KS2 Parent Workshop

LINDFIELD PRIMARY ACADEMY

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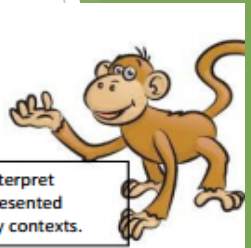
Programme of Study - Year 3



Mathematics Programmes of Study

Number, place value and rounding	Addition and Subtraction	Multiplication and Division	Fractions	Measures	Geometry	Statistics
I can solve number problems and practical problems.	I can solve missing number problems for + and −.	I can solve missing number problems using multiplication and division.	I can solve problems that involve fractions.	I can compare durations of events.	I can identify horizontal, vertical, perpendicular and parallel lines in relation to other lines.	I can interpret data presented in many contexts.
I can read and write numbers to at least 1000 in numerals and words.	I can solve word problems for + and −.	I can solve problems using multiplication and division.	I can compare and order fractions with the same denominator.	I know the number of seconds in a minute and the number of days in each month, year and leap year.	I can identify whether angles are greater than or less than a right angle.	I can use simple scales (e.g. 2, 5, 10 units per cm) in pictograms and bar charts.
I can identify, represent and estimate numbers in different contexts.	I can estimate the answer to a calculation and use inverse operations to check answers.	I can use efficient written methods to multiply a 2 digit and 1 digit number.	I can add and subtract fractions with the same denominator within 1 whole.	I can recognise and write the Roman numerals from I to XII.	I know that 2 right angles make a half turn, 3 make 3/4 of a turn and 4 make a complete turn.	I can solve two step problems such as 'How many more? How many fewer?'
I can compare and order number up to 1000.	I can subtract numbers with up to 3 digits using an efficient written method.	I can use mental strategies to multiply a 2 digit number by a 1 digit.	I can recognise and show equivalent fractions, using diagrams.	I can tell and write the time from an analogue clock and 24 hour clock.	I can identify right angles.	I can solve one step problems such as 'How many more? How many fewer?'
I can recognise the place value of each digit in a 3 digit number.	I can add numbers with up to 3 digits using an efficient written method.	I can calculate mathematical statements for x and ÷ facts that I know.	I can recognise and use fractions as numbers: 1/4 + 3/4 =1	I can add and subtract amounts of money to give change using £ and p.	I can recognise angles as a property of a shapes and associate angles with turning.	I can interpret and present data using tables.
I can find 10 or 100 more or less than a given number.	I can add and subtract numbers mentally: '3 digit number and ones.'	I can recall and use x and ÷ facts for the 8 times tables.	I can recognise, find and write fractions for a set of objects.	I can measure the perimeter of simple 2-D shapes.	I can recognise and describe 3-D shapes in different orientations.	I can interpret and present data using pictograms.
I can count from 0 in multiples of 50 and 100.	I can add and subtract numbers mentally : '3 digit number and tens'.	I can recall and use x and ÷ facts for the 4 times tables.	I know that tenths arise from dividing an object into 10 equal parts.	I can measure, compare, add and subtract volume/capacity (l/ml).	I can make 3-D shapes using modelling materials.	I can interpret and present data using bar charts.
I can count from 0 in multiples of 4 and 8.	I can add and subtract numbers mentally : '3 digit number and hundreds.'	I can recall and use x and ÷ facts for the 3 times tables.	I can count up and down in tenths.	I can measure, compare, add and subtract mass (kg/g).	I can draw 2-D shapes.	
				I can measure, compare, add and subtract lengths (m/cm/mm).		

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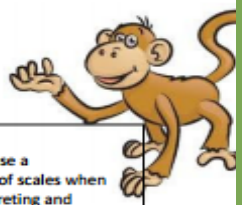
Programme of Study - Year 4

