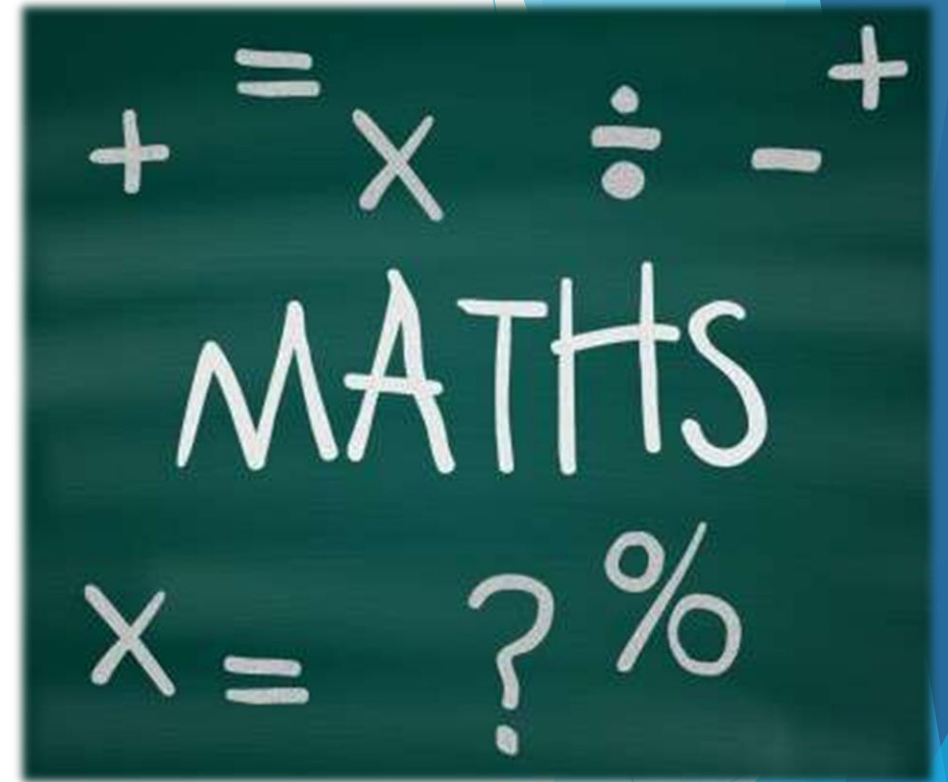


Our Approaches to Maths

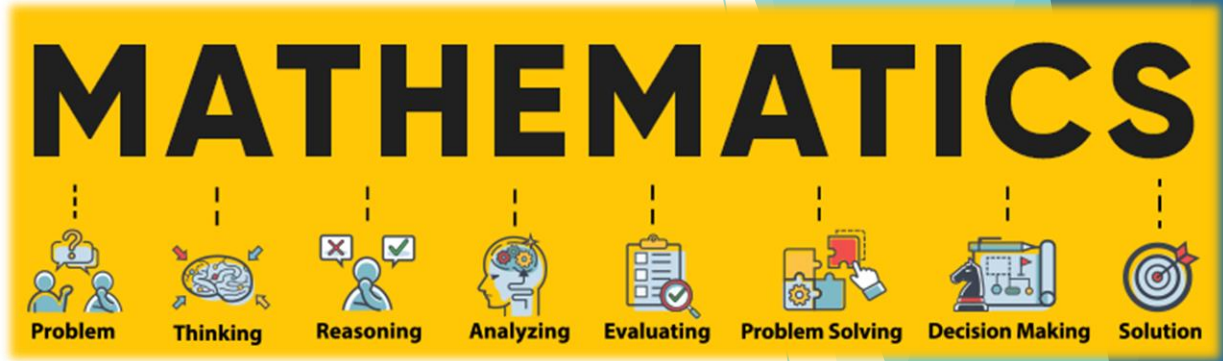
Aims of the Session

- What do the experts say about Maths?
- To provide an overview of the Maths curriculum in KS1.
- To share the methods of teaching and learning in KS1.
- Record Keeping and Assessment
- Supporting Learning at Home.



