WORTH PRIMARY SCHOOL
"lifelong learning"

Foundation Stage, Year 1 and 2

Long term aims and objectives

Whole School Aims

- To ensure that all pupils become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall an apply knowledge rapidly and accurately.
- To ensure that all pupils reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
- To ensure that all pupils 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.

Foundation Stage and Key Stage 1

Foundation Stage

Numbers: children count reliably with numbers from 1 to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.

Shape, space and measures: children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore 12 characteristics of everyday objects and shapes and use mathematical language to describe them.

Key Stage 1

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the 4 operations, including with practical resources [for example, concrete objects and measuring tools].

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

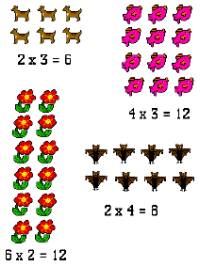
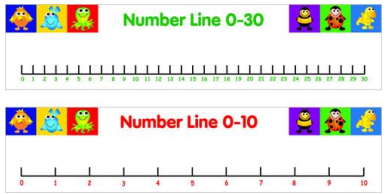
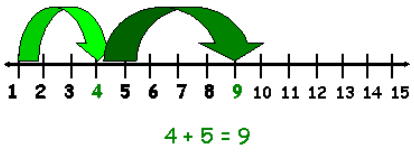
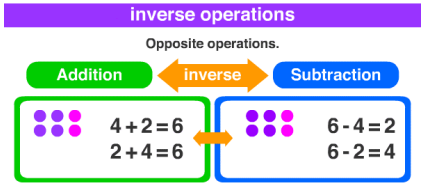
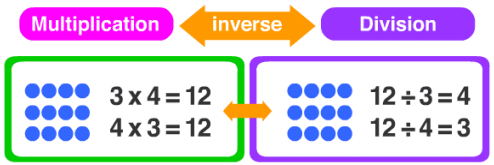
Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Medium Term Plan Autumn Terms 1 and 2
Foundation Stage, Year 1 & Year 2

Foundation Stage	Year 1	Year 2
Number and place value ELG 11 1. Count reliably with numbers from 1 - 20 2. Place numbers 1-20 in order	**Number and place value** * count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number * count, read and write numbers to 100 in numerals * read and write numbers from 1 to 20 in numerals and words.	**Number and place value** * count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward * recognise the place value of each digit in a two-digit number (tens, ones) *read and write numbers to at least 100 in numerals and in words * use place value and number facts to solve problems.
Numbers ELG 11 3. Say which number is one more or one less than a given number to 20 4. Using quantities and objects, they	**Addition** * read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs	**Addition and subtraction x 2** Number bonds to 10 * using concrete objects and pictorial representations, including those involving numbers,

add 2 single-digit numbers and count on to find the answer	* add and subtract one-digit and two-digit numbers to 20 ,including zero	quantities and measures * add and subtract numbers using concrete objects, pictorial representations * applying their increasing knowledge of mental and written methods
Shape Space & Measure ELG 12 7. Uses everyday language to talk about money 6. Uses everyday language to talk about time	**Money and Measure** * recognise and know the value of different denominations of coins and notes * compare, describe and solve practical problems for: lengths and heights (e.g. long/short, longer/shorter, tall/short, double/half) * sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening * tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	**Money and Measure** * recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value * solve simple problems in a practical context involving addition of money of the same unit, including giving change * compare and sequence intervals of time * 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.
Shape Space & Measure ELG 12 10. Explores characteristics of everyday objects and shapes and use mathematical language to describe them	**Measure and Shape** Properties of Shape – * recognise and name common 2-D shapes, including rectangles (including squares), circles and triangles)	**Measure and Shape** Properties of Shape – *identify and describe the properties of 2-D shapes, including the number of sides and symmetry in a vertical line * identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces * compare and sort common 2-D and 3-D shapes and everyday objects.
Numbers ELG 11 1. Count reliably with numbers from 1 - 20	**Number and place vale** * recognise, find and name a half as one of two equal parts of an object, shape or quantity **Au**.	**Number and Fractions** * recognise, find, name and write fractions 1/3, 1/4, 2/4 and $\frac{3}{4}$ of a length, shape, set of objects or