Mathematics Programmes of Study



Number, place value and rounding	Addition and Subtraction	Multiplication and Division	Fractions and Decimals	Measures	Geometry	Statistics
I can read Roman numerals to 100 (I to C) and understand how the numeral system changed.	I can solve mental calculations with increasingly large numbers	I can solve problems involving multiplying and dividing.	I can solve simple measure and money problems involving fractions and decimals to two decimal places.	I can solve problems involving converting from hours to minutes; minutes to seconds; years to months and weeks to days.	I can plot specified points and draw sides to complete a given polygon.	I can use a range of scales when interpreting and presenting data.
I can solve number and practical problems using place value.	I can solve subtraction two-step problems deciding which operations and methods to use and why.	I can multiply and divide three-digit numbers by a one-digit number.	I can compare numbers with the same number of decimal places.	I can read, write and convert time between analogue and digital 12 and 24-hour clocks.	I can translate shapes.	I can solve 'difference' problems using information presented in bar charts, pictograms, tables and simple line graphs.
I can round any number to the nearest 10, 100 or 1000.	I can solve addition two-step problems deciding which operations and methods to use and why.	I can multiply two-digit numbers by a one-digit number using a formal layout	I can round decimals with 1 decimal place to the nearest whole number.	I can estimate, compare and calculate different measures, including money in pounds and pence.	I can describe position on a 2-D grid as co-ordinates in the first quadrant.	I can solve 'sum' problems using information presented in bar charts, pictograms, tables and simple line graphs.
I can identify, represent and estimate numbers.	I can use inverse s to check answers to calculations.	I can recognise and use factor pairs in mental calculations.	I can find the effect of dividing a number by 10 and 100 and identify the value of the digits in the answer.	I can find the area of rectilinear shapes by counting.	I can complete a simple symmetric figure with respect to a specific line of symmetry.	I can solve 'comparison' problems using information presented in bar charts, pictograms, tables and simple line graphs.
I can order and compare numbers beyond 1000.	I can estimate to check answers to calculations.	I can multiply together three numbers.	I can recognise and write decimal equivalents to ½, ¼, ¾.	I can measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.	I can identify lines of symmetry in 2-D shapes presented in different orientations.	I can interpret and present data using line graphs.
I can recognise the place value of each digit in a 4-digit number.	I can subtract numbers with up to 4 digits using efficient written methods.	I can use place value, known and derived facts to divide mentally.	I can recognise and write decimal equivalents of any number of 10ths or 100ths.	I can convert between different units of measure (e.g. Kilometre to metre; hour to minute).	I can compare and order angles up to two right angles by size.	I can interpret and present data using bar charts.
I can count backwards through zero to include negative numbers.	I can add numbers with up to 4 digits using efficient written methods.	I can use place value, known and derived facts to multiply mentally.	I can add and subtract fractions with the same denominator.		I can identify acute and obtuse angles.	
I can find 100 more or less than a given number.		I can recall x and ÷ facts for multiplication tables up to 12 x 12.	I can recognise and show, using diagrams, families of common equivalent fractions.		I can compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.	
I can count in multiples of 6, 7, 9, 25 and 1000.			I can count up and down in 100ths and recognise that 100ths arise when dividing an object by a 100 and dividing 10ths by 10.			

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Programme of Study - Year 5

Mathematics Programmes of Study

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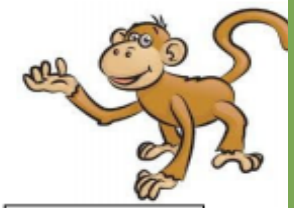

