numbers. ● To recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3). ● To calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of	denominators, using the concept of equivalent fractions. ● To associate a fraction with division to calculate decimal fraction equivalents (0.375) for a simple fraction (3/8). ● To multiply simple pairs of proper fractions, writing the answer in its simplest form (1/4 ÷ 1/2 = 1/8). ● To divide proper fractions by whole numbers (1/3 ÷ 2 = 1/6). ● To describe positions on the full co-ordinate grid (all four quadrants). ● To draw and translate simple shapes on the co-ordinate plane, and reflect them in the axes. ● To recognise that shapes with the same area can have different perimeters and vice versa. ● To calculate the area of parallelograms and triangles. ● To recognise when

	pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. ● To add and subtract one-digit and two-digit numbers to 20, including zero. ● To solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems. ● To solve one-step problems involving multiplication and division, calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. ● To recognise and name common 2D and 3D shapes, including: ● 2D shapes (rectangles (including squares), circles and	(commutative) and subtraction cannot. ● To recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems. ● To recall and use multiplication and division facts for the 2,5 and 10 multiplication tables, including recognising odd and even numbers. ● To calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs. ● To recognise and use the inverse relationship between multiplication and division in calculations. ● To show that multiplication of two numbers can be done	number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects. ● To add and subtract amounts of money to give change, using both £ and p in practical contexts. ● To recognise angles as a property of shape and associate angles with turning. ● To identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle. ● To add and subtract numbers with up to three digits, using the efficient written methods of columnar addition and subtraction. ● To estimate the	by 0 and 1; dividing by 1; multiplying together three numbers. ● To count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten. ● To solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. ● To recognise and show, using diagrams, families of common equivalent fractions. ● To recognise and write decimal equivalents of any number of tenths or hundredths. ● To recognise and write decimal equivalents to 1/4; 1/2; 3/4. ● To find the effect of dividing a one- or two-digit number by	irregular shapes. ● To recognise mixed numbers and improper fractions and convert from one form to the other; write mathematical statements > 1 as a mixed number: 2/5 + 4/5 = 6/5 = 11/5. ● To add and subtract fractions with the same denominator and multiples of the same number. ● To identify, describe and represent the position of a shape following a reflection or translation using the appropriate language, and know that the shape has not changed. ● To convert between different units of measure (kilometre and metre; metre and centimetre; centimetre and millimetre; kilogram and gram; litre and millilitre). ● To understand and use basic equivalences between metric units and	it is necessary to use the formulae for area and volume of shapes. ● To calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm3) and cubic metres (m3) and extending to other units such as mm3 and km3. ● To multiply multi-digit numbers up to 4 digits by a two-digit whole number using the efficient written method of long multiplication. ● To divide numbers up to 4 digits by a two-digit whole number using the efficient written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. ● To perform mental calculations, including with mixed operations

triangles) ● 3D shapes (cuboids (including cubes), pyramids and spheres). ● To describe position, directions and movements, including half, quarter and three- quarter turns. ● To compare, describe and solve practical problems for: ● lengths and heights (long/short, longer/shorter, tall/short, double/half) ● mass or weight (heavy/light, heavier than, lighter than) ● capacity/volume (full/empty, more than, less than, quarter) ● time (quicker, slower, earlier, later). ● To measure and begin to record the following: ● lengths and heights ● mass/weight ● capacity and volume ● time (hours,	in any order (commutative) and division for one number by another cannot. ● To solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts. ● To identify and describe the properties of 2D shapes, including the number of sides and symmetry in a vertical line. ● To identify and describe the properties of 3D shapes including the number of edges, vertices and faces. ● To identify 2D shapes on the surface of 3D shapes, for example circle on a cylinder and a triangle on a pyramid. ● To choose and use appropriate standard	answer to a calculation and use inverse operations to check answers. ● To solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. ● To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. ● To write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. ● To solve problems, including missing number problems, involving multiplication and division, including integer scaling	10 and 100, identifying the value of the digits in the answer as units, tenths and hundredths. ● To round decimals with one decimal place to the nearest whole number. ● To compare numbers with the same number of decimal places up to two decimal places. ● To solve simple measure and money problems involving fractions and decimals to two decimal places. ● To estimate and use inverse operations to check answers to a calculation. ● To solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. ● To recall multiplication and division facts for multiplication tables up to 12 × 12. ● To recognise and use factor pairs and	common imperial units such as inches, pounds and pints. ● To use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling. ● To add and subtract whole numbers with more than 4 digits, including using efficient written methods (columnar addition and subtraction). ● To add and subtract numbers mentally with increasingly large numbers. ● To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. ● To use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. ● To multiply and	and large numbers. ● To use their knowledge of the order of operations to carry out calculations involving the four operations. ● To solve problems involving addition, subtraction, multiplication and division. ● To multiply one-digit numbers with up to two decimal places by whole numbers. ● To use written division methods in cases where the answer has up to two decimal places. ● To solve problems which require answers to be rounded to specified degrees of accuracy. ● To solve problems involving the calculation of percentages of whole numbers or measures and the use of percentages for comparison. ● To recall and use equivalences between simple fractions,