Maths: What do they experts say?

- 📖 Maths is **fundamental** to education.
- 📖 Gives children a sense of curiosity and promotes talk.
- 📖 Maths is an interconnected subject that relates to most areas of the curriculum and real life!
- 📖 The National Curriculum is designed to take children on a journey of mathematical fluency, reasoning and confidence building which helps develop their understanding of number, operations, relationships between concepts, problem solving and beyond.
- 📖 Mathematics is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment



Education
Endowment
Foundation



Department
for Education



Engagement in Maths: Our Maths Curriculum & Culture



Daily maths lessons.



"I do, we do, you do" culture to support children's learning of mathematical concepts.



Range of the most effective methods and strategies are taught including the use of games, problem solving tasks, outdoor learning, use of resources and manipulatives - the Maths Shop.



Opportunities to use and apply learned skills.



Maths Talk – mathematical vocabulary.



Mathematics Teaching is informed by:

- The National Curriculum (DfE Guidance)
- The White Rose
- The National Centre for Excellence in the Teaching of Mathematics
- Education Endowment Foundation
- Local Maths Hubs - mastery in mathematics

How do we do it? Mental Arithmetic

The development of instant recall of facts and mental calculation strategies:

- Taught daily as part of the main Maths lesson.
- Regular opportunities to practice mental calculations throughout the week
- Misconceptions revised
- Ongoing practice and retrieval activities to help learning 'stick'
- Number bonds
- KIRFS

SUMMARY OF KIRFs (Key Instant Recall Facts) TERM-BY-TERM

	RECEPTION	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
AUTUMN TERM 1	Say the number names in order to 5.	Know all the number bonds for 5.	Know all number bonds for 10 and 20.	Know all number bonds for each number to 20.	Know all number bonds for 100.	Know all decimals that total 1 or 10 (1 decimal place)	Know all previous number bonds including decimals.
AUTUMN TERM 2	Say the numbers in order to 10	Know all number bonds for 10	Know multiplication and division facts for 2x table.	Know multiplication and division facts for 2x, 4x and 8x table.	Know multiplication and division facts for the 7x table.	Consolidate multiplication and division facts for all times tables.	Derive multiplication and division facts using decimal numbers (e.g. $8 \times 0.7 = 5.6$)
SPRING TERM 1	Be able to partition numbers to 5 into two groups	Know all number bonds for 20.	Know multiplication and division facts for 10x table.	Know doubles and halves of all whole numbers to 20	Know the decimal and percentage equivalents of the fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{1}{5}$, tenths and fifths	Know the doubles and halves of all two-digit numbers	Know doubles and halves of 2-digit decimals.
SPRING TERM 2	Count in 10s	Know all doubles and halves of even numbers to 20	Know the halves of 1, 3, 5, 7 and 9 as a fraction	Know all number bonds for 100 using multiples of 5	Know all pairs of multiples of 50 with a total of 1000.	Know the prime numbers within 100	Know square numbers to 12×12 .
SUMMER TERM 1	Count in 2s	Know all addition and subtraction facts for all numbers between 0 and 10.	Know all addition and subtraction facts for multiples of 10 to 100.	Know all multiplication and division facts for 3x, 6x and 9x table.	Know multiplication and division facts for the 11 and 12x table.	Know all pairs of factors of numbers up to 100.	Know the tests for divisibility for numbers up to 10
SUMMER TERM 2	Count in 5s	Count forward and backward in steps of 2, 5 and 10.	Know multiplication and division facts for 5x table.	Know multiplication and division facts for 2, 5 and 10x table	Know all number bonds for £1 using decimal notation	Know the decimal and percentage equivalents of the fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{1}{5}$, tenths and fifths	Know the square roots of square numbers to 15×15



What does Maths include in Key Stage One ?