Number, place value and rounding	Addition and Subtraction	Multiplication and Division	Fractions and Decimals	Measures	Geometry	Statistics
I can recognise years written in Roman numerals.	I can solve addition multi-step problems in contexts, deciding which operations and methods to use and why.	I can solve problems including scaling by simple fractions and simple rates.	I can write percentages as a fraction.	I can solve problems involving addition and subtraction of units of measures using decimal notation.	I can distinguish between regular and irregular polygons.	I can present information using ICT.
I can read Roman numerals to 1000 (M).	I can solve subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	I can recognise and use square numbers and cube numbers.	I can recognise the % symbol and understand what it means.	I can solve problems involving converting between units of time.	I can state and use the properties of a rectangle to deduce related facts.	I can read and interpret information in tables including timetables.
I can solve number problems and practical problems.	I can use rounding to check answers to calculations.	I can multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.	I can solve problems numbers up to 3 decimal places.	I can recognise and estimate volume and capacity.	I can draw shapes using given dimensions and angles.	I can complete information in tables including timetables.
I can round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100, 000.	I can subtract mentally using increasingly large numbers.	I can divide numbers up to 4 digits by a 1 digit number using a formal written method, including remainders	I can read, write, order and compare numbers with up to 3 decimal places.	I can estimate the area of irregular shapes.	I can compare different angles and identify reflex angles	I can solve 'difference' problems using information presented line graphs.
I can use negative numbers in context and can count forwards and backwards with positive and negative numbers through 0.	I can add mentally using increasingly large numbers.	I can multiply numbers up to 4 digits by a 1 or 2 digit number using a formal written method, including decimals.	I can round decimals with 2 decimal places to the nearest whole number and to one decimal place.	I can calculate and compare the area of squares and rectangles.	I can identify angles at a point and one whole turn.	I can solve 'sum' problems using information presented in line graphs.
I can count forwards or backwards in steps of powers of 10 for any given Number up to 1,000,000.	I can subtract numbers with more than 4 digits using a formal written method.	I can establish whether a number up to 100 is prime and recall prime numbers up to 19.	I can recognise and use 1000ths and relate them to 10ths, 100ths and decimal equivalents.	I can measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.	I can identify angles at a point on a straight line and 1/2 a turn.	I can solve 'comparison' problems using information presented in line graphs.
I know what each digit represents in numbers to 1,000,000.	I can add numbers with more than 4 digits using a formal written method.	I know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.	I can read and write decimal numbers as fractions and %	I understand and use basic equivalences between metric and common imperial units.	I can identify multiples of 90 degrees.	
I can read, write, order and compare numbers to at least 1,000,000.		I can solve problems using x and ÷, factors, multiples, squares and cubes	I can multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.	I can convert between different units of measure (e.g. Kilometre to metre; metre and centimetre; centimetre and millimetre; kilogram and gram; litre and millilitre).	I know angles are measured in degrees and can estimate and measure them and draw a given angle.	
		I can identify multiples and factors, including finding all factor pairs.	I can add and subtract fractions with the same denominator and related fractions.		I can describe thee position of a shape after reflection or translation	
			I can recognise mixed numbers and improper fractions and convert from one form to another.		I can identify 3-D shapes, including cubes and cuboids, from 2-D presentations.	
			I can compare and order fractions whose denominators are all multiples of the same number.			

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Programme of Study - Year 6

Mathematics Programmes of Study

Number and Algebra	+, -, x and ÷	Fractions Ratio and Proportion	Fractions, Decimals and Percentages	Measures	Geometry	Statistics
I can find pairs of numbers that satisfy numbers sentences involving two unknowns.	I can use estimation to check answers to calculations.	I can solve ratio and proportion problems involving unequal sharing and grouping.	I can recall and use equivalences between simple fractions, decimals and percentages.	I can calculate, estimate and compare the volume of cubes and cuboids using standard units, including centimetre cubed and cubic metres.	I can draw 2D shapes using given dimensions and angles and translate and reflect them in the axes.	I can convert kilometres to miles using a graphical representation.
I can generate and describe linear number sequences.	I can solve problems involving any operation.	I can solve ratio and proportion problems involving the relative sizes of two quantities, including similarity.	I can solve problems involving the calculation of percentages of whole numbers or measures such as 15% of 360.	I recognise when it is necessary to use the formulae for area and volume of shapes.	I can describe positions on the full co-ordinate grid (all four quadrants).	I can draw graphs relating two variables.
I can use simple formulae.	I can solve addition and subtraction multi-step problems.	I can divide proper fractions by whole numbers (e.g. 1/3 ÷ 2=1/6).	I can solve problems which require answers to be rounded to specified degrees of accuracy.	I can calculate the area of parallelograms and triangles.	I can find unknown angles where they meet at a point, are on a straight line, and are vertically opposite.	I can calculate and interpret the mean as an average.
I can express missing number problems algebraically.	I use knowledge of the order of operations to carry out calculations involving the four operations.	I can multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. 1/4 x 1/2 = 1/8).	I can use written division methods in cases where the answer has up to 2 decimal places.	I can recognise that shapes with the same areas can have different perimeters and vice versa.	I can illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is 2x radius.	I can construct line graphs.
I can enumerate all possibilities of combinations of 2 variables	I can identify common factors, common multiples and prime numbers.	I can add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.	I can multiply one-digit numbers with up to 2 decimal places by whole numbers.	I can convert between miles and kilometres.	I can find unknown angles in any triangles, quadrilaterals and regular polygons.	I can interpret line graphs.
I can solve number problems and practical problems.	I can calculate mentally, including with mixed operations and large numbers.	I can associate a fraction with division to calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3/8).	I can multiply and divide numbers by 10, 100 and 1000 where the answers are up to 3 decimal places.	I can use, read, write and convert between standard units of measure, using 3 decimal places.	I can compare and classify geometric shapes based on their properties and sizes.	I can construct pie charts.
I can calculate interval across '0' when using negative numbers.	I can interpret remainders as whole number remainders, fractions, or by rounding.	I can compare and order fractions, including fractions >1.	I can identify the value of each digit to three decimal places.	I can solve problems involving the calculation and conversion of units of measure, using decimal notation to 3 decimal places where appropriate.	I can recognise, describe and build simple 3-D shapes, including making nets.	I can interpret pie charts.
I can use negative numbers in context.	I an divide numbers up to 4 digits by a 2-digit whole number using a formal written method.	I can use common factors to simplify fractions and use common multiples to express fractions in the same denomination.				
I can round any whole number.	I can multiply multi-digit numbers up to 4 digits by a 2 digit whole number using a formal written method.					
I can read, write, order and compare numbers up to 10,000,000.						