minutes, seconds). ● To sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening. ● To add and subtract one-digit and two-digit numbers to 20, including zero. ● To solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems.	units to estimate and measure length/ height in any direction (m/cm/mm); mass (kg/g); temperature (°C); volume and capacity (litres/ml) to the nearest appropriate unit using rulers, scales, thermometers and measuring vessels. ● To compare and order lengths, mass, volume/capacity and record the results using >, < and =. ● To assess the half-term's work.	problems and correspondence problems in which n objects are connected to m objects. ● To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. ● To write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. ● To solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects. ● To measure, compare, add and	commutativity in mental calculations. ● To solve problems involving multiplying and adding, including using the distributive law and harder multiplication problems such as which n objects are connected to m objects. ● To add and subtract numbers with up to four digits using the efficient written methods of columnar addition and subtraction where appropriate. ● To estimate and use inverse operations to check answers to a calculation. ● To solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. ● To read, write and convert time between analogue and digital 12- and 24-hour clocks. ● To solve problems involving converting	divide whole numbers and those involving decimals by 10, 100 and 1000. ● To multiply numbers up to 4 digits by a one- or two-digit number using an efficient written method, including long multiplication for two-digit numbers. ● To divide numbers up to 4 digits by a one-digit number using the efficient written method of short division and interpret remainders appropriately for the context. ● To solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign. ● To recognise mixed numbers and improper fractions and convert from one form to the other; write mathematical	decimals and percentages, including different contexts. ● To express missing number problems algebraically. ● To use simple formulae expressed in words. ● To find pairs of numbers that satisfy number sentences involving two unknowns. ● To enumerate all possibilities of combinations of two variables. ● To solve problems involving the calculation and conversion of units of measure, using decimal notation to three decimal places, where appropriate. ● To use read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit and vice versa, using decimal notation to three

			subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml). ● To count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10. ● To recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. ● To recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. ● To recognise and show, using diagrams, equivalent fractions with small denominators. ● To compare and order unit fractions, and fractions with the same denominators. ● To solve problems that involve all of the above.	from hours to minutes; minutes to seconds; years to months; weeks to days. ● To recall multiplication and division facts for multiplication tables up to 12 × 12. ● To use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. ● To multiply two-digit and three-digit numbers by a one-digit number using formal written layout. ● To solve problems involving multiplying and adding, including using the distributive law and harder multiplication problems such as which n objects are connected to m objects. ● To compare and classify geometric shapes, including	statements > 1 as a mixed number: 2/5 + 4/5 = 6/5 = 11/5. ● To add and subtract fractions with the same denominator and multiples of the same number. ● To multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. ● To recognise the per cent symbol (%) and understand that per cent relates to "number of parts per hundred", and write percentages as a fraction with denominator hundred, and as a decimal fraction. ● To convert between different units of measure (kilometre and metre; metre and centimetre; centimetre and millimetre; kilogram and gram; litre and millilitre). ● To understand and use basic equivalences between	decimal places. ● To calculate the area of parallelograms and triangles. ● To recognise when it is necessary to use the formulae for area and volume of shapes. ●To interpret and construct pie charts and line graphs and use these to solve problems.