There are seven strands of learning:



Using and applying maths



Counting and understanding number



Knowing and using number facts



Calculating



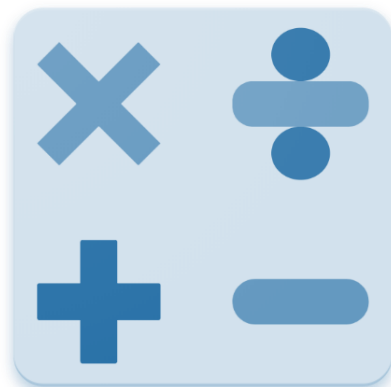
Understanding shape



Measuring



Handling data



Teaching for mastery

At White Rose we use a mastery approach to maths teaching. This is a research-driven teaching and learning method that meets the goals of the National Curriculum.

What does it mean in practice? In summary, a mastery approach...

- **Puts numbers first:** Our schemes have number at their heart, because we believe confidence with numbers is the first step to competency in the curriculum as a whole.
- **Puts depth before breadth:** we reinforce knowledge again and again.
- **Encourages collaboration:** children can progress through the schemes as a group, supporting each other as they learn.
- **Focuses on fluency, reasoning and problem solving:** it gives children the skills they need to become competent mathematicians.

Year 1 - overview:

↓ Half term break

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	<div>Number</div> <div>Place value (within 10)</div> <div>VIEW</div>					<div>Number</div> <div>Addition and subtraction (within 10)</div> <div>VIEW</div>				<div>Geometry</div> <div>Shape</div> <div>VIEW</div>		Consolidation
Spring term	<div>Number</div> <div>Place value (within 20)</div> <div>VIEW</div>		<div>Number</div> <div>Addition and subtraction (Within 20)</div> <div>VIEW</div>		<div>Number</div> <div>Place value (Within 50)</div> <div>VIEW</div>		<div>Measurement</div> <div>Length and height</div> <div>VIEW</div>		<div>Measurement</div> <div>Mass and volume</div> <div>VIEW</div>			
Summer term	<div>Number</div> <div>Multiplication and division</div> <div>VIEW</div>		<div>Number</div> <div>Fractions</div> <div>VIEW</div>		<div>Geometry</div> <div>Position and direction</div> <div>VIEW</div>	<div>Number</div> <div>Place value (within 100)</div> <div>VIEW</div>		<div>Measurement</div> <div>Money</div> <div>VIEW</div>	<div>Measurement</div> <div>Time</div> <div>VIEW</div>		Consolidation	

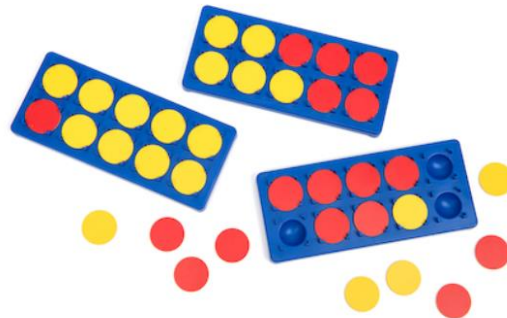
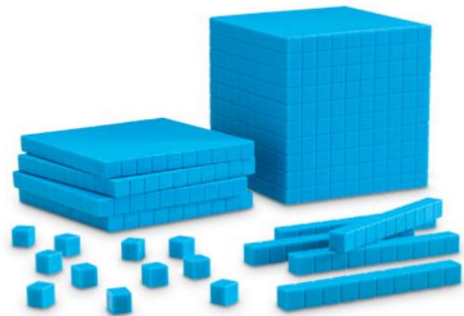
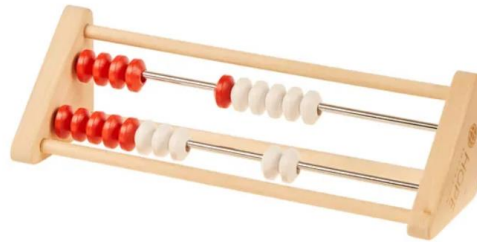
Year 2 - overview:

Half term break

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	<div>Number</div> <div>Place value</div> <div>FREE TRIAL</div> <div>VIEW</div>				<div>Number</div> <div>Addition and subtraction</div> <div>VIEW</div>				<div>Geometry</div> <div>Shape</div> <div>VIEW</div>			
Spring term	<div>Measurement</div> <div>Money</div> <div>VIEW</div>	<div>Number</div> <div>Multiplication and division</div> <div>VIEW</div>				<div>Measurement</div> <div>Length and height</div> <div>VIEW</div>	<div>Measurement</div> <div>Mass, capacity and temperature</div> <div>VIEW</div>					
Summer term	<div>Number</div> <div>Fractions</div> <div>VIEW</div>			<div>Measurement</div> <div>Time</div> <div>VIEW</div>			<div>Statistics</div> <div>VIEW</div>		<div>Geometry</div> <div>Position and direction</div> <div>VIEW</div>		<div>Consolidation</div>	

Using and applying maths: Calculating - Counting and understanding number

Progression of skills:
Counting objects -
choosing from our 'Maths
Shop'.

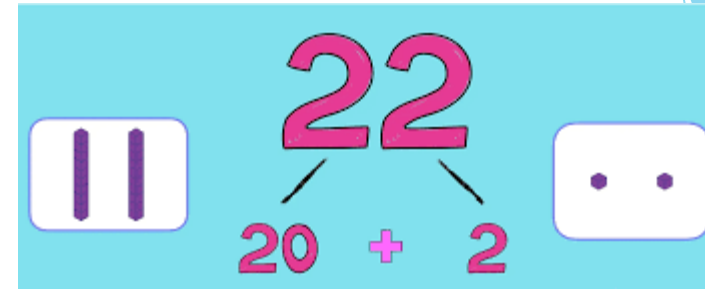
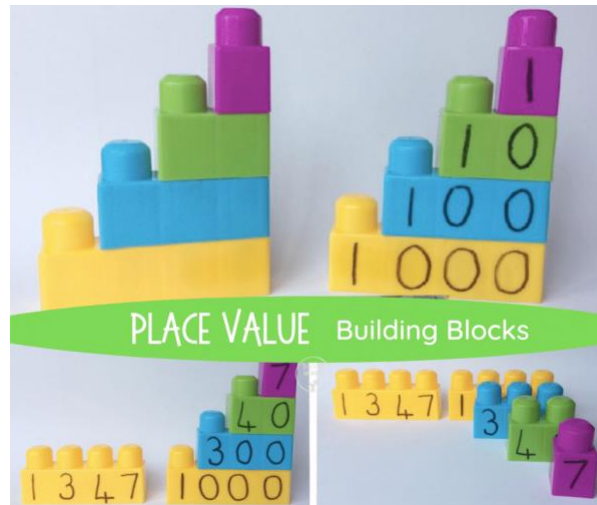
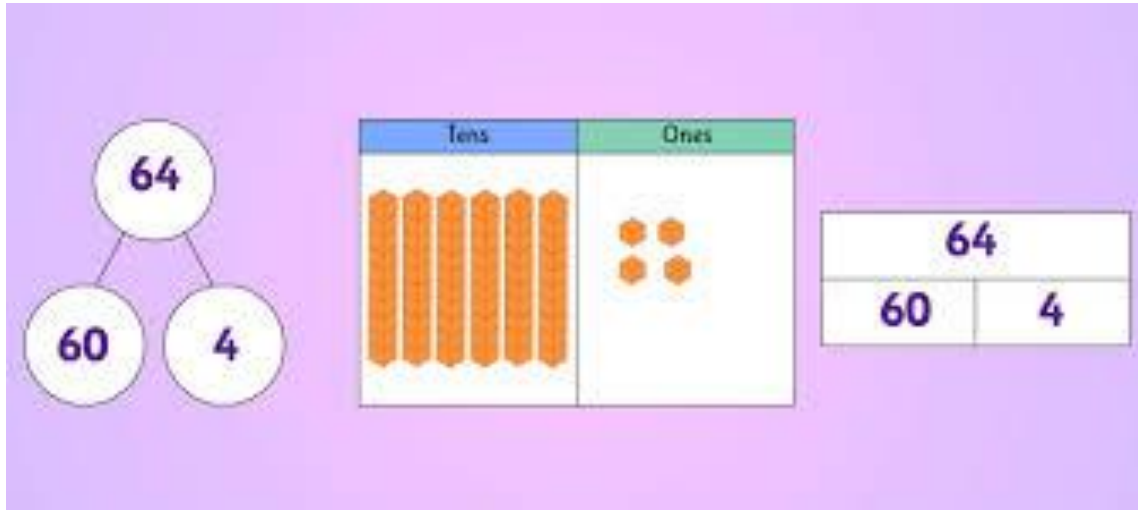