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Programme of Study – Year 3-4

- Number, Place Value & Rounding
- Addition & Subtraction
- Multiplication & Division
- Fractions & Decimals
- Measure
- Geometry
- Statistics

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Programme of Study – Year 5-6

- Number, Place Value & Rounding
- Addition & Subtraction
- Multiplication & Division
- Fractions, Decimals & Percentages
- Measure
- Geometry
- Statistics
- Ratio & Proportion (Year 6 only)

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New Curriculum 2014

Focus on:

- Fluency
- Reasoning
- Problem Solving

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Fluency

To be fluent in mathematics children should be able to…

-grasp the fundamentals of mathematics
- practice arithmetic skills
- make connections
- become more confident with written and mental methods
- be confident with what they are doing and why
- recall and apply their knowledge rapidly and accurately

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Fluency

Year 3 & 4 examples:

- *Continue the pattern: 50, 100, 150, 200, _, _,_*
(Number and Place Value – Year 3)
- *3 x ? = 24 (Multiplication and Division - Year 3)*
- *7m + ? = 810cm (Measurement – Year 3)*
- *Round 3.2 to the nearest whole number*
(Decimals – Year 4)
- *Find 2/5 of 45 (Fractions – Year 4)*
- *2 hours = ? minutes(Time - Year 4)*

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Fluency

Year 5/6 examples:

- *Write 283 in Roman Numerals*
(Number and Place Value –Year 5)
- *740 + ? = 1039 (Addition and Subtraction – Year 5)*
- *Find 5 equivalent fractions of ¾ (Fractions – Year 5)*
- *200 x ? = 750 + ? (Multiplication and Division – Year 6)*
- *4/7 ÷ 5 (Fractions – Year 6)*
- *75% of £1340 (Percentages – Year 6)*

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Reasoning

Through reasoning problems children should…

- be able to explain why an answer is right or wrong
- follow a line of enquiry to a logical conclusion
- prove theories using mathematical language

Can be thought of as the 'glue' that helps maths makes sense.

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Reasoning

Year 3/4 examples:

- Tom says 'I can use my 4 times table to help me work out my 8 times table'. Is he correct? Convince me. *(Multiplication and Division – Year 3)*

- Which would you rather have, three quarters of £2.40 or one quarter of £6? Explain your reasoning. *(Money/Fractions – Year 4)*

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Reasoning

Year 5/6 examples:

- Sophie thinks 1.007 is bigger than 1.01 because 7 is bigger than 1. Do you agree? Explain why.
(Decimals – Year 5)

- Jenny travels 652 miles to go on holiday. Abbie thinks she travels further because she travels 1412 kilometres. Is Abbie right? Explain why
(Measure – Year 6)

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Problem Solving

Children should be able to…

- apply their mathematics to a variety of routine and non-routine situations
- put maths into context
- break down problems into a series of manageable steps