			● To interpret and present data using bar charts, pictograms and tables. ● To solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables.	quadrilaterals and triangles, based on their properties and sizes. ● To identify acute and obtuse angles and compare and order angles up to two right angles by size. ● To describe positions on a 2D grid as coordinates in the first quadrant. ● To describe movements between positions as translations of a given unit to the left/right and up/down. ● To plot specified points and draw sides to complete a given polygon. ● To interpret and present discrete data using bar charts and continuous data using time graphs. ● To solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and simple line graphs. ● To convert between	metric units and common imperial units such as inches, pounds and pints. ● To estimate volume and capacity ● To use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling ● To solve comparison, sum and difference problems using information presented in a line graph.	

				different units of measure (kilometre to metre; hour to minute). ● To estimate, compare and calculate different measures, including money in pounds and pence.		
Summer	● To count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. ● To count, read and write numbers to 100 in numerals, count in multiples of twos, fives and tens. ● To 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. ● To read and write numbers from 1 to 20 in numerals and words. ● To represent and use number bonds	Number and place value: estimating, counting, comparing and ordering quantities ● To count in steps of 2, 3, and 5 from 0, and count in tens from any number, forward or backward. ● To recognise the place value of each digit in a 2-digit number (tens, ones). ● To identify, represent and estimate numbers using different representations, including the number line. ● To compare and order numbers from 0 up to 100; use <, > and = signs. ● To read and write	● To count from 0 in multiples of 4, 8, 50 and 100; finding 10 or 100 more or less than a given number. ● To recognise the place value of each digit in a three-digit number (hundreds, tens, ones). ● To compare and order numbers up to 1000. ● To identify, represent and estimate numbers using different representations. ● To read and write numbers up to 1000 in numerals and in words. ● To solve number problems and practical problems involving these ideas. ● To recall and use	● To count in multiples of 6, 7, 9, 25 and 1000. ● To find 1000 more or less than a given number. ● To count backwards through zero to include negative numbers. ● To recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). ● To order and compare numbers beyond 1000. ● To identify, represent and estimate numbers using different representations. ● To round any number to the nearest 10, 100 or 1000.	● To count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000. ● To interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers through zero. ● To round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000. ● To solve number problems and practical problems that involve all of the above. ● To read numerals to 1000 (M) and recognise years written in Roman	● To read, write, order and compare numbers up to 10,000,000 and determine the value of each digit. ● To round any whole number to a required degree of accuracy. ● To use negative numbers in context and calculate intervals across zero. ● To solve number problems and practical problems that involve all the above. ● To perform mental calculations, including with mixed operations and large numbers. ● To solve addition and subtraction multi-step problems in contexts, deciding which operations to use and why.

	and related subtraction facts within 20. ● To add and subtract one-digit and two-digit numbers to 20, including zero. ● To solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems. ● To recognise, find and name a half as one of two equal parts of an object, shape or quantity. ● To recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. ● To solve one-step problems involving multiplication and division, calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. ● To measure and	numbers to at least 100 in numerals and in words. ● To use place value and number facts to solve problems. 　　　Addition and subtraction: using mental calculation strategies　　● To solve problems with addition and subtraction: ●　Using concrete objects and pictorial representations, including those involving numbers, quantities and measures ●　Applying their increasing knowledge of mental and written methods. ● To recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. ● To add and subtract using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a	multiplication and division facts for the 3, 4 and 8 multiplication tables. ● To write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. ● To solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects. ● To add and subtract numbers mentally, including: ●　a three-digit number and ones ●　a three-digit number and tens ●　a three-digit	● To solve number and practical problems that involve all of the above and with increasingly large positive numbers. ● To estimate and use inverse operations to check answers to a calculation. ● To solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. ● To estimate, compare and calculate different measures, including money in pounds and pence. ● To add and subtract numbers with up to four digits using the efficient written methods of columnar addition and subtraction where appropriate. ● To estimate and use inverse operations to check answers to a calculation. ● To solve addition and subtraction two-step problems in	numerals. ● To add and subtract whole numbers with more than 4 digits, including using efficient written methods (columnar addition and subtraction). ● To add and subtract numbers mentally with increasingly large numbers. ● To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. ● To use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. ● To solve problems involving numbers up to three decimal places. ● To multiply numbers up to 4 digits by a one- or two-digit number using an efficient written method, including long multiplication for	● To use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. ● To multiply multi-digit numbers up to 4 digits by a two-digit whole number using the efficient written methods of long multiplication. ● To divide numbers up to 4 digits by two digit whole numbers using the efficient written method of long division and interpret remainders as whole number remainders, fractions or by rounding, as appropriate for the context. ● To use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. ● To add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.