2. Place numbers 1-20 in order		quantity
Numbers ELG 11 6. Solve problems, including doubling and halving and sharing	**Doubling and halving and Measure** • solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.	**Doubling and halving and Mental addition and subtraction** * recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
Shape Space Measure ELG 12 9. Recognises, creates and describes patterns 10. Explores characteristics of everyday objects and shapes and use mathematical language to describe them	**Shape and Data** Properties of Shape – * recognise and name common 2-D shapes, including rectangles (including squares), circles and triangles)	**Shape and Data** Properties of Shape – *identify and describe the properties of 2-D shapes, including the number of sides and symmetry in a vertical line * identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces * compare and sort common 2-D and 3-D shapes and everyday objects. * interpret and construct simple pictograms, tally charts, block diagrams and simple tables * ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity
Numbers ELG 11 3. Say which number is one more or one less than a given number to 20 Numbers 4. Using quantities and objects, they add 2 single-digit numbers and count on to find the answer	**Number and Addition and Subtraction** * represent and use number bonds and related subtraction facts within 20 * add and subtract one-digit and two-digit numbers to 20 ,including zero	**Addition and subtraction** * show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot * recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.
Models and images to support conceptual understanding and progression Examples of formal written methods to be used		

Place Value cards 	**Number Bonds**  1 + 2 = 10 2 + 8 = 10 3 + 7 = 10 4 + 6 = 10 6 + 4 = 10 7 + 3 = 10 8 + 2 = 10 9 + 1 = 10 10 + 0 = 10	**Array** 	**Doubling Numbers** 	**Number Lines** 
100 Square 	**Counting on using a number line**  4 + 5 = 9	**Partition numbers** 37 = 30 + 7 15 = 10 + 5 **Adding numbers using partitioning** 43 + 26 = 40 3 20 6 40 + 20 = 60 3 + 6 = 9 60 + 9 = 69	**< and > signs**  16 > 11 16 is greater than 11 9 < 12 9 is less than 11	**Addition & Subtraction** 6 + 5 = 11 which is the same as 5 + 6 = 11 9 – 4 = 5 this cannot be reversed
	Inverse relationship between addition and subtraction 	**Inverse relationship between multiplication and division** 	**Place Value Flip cards** 	

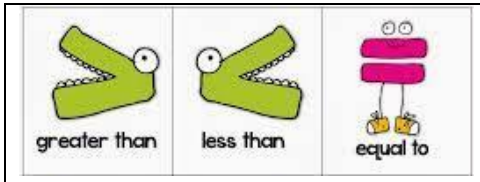
Maths investigation work – (nrich website, KLZ maths site, Apex books for resources)
Children should be able to reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and develop an argument, justification or proof using mathematical language.
Term 1 focus - Finding rules and describing patterns Term 2 focus - Logic and reasoning puzzles

Medium Term Plan Spring Terms 3 and 4
Foundation Stage, Year 1 & Year 2

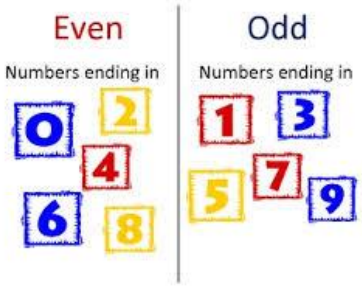
Foundation Stage	Year 1	Year 2
Numbers ELG 11 1. Count reliably with numbers from 1 - 20 Numbers 2. Place numbers 1-20 in order Numbers 3. Say which number is one more or one less than a given number to 20	**Number and Place Value** * count, read and write numbers to 100 in numerals; count in multiples of tens * given a number, identify one more and one less	**Number and Place Value** * compare and order numbers from 0 up to 100; use <, > and = signs
Numbers ELG 11 4. Using quantities and objects, they add 2 single-digit numbers and count on to find the answer 5. Using quantities and objects, they subtract 2 single-digit numbers and count back to find the answer	**Addition and Subtraction x 2** * read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs * represent and use number bonds and related subtraction facts within 20 * solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ - 9.	**Addition and Subtraction** * add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones a two-digit number and tens two two-digit numbers adding three one-digit numbers
Shape Space & Measure ELG 12 2. Uses everyday language to talk about weight	**Measure weight** * compare, describe and solve practical problems for: mass or weight (e.g. heavy/light, heavier than, lighter than) capacity/volume (full/empty, more than, less than, quarter) * measure and begin to record the following: mass/weight, capacity and volume	**Measure weight** * choose and use appropriate standard units to estimate and measure mass (kg/g) to the nearest appropriate unit, scales **Time** * 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. Au. * Know the number of minutes in an hour and