This is fundamental to the mathematical development of all children

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Problem Solving

Year 3/4 examples:

- A group of aliens live on Planet Xert. Tinions have three legs, Quinions have four legs. The group has 22 legs altogether. How many Tinions and Quinions might there be? Is there more than one solution? *(Multiplication and Division – Year 3)*

- Does the number 4 appear more or less on a 12 hour digital clock than a 24 hour digital clock?
(Time – Year 4)

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Problem Solving

Year 5/6 examples:

- Temperature falls by about 1°C for every 100 metres height gain. Abigail is standing on top of a mountain at 900 metres above sea level. The temperature is – 3°C. Abigail walks down the mountain to sea level. What should she expect the temperature to be? (Place Value – Year 5)

- Find the smallest number that can be added to 92.7 to make it exactly divisible by 7.
(Decimals – Year 6)

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Fluency Time

-To support the basic arithmetic skills

- Short sessions (5 minutes) alongside day-to-day maths lessons

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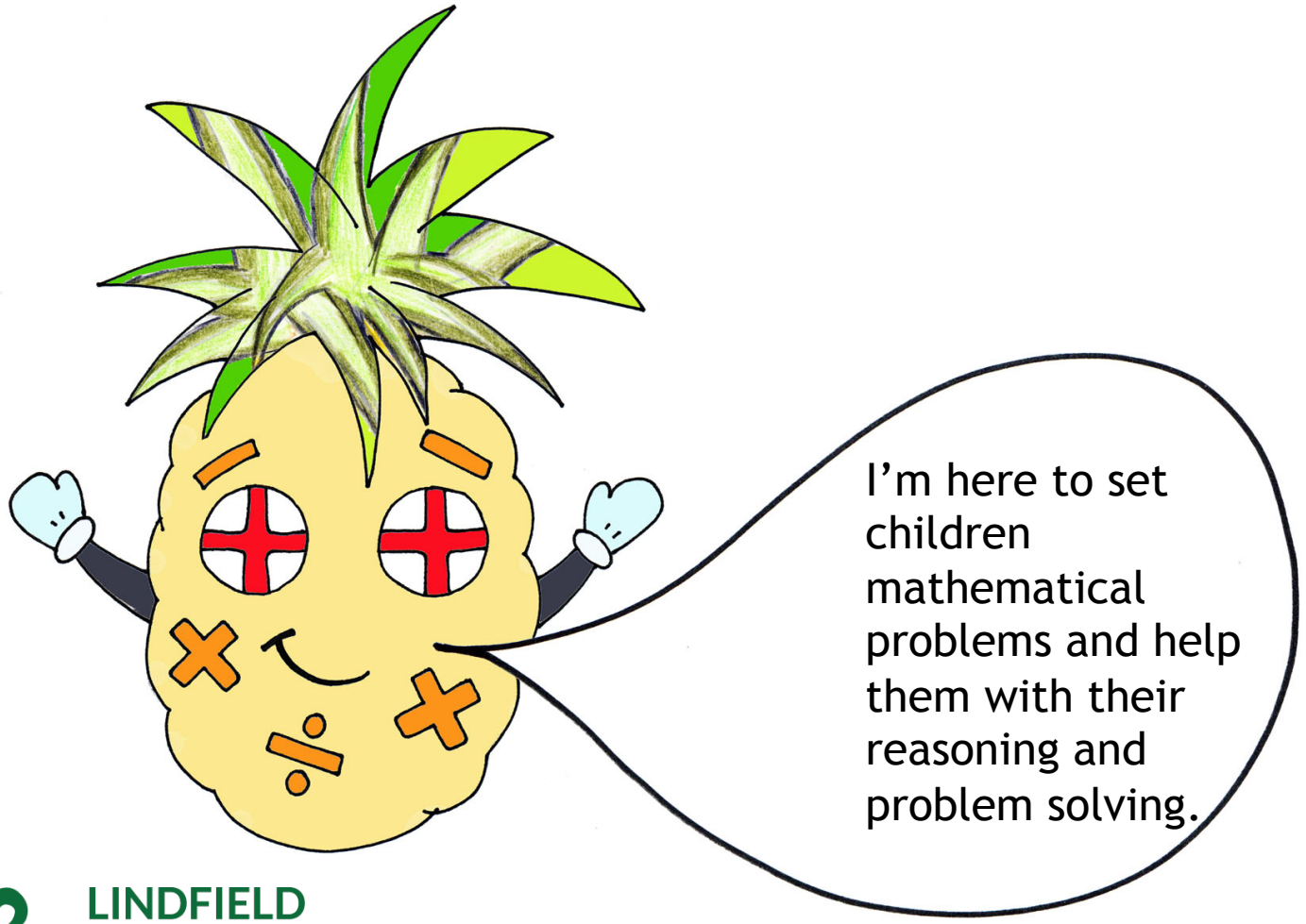
Problem Solving Pineapple