hands-on, quick prep
ONE MORE ONE LESS
number sense activities



Partitioning - place value

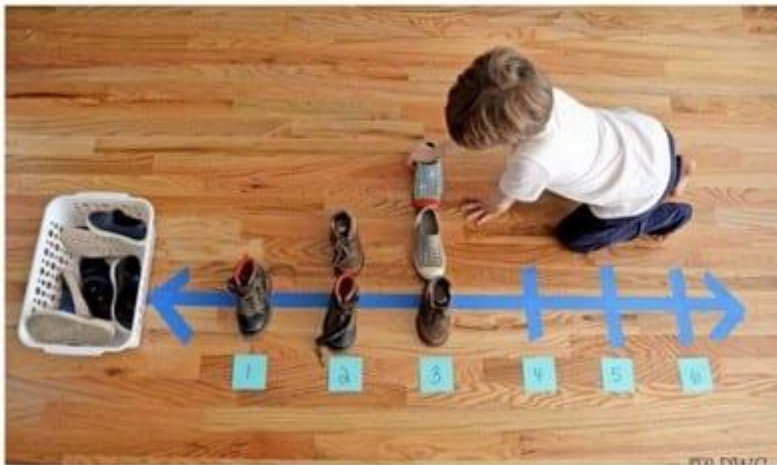
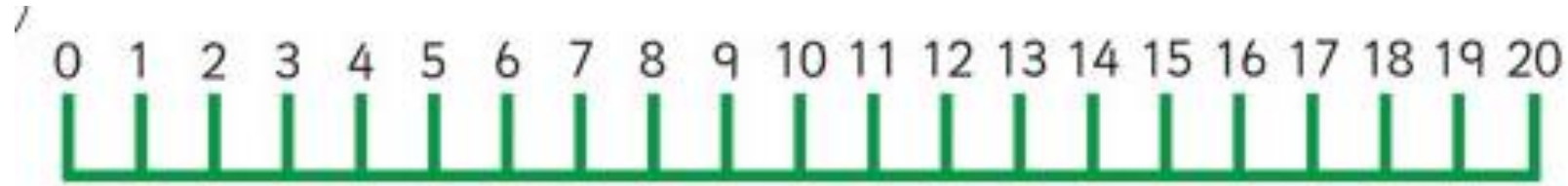
Hundreds, tens and ones.



A worksheet titled 'SHOW IT FOUR WAYS' for the number 39. It includes a hand icon showing three fingers. The number 39 is written in a cloud. Below it, the number 39 is written in a box. The worksheet is divided into two columns: 'Tens' and 'Ones'. The 'Tens' column shows three rods representing 30. The 'Ones' column shows nine cubes representing 9. Below the columns, the number 39 is written in a box. The worksheet also includes a section for writing the number in expanded form: $30 + 9 = 39$.