		the number of hours in a day
Numbers ELG 11 6. Solve problems, including doubling and halving and sharing	**Multiplication and Division x2** * solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.	**Multiplication and Division** *recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers * solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.
Numbers ELG 11 1. Count reliably with numbers from 1 - 20 Numbers 2. Place numbers 1-20 in order 6. Solve problems, including doubling and halving and sharing	**Number and Fractions** * read and write numbers from 1 to 20 in numerals and words. * 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 * recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	**Number and Fractions** * compare and order numbers from 0 up to 100 *read and write numbers to at least 100 in numerals and in words * recognise, find, name and write fractions 1/3, 1/4, 2/4 and ¾ of a length, shape, set of objects or quantity
Shape Space & Measure ELG 12 1. Uses everyday language to talk about size 4. Uses everyday language to talk about position 5. Uses everyday language to talk about distance	**Measures and addition and subtraction** * compare, describe and solve practical problems for: lengths and heights (e.g. long/short, longer/shorter, tall/short, double/half)	**Measures and Addition and Subtraction** * recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value * find different combinations 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, including giving

		change
Shape Space & Measure ELG 12 1. Uses everyday language to talk about size 2. Uses everyday language to talk about weight 3. Uses everyday language to talk about capacity	**Measures and data** * compare, describe and solve practical problems for: capacity/volume (full/empty, more than, less than, quarter) * measure and begin to record the following: capacity and volume	**Measures and data** * choose and use appropriate standard units to estimate and measure capacity (litres/ml) to the nearest appropriate unit, using measuring vessels * interpret and construct simple pictograms, tally charts, block diagrams and simple tables * ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity
Shape Space & Measure ELG 12 7. Uses everyday language to talk about money	**Mental addition/subtraction and money** * recognise and know the value of different denominations of coins and notes	**Mental addition/subtraction and money** * recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value Au. * find different combinations 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, including giving change
Models and images to support conceptual understanding and progression Examples of formal written methods to be used		
<u>compare and order numbers using <, > and = signs</u>	<u>Number Bonds to 10</u>	<u>Odd and even Numbers</u>

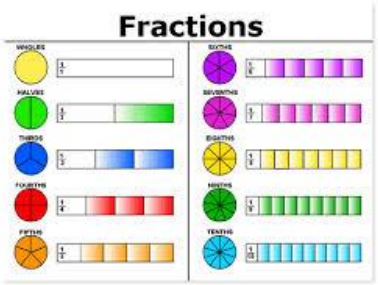


1 + 2 = 10
2 + 8 = 10
3 + 7 = 10
4 + 6 = 10
6 + 4 = 10
7 + 3 = 10
8 + 2 = 10
9 + 1 = 10
10 + 0 = 10