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Concrete – Pictorial - Abstract

At Lindfield Primary Academy we believe that all students, when introduced to a key new concept, should have the opportunity to build competency in this topic by taking this approach.

This is why we work through a Concrete – Pictorial – Abstract approach

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Concrete

Students have the opportunity to use concrete objects and manipulatives to help them understand what they are doing.

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Concrete

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Pictorial

Students build on this concrete approach by using pictorial representations. These representations can then be used to reason and solve problems.

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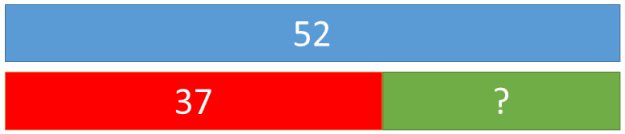
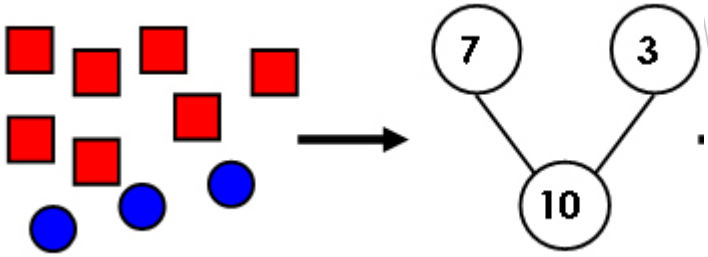
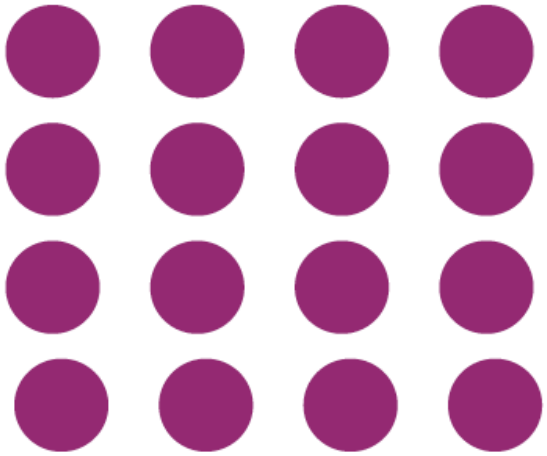
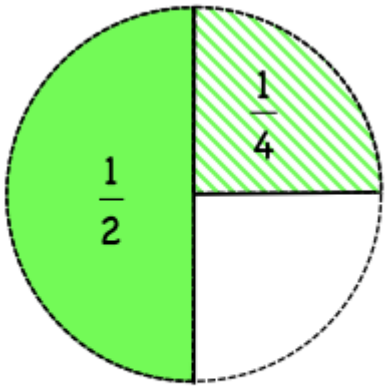
Pictorial









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Abstract

With the foundations firmly laid, students should be able to move to an abstract approach using numbers and key concepts with confidence.