begin to record the following: ● lengths and heights ● mass/weight ● capacity and volume ● time (hours, minutes, seconds). ● To describe position, directions and movements, including half, quarter and three- quarter turns. ● When given a number, identify one more and one less. ● To 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. ● To add and subtract one-digit and two-digit numbers to 20, including zero. ● To solve one-step problems that involve addition and subtraction, using concrete objects and pictorial	2-digit number and tens; two 2-digit numbers; adding three one-digit numbers.To show that addition can be done in any order (commutative) and subtraction cannot. ● To recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems. Multiplication and division: repeated addition and subtraction, arrays, grouping and using times tables facts ● To recall and use multiplication and division facts for the 2,5 and 10 multiplication tables, including recognising odd and even numbers. ● To calculate mathematical statements for multiplication and division within the	number and hundreds. ● To estimate the answer to a calculation and use inverse operations to check answers. ● To solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. ● To add and subtract numbers with up to three digits, using the efficient written methods of columnar addition and subtraction. ● To estimate the answer to a calculation and use inverse operations to check answers. ● To solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. ● To draw 2D shapes and make 3D shapes using modelling	contexts, deciding which operations and methods to use and why. ● To recall multiplication and division facts for multiplication tables up to 12 × 12. ● To use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. ● To recognise and use factor pairs and commutativity in mental calculations. ● To multiply two-digit and three-digit numbers by a one-digit number using formal written layout. ● To solve problems involving multiplying and adding, including using the distributive law and harder multiplication problems such as which n objects are connected to m objects. ● To count up and	two-digit numbers. ● To divide numbers up to 4 digits by a one-digit number using the efficient written method of short division and interpret remainders appropriately for the context. ● To solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign. ● To recognise mixed numbers and improper fractions and convert from one form to the other; write mathematical statements > 1 as a mixed number: 2/5 + 4/5 = 6/5 = 11/5. ● To add and subtract fractions with the same denominator and multiples of the same number. ● To know angles are measured in degrees; estimate and compare	● To multiply simple pairs of proper fractions, writing the answer in its simplest form. ● To divide proper fractions by whole numbers. ● To solve problems involving the calculation of percentages of whole numbers or measures and the use of percentages for comparison. ● To recall and use equivalences between simple fractions, decimals and percentages including in different contexts. ● To solve problems involving the relative size of two quantities where missing values can be found by using integer multiplication and division facts. ● To solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. ● To solve problems involving similar shapes where the

representations, and missing number problems. ● To recognise, find and name a half as one of two equal parts of an object, shape or quantity. ● To recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. ● To solve one-step problems involving multiplication and division, calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. ● To measure and begin to record the following: ● lengths and heights ● mass/weight ● capacity and volume ● time (hours, minutes, seconds). ● To recognise and use language relating to dates, including days of the week,	multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs. ● To recognise and use the inverse relationship between multiplication and division in calculations. ● To show that multiplication of two numbers can be done in any order (commutative) and division for one number by another cannot. ● To solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts. Fractions: finding fractions of quantities, shapes and sets of objects ● To recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4.	materials; recognise 3D shapes in different orientations and describe them with increasing accuracy. ● To recognise angles as a property of shape and associate angles with turning. ● To identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle. ● To identify horizontal, vertical, perpendicular and parallel lines in relation to other lines. ● To measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).	down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten. ● To solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. ● To recognise and show, using diagrams, families of common equivalent fractions. ● To add and subtract fractions with the same denominator. ● To convert between different units of measure (kilometre to metre; hour to minute). ● To measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. ● To find the area of rectilinear shapes by counting.	acute, obtuse and reflex angles ● To draw given angles, and measure them in degrees (º). ● To identify: ● angles at a point and one whole turn (total 360º) ● angles at a point on a straight line and 1/2 a turn (total 180º) ● other multiples of 90º . ● To use the properties of a rectangle to deduce related facts and find missing lengths and angles. ● To distinguish between regular and irregular polygons based on reasoning about equal sides and angles. ● To estimate volume (e.g. using 1 cm3 blocks to build cubes and cuboids) and capacity (e.g. using water). ● To use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal	scale factor is known or can be found. ● To multiply multi-digit numbers up to 4 digits by a two-digit whole number using the efficient written method of long multiplication. ● To divide numbers up to 4 digits by a two-digit whole number using the efficient written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. ● To perform mental calculations, including with mixed operations and large numbers. ● To use their knowledge of the order of operations to carry out calculations involving the four operations. ● To solve addition and subtraction multi-step problems in contexts, deciding which