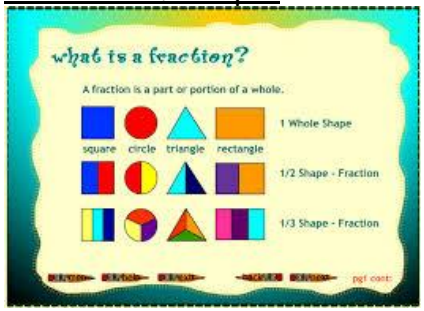


Telling The Time

Fractions of Numbers



Fractions of Shapes



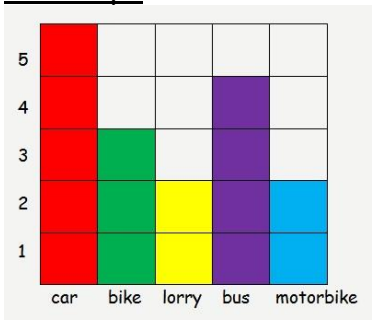
Pictograms

Colour	Number of Smarties	Frequency
Green		7
Orange		8
Blue		5
Pink		6
Yellow		11
Red		8
Purple		7
Brown		3
	Key = 2 smarties	

Tally Chart

Favorite Pets		
Pet	Tally Marks	Number
	𝍸 𝍸	10
	𝍸	4
	𝍸 I	6

Bar Graph



Maths investigation work – (nrich website, KLZ maths site, Apex books for resources)
Children should be able to reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and develop an argument,

justification or proof using mathematical language.
Term 3 focus – Diagram and visual problems Term 4 focus – Finding all possibilities

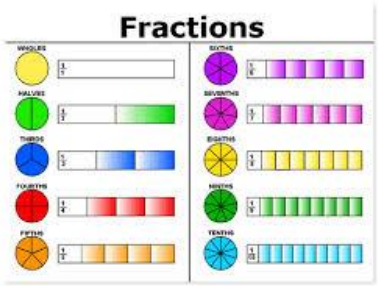
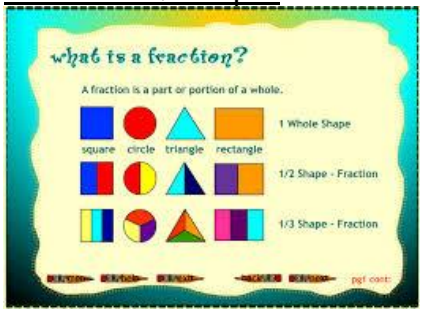
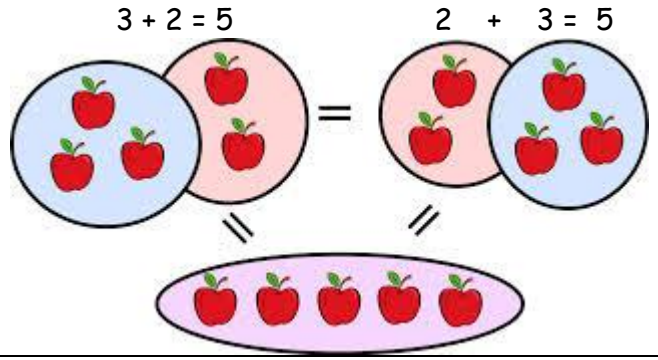
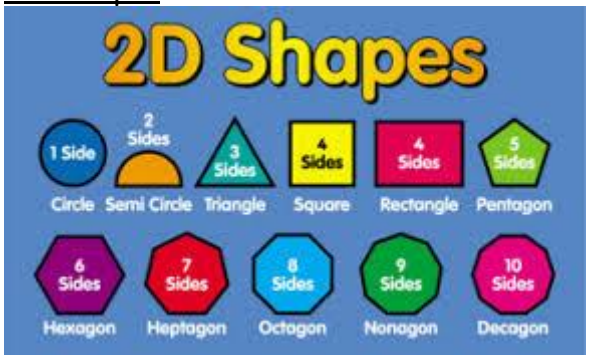
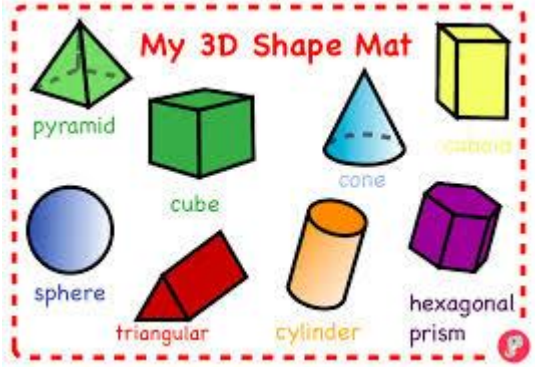
Medium Term Plan Summer Terms 5 and 6
Foundation Stage, Year 1 & Year 2