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Abstract

$90 = 100 - 10$

$80 = 100 - 20$

$24\text{cm} < 36\text{cm}$

$45\text{cm} < 46\text{cm}$

$31\text{m} > 30\text{m}$

$4 \times 5 =$

$6 \times 10 =$

$20 \div 2 =$

$25 \div 5 =$

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End of KS2 Assessment

For Year 6 children – SATs
- Arithmetic Paper (30 mins)
- Two Reasoning & Problem Solving Papers (40 mins)

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Academy Website – Maths Section

- Year Group Overviews
- Times table challenge support
- Calculation Policy
- Key Vocabulary
- Maths Websites

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Maths Websites

Super Maths World

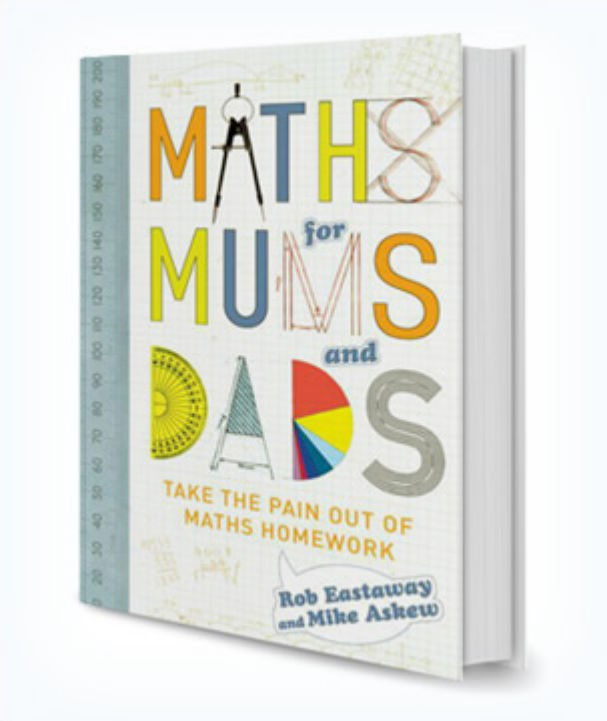
Supermathsworld (Username:1010lpa)

My Maths

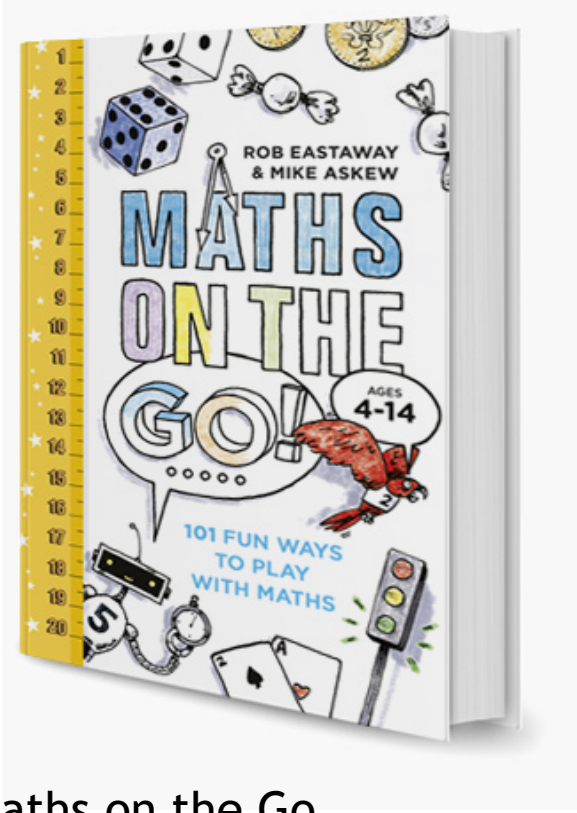
My Maths - https://www.mymaths.co.uk/

USER NAME: lindfieldps
PASSWORD: nine
SECOND LEVEL LOGIN: boostlindfieldps
SECOND LEVEL PASSWORD: nine811

Books



Maths for Mums and Dads
Rob Eastaway and Mike Askew



Maths on the Go
Rob Eastaway and Mike Askew

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Calculation Demonstrations

Year 3

Addition & Subtraction: Tom & Kit
Multiplication: George H & Iain
Division: Evie & Charlotte

Year 4

Addition & Subtraction: Ella & Katrina
Multiplication: Lottie & Archie
Division: Rosina & Finley

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Calculation Demonstrations

Year 5

Addition & Subtraction: Tom & Ted
Multiplication: Madeleine & Bethan
Division: Rory

Year 6

Addition & Subtraction: Tom & Ted
Multiplication: Rosie & George C
Division: Leo

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Any questions please feel free to talk to any of us afterwards