weeks, months and years. ● To tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. ● To order and arrange combinations of objects and shapes in patterns. ● To recognise and name common 2D and 3D shapes, including: ● 2D shapes (rectangles (including squares), circles and triangles) ● 3D shapes (cuboids (including cubes), pyramids and spheres).	● To write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of two quarters and one half. Geometry: position and direction Measures: time ● To use mathematical vocabulary to describe position, direction and movement, including distinguishing between rotation as a turn and in terms of right angles for quarter, half and three quarter turns (clockwise and anti-clockwise) and movement in a straight line. ● 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. Statistics: solving problems that involve collecting data		● To estimate, compare and calculate different measures, including money in pounds and pence. ● To estimate and use inverse operations to check answers to a calculation. ● To solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. ● To recall multiplication and division facts for multiplication tables up to 12 × 12. ● To recognise and use factor pairs and commutativity in mental calculations. ● To solve problems involving multiplying and adding, including using the distributive law and harder multiplication problems such as which n objects are connected to m objects. ● To convert between	notation including scaling ● To solve problems involving converting between units of time. ● To add and subtract whole numbers with more than 4 digits, including using efficient written methods (columnar addition and subtraction). ● To add and subtract numbers mentally with increasingly large numbers. ● To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. ● To multiply numbers up to 4 digits by a one- or two-digit number using an efficient written method, including long multiplication for two-digit numbers. ● To multiply and divide numbers mentally drawing upon known facts. ● To identify multiples	operations and methods to use and why. ● To solve problems involving addition, subtraction, multiplication and division. ● To use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. ● To express missing number problems algebraically. ● To use simple formulae expressed in words. ● To generate and describe linear number sequences. ● To find pairs of numbers that satisfy number sentences involving two unknowns. ● To enumerate all possibilities of combinations of two variables. ● To multiply simple pairs of proper fractions, writing the answer in its simplest form (1/4 ÷ 1/2 = 1/8).

		in tallies, tables and pictograms ● To interpret and construct simple pictograms, tally charts, block diagrams and simple tables. ● To ask and answer simple questions by counting the number of object in each category and sorting the categories by quantity. ● To ask and answer questions about totalling and compare categorical data. Assess and Review ● To assess the half-term's work. Year 2 Medium Term Planning Summer 1 Date Week Topic Curriculum Objective Number and place value: estimating, counting, comparing and ordering quantities		different units of measure (kilometre to metre; hour to minute). ● To measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. ● To find the area of rectilinear shapes by counting. ● To estimate, compare and calculate different measures, including money in pounds and pence. ● To read, write and convert time between analogue and digital 12- and 24-hour clocks. ● To solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. ● To add and subtract numbers with up to four digits using the efficient written methods of columnar addition and	and factors, including finding all factor pairs of a number, and common factors of two numbers. ● To solve problems involving multiplication and division where larger numbers are used by decomposing them into factors. ● To solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign. ● To read, write, order and compare numbers with up to three decimal places. ● To read and write decimal numbers as fractions (for example, 0.71 = 71/100). ● To recognise and use thousandths and relate them to tenths, hundredths and decimals equivalents. ● To round decimals with two decimal	● To use common factors to simplify fractions; use common multiples to express fractions in the same denomination. ● To add and subtract fractions with different denominators and mixed numbers using the concept of equivalent fractions. ● To solve problems involving the calculation of percentages of whole numbers or measures such as 15% of 360 and the use of percentages for comparison. ● To recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. ● To solve problems involving the calculation and conversion of units of measure, using decimal notation to three decimal places where appropriate. ● To use, read, write

	● To recognise the place value of each digit in a 2-digit number (tens, ones). ● To identify, represent and estimate numbers using different representations, including the number line. ● To compare and order numbers from 0 up to 100; use <, > and = signs. ● To read and write numbers to at least 100 in numerals and in words. Addition and subtraction: using mental calculation strategies ● To solve problems with addition and subtraction: ● Using concrete objects and pictorial representations, including those involving numbers, quantities and measures ● Applying their increasing knowledge of mental and written		subtraction where appropriate. ● To estimate and use inverse operations to check answers to a calculation. ● To solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. ● To recall multiplication and division facts for multiplication tables up to 12 × 12. ● To use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. ● To recognise and use factor pairs and commutativity in mental calculations. ● To multiply two-digit and three-digit numbers by a one-digit number using formal written layout. ● To solve problems involving multiplying	places to the nearest whole numbers and to one decimal place. ● To recognise the per cent symbol (%) and understand that per cent relates to "number of parts per hundred", and write percentages as a fraction with denominator hundred, and as a decimal fraction. ● To solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 4/5 and those with a denominator of a multiple of 10 or 25. ● To measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. ● To calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm2) and square metres (m2) and	and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a large unit and vice versa, using decimal notation to three decimal places. ● To interpret and construct pie charts and line graphs and use these to solve problems. ● To calculate and interpret the mean as an average.