Foundation Stage	Year 1	Year 2
Numbers ELG 11 1. Count reliably with numbers from 1 - 20 2. Place numbers 1-20 in order 6. Solve problems, including doubling and halving and sharing	**Number and Place Value** * count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number * given a number, identify one more and one less * identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least	* count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward * recognise, find, name and write fractions 1/3, 1/4, 2/4 and ¾ of a length, shape, set of objects or quantity
Numbers ELG 11 3. Say which number is one more or one less than a given number to 20 4. Using quantities and objects, they add 2 single-digit numbers and count on to find the answer 5. Using quantities and objects, they subtract 2 single-digit numbers and count back to find the answer	**Addition and Subtraction** * read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs * add and subtract one-digit and two-digit numbers to 20 ,including zero * solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number proble□ such as 7 = -	**Addition and Subtraction** * add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones a two-digit number and tens a two two-digit numbers a adding three one-digit numbers * show that addition of two numbers can be done in any order (commutative) and

	9.	subtraction of one number from another cannot
Shape Space & Measure 9. Recognises, creates and describes patterns 10. Explores characteristics of everyday objects and shapes and use mathematical language to describe them 6. Uses everyday language to talk about time	**Measure (shape and time)** * recognise and name common 2-D and 3-D shapes, including: * 3-D shapes (e.g. cuboids (including cubes), pyramids and spheres). * tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	**Measure (shape and time)** * identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces * identify 2-D shapes on the surface of 3-D shapes, for example a circle on a cylinder and a triangle on a pyramid * 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
Numbers ELG 11 6. Solve problems, including doubling and halving and sharing	**Multiplication and Division** * solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays	**Multiplication and Division** * calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs * show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot * solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts
Numbers ELG 11 1. Count reliably with numbers from 1 - 20 6. Solve problems, including doubling and halving and sharing	**Number and Fractions** * count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number * count, read and write numbers to 100 in numerals; count in multiples of twos, fives	**Number and Fractions** * recognise the place value of each digit in a two-digit number (tens, ones) * identify, represent and estimate numbers using different representations, including the number line

	and tens * represent and use number bonds and related subtraction facts within 20 * recognise, find and name a half as one of two equal parts of an object, shape or quantity	* read and write numbers to at least 100 in numerals and in words * use place value and number facts to solve problems
Numbers ELG 11 4. Using quantities and objects, they add 2 single-digit numbers and count on to find the answer 5. Using quantities and objects, they subtract 2 single-digit numbers and count back to find the answer	**Addition and Subtraction** * add and subtract one-digit and two-digit numbers to 20 ,including zero	**Addition and Subtraction** * solve problems with addition and subtraction: * using concrete objects and pictorial representations, including those involving numbers, quantities and measures * recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems. * add and subtract numbers using concrete objects, pictorial representations, and mentally,
Shape Space & Measure ELG 12 1. Uses everyday language to talk about size 4. Uses everyday language to talk about position 10. Explores characteristics of everyday objects and shapes and use mathematical language to describe them	**Measure, Shape and Data** *recognise and name common 2-D and 3-D shapes, including: * 2-D shapes (e.g. rectangles (including squares), circles and triangles) Au. * 3-D shapes (e.g. cuboids (including cubes), pyramids and spheres * describe position, directions and movements, including half, quarter and three-quarter turns.	**Measure, Shape and Data** * interpret and construct simple pictograms, tally charts, block diagrams and 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. * compare and sequence intervals of time
	Multiplication and Division * solve one-step problems involving multiplication and division, by calculating	**Multiplication and Division** * solve problems involving multiplication and division, using materials, arrays, repeated