methods.

● To add and subtract using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a 2-digit number and tens; two 2-digit numbers; adding three one-digit numbers.

● To show that addition can be done in any order (commutative) and subtraction cannot.

● To recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.

Multiplication and division: repeated addition and subtraction, arrays, grouping and using times tables facts

● To recall and use multiplication and division facts for the 2,5 and 10 multiplication tables,

and adding, including using the distributive law and harder multiplication problems such as which n objects are connected to m objects.

● To compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.

● To identify acute and obtuse angles and compare and order angles up to two right angles by size.

● To identify lines of symmetry in 2D shapes presented in different orientations.

● To describe positions on a 2D grid as coordinates in the first quadrant.

● To describe movements between positions as translations of a given unit to the left/right and up/down.

● To plot specified points and draw sides to complete a given

estimate the area of irregular shapes.

● To solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.

● To complete, read and interpret information in tables, including timetables.

● To solve comparison, sum and difference problems using information presented in a line graph.

including recognising odd and even numbers.
● To calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs.
● To recognise and use the inverse relationship between multiplication and division in calculations.
● To solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts.

Fractions: finding fractions of quantities, shapes and sets of objects   ● To recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4.

polygon.
● To interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.
● To solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and simple line graphs.

● To write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of two quarters and one half.

Geometry: properties of 3D and 2D shape ● To identify and describe the properties of 2D and 3D shapes, including the number of sides, symmetry in a vertical line, edges, vertices, and faces.
● To identify 2D shapes on the surface of 3D shapes, for example circle on a cylinder and a triangle on a pyramid.
● To compare and sort common 2D and 3D shapes and everyday objects.
● To solve one-step problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts.

Measures: length, mass (weight), capacity and money ● To choose and use appropriate standard units to estimate and measure length/ height in any direction; mass; temperature; volume and capacity to the nearest appropriate unit using rulers, scales, thermometers and measuring vessels.

● To compare and order lengths, mass, volume/capacity and record the results using
>, < and =.

● To recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value.

● To find different combinations of coins to equal the same amounts of money

● To solve simple problems in a practical context involving addition and subtraction of money

of the same unit, including giving change.

● To recognise the place value of each digit in a 2-digit number (tens, ones).

● To identify, represent and estimate numbers using different representations, including the number line.

● To compare and order numbers from 0 up to 100; use <, > and = signs.

● To read and write numbers to at least 100 in numerals and in words.

● To use place value and number facts to solve problems.

● To solve problems with addition and subtraction:

●   Using concrete objects and pictorial representations, including those involving numbers, quantities and measures

●   Applying their increasing knowledge of mental and written

methods.
● To add and subtract using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a 2-digit number and tens; two 2-digit numbers; adding three one-digit numbers.
● To recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.
● To recall and use multiplication and division facts for the 2,5 and 10 multiplication tables, including recognising odd and even numbers.
● To calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals

(=) signs.
● To recognise and use the inverse relationship between multiplication and division in calculations.
● To solve problems involving multiplication and division, using materials, arrays, repeate addition, mental methods and multiplication and division facts, including problems in contexts.
● To recognise, find, name and write fractions 1/ , 1/ , 2/ and 3/3.   4   4   4
● To write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of two quarters and one half.
● To order and arrange combinations of mathematical objects in patterns.
● To use mathematical vocabulary to describe position,

direction and movement, including distinguishing between rotation as a turn and in terms of right angles for quarter, half and three quarter turns (clockwise and anti-clockwise) and movement in a straight line.
● To compare and sequence intervals of time.
● 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.
● To interpret and construct simple pictograms, tally charts, block diagrams and simple tables.
● To ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.
● To ask and answer questions about totalling and compare categorical data.