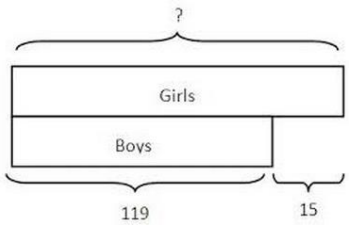
	the answer using concrete objects, pictorial representations and arrays with the support of the teacher. * recognise, find and name a half as one of two equal parts of an object, shape or quantity * recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	addition, mental methods, and multiplication and division facts, including problems in contexts.
Numbers ELG 11 4. Using quantities and objects, they add 2 single-digit numbers and count on to find the answer 5. Using quantities and objects, they subtract 2 single-digit numbers and count back to find the answer 6. Solve problems, including doubling and halving and sharing **Shape Space & Measure 12** 7. Uses everyday language to talk about money	**Addition and Subtraction** (money) * add and subtract one-digit and two-digit numbers to 20 ,including zero Au. * solve one-step problems that involve addition and subtraction * recognise and know the value of different denominations of coins and notes	**Addition and Subtraction** (money) * solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change * show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot
Shape Space & Measure 12 6. Uses everyday language to talk about time **Numbers 11** 6. Solve problems, including doubling and halving and sharing	**Fractions, multiplication & division, time** * recognise and use language relating to dates, including days of the week, weeks, months and years * tell the time to the hour and half past the hour and draw the hands on a clock face to show these times * recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	**Fractions, multiplication & division, time** * 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. * Know the number of minutes in an hour and the number of hours in a day * calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=)

		signs * write simple fractions e.g. ½ of 6 = 3 and recognise the equivalence of 2/4 and 1/2.
Fractions of Numbers 	Fractions of Shapes 	Addition can be done in any order 
2 D Shapes 	3 D Shapes 	Double Numbers 

Maths investigation work – (nrich website, KLZ maths site, Apex books for resources)
Children should be able to reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and develop an argument, justification or proof using mathematical language.
Term 5 focus – examples and counter examples to prove, disprove statements Term 6 focus – mixed combination of all 5 types

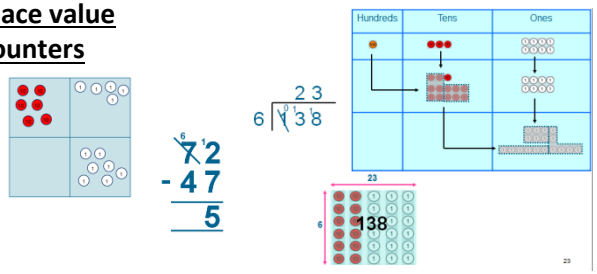
Models and resources to be used to aid conceptual understanding

Bar model



- For problem solving using all 4 operations.
- For visualising fractions and working out equivalence
- For working out fractions of a whole and the whole when given a fraction/ percentage.

Place value counters



- To support conceptual understanding of decomposition and short division

Arrays

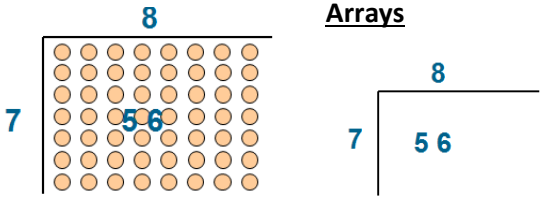
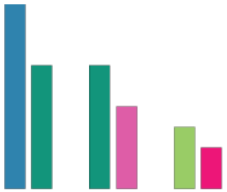


Image used to support inverse operations and missing number questions e.g.

e.g. ☐ ÷ 27 = 675

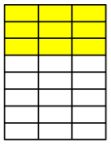
Cuisenaire rods



- To model ratio
- To model fraction equivalence

Fraction grids

$\frac{3}{8} = \frac{9}{24}$



- Used to model equivalence of fractions
- Used to model addition and subtraction of fractions

Bead strings

- For place value – division of one whole into tenths, hundredths and thousandths

Double-sided counters  • Used to model partitioning in different ways – how can these counters be used to make 34 or 1.6?	**Place value using computer programs**  • Place value and equivalent values of decimal numbers	