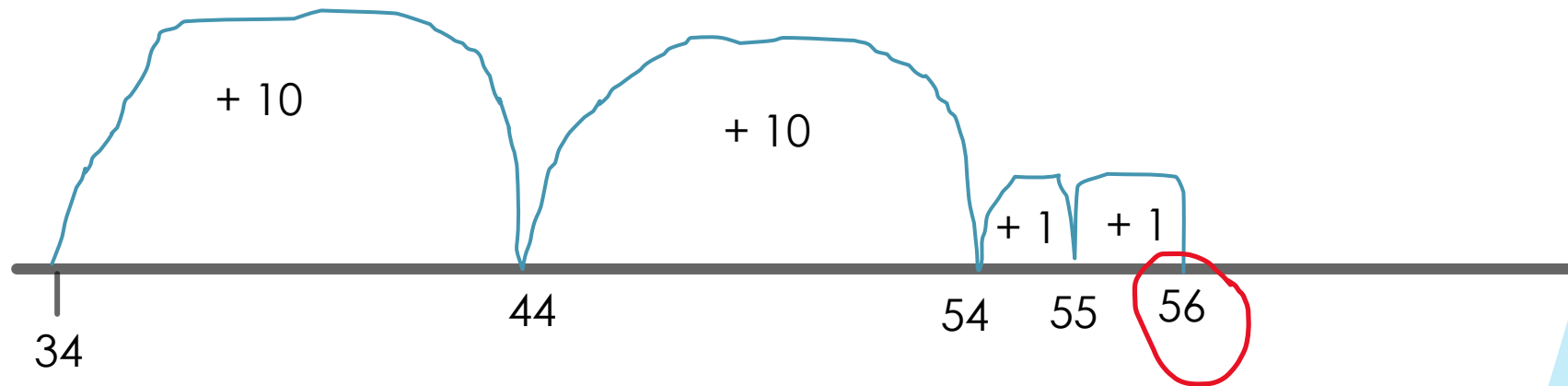


Using a number line



Empty number line - “counting on” by partitioning

$$34 + 22 =$$

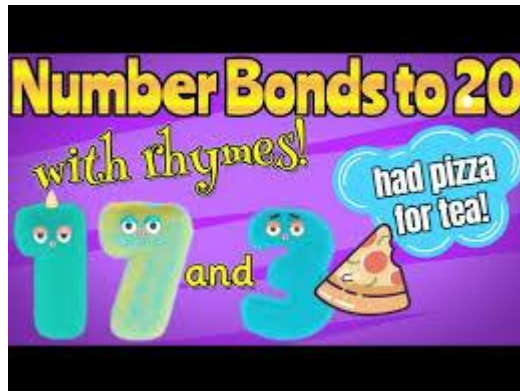
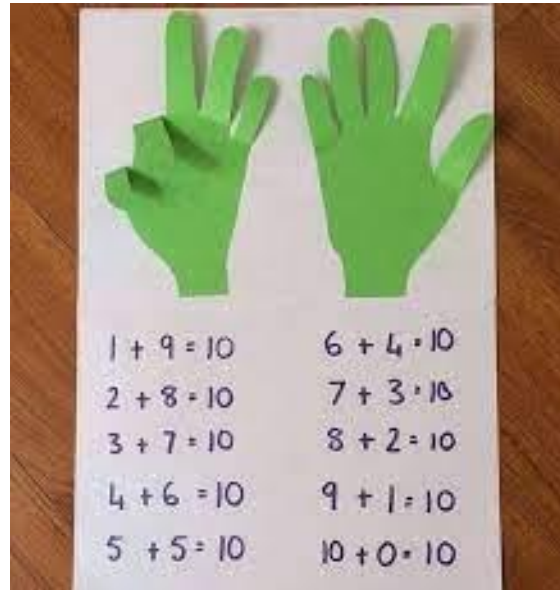


Knowing and using number facts

Number bonds 1-10

Number bonds 1-20

Applying skills to mental calculations



Knowing and using number facts: by the end of KS1.



- ▶ Counting forwards in 2's, 5's and 10's
- ▶ Counting backwards in 2's, 5's and 10's
- ▶ Counting from any number in 2's, 5's and 10's
- ▶ Times tables

Knowing and using number facts:

100 Square

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Using a Hundred Square

31	32	33	34	35
41	42	43	44	45
51	52	53	54	55

Diagram illustrating number facts using a hundred square. The number 43 is highlighted in a blue box. Red arrows show: 43 - 10 = 33 (up), 43 - 1 = 42 (left), and 43 + 1 = 44 (right). Green arrows show: 43 + 10 = 53 (down).

Place Value Puzzles

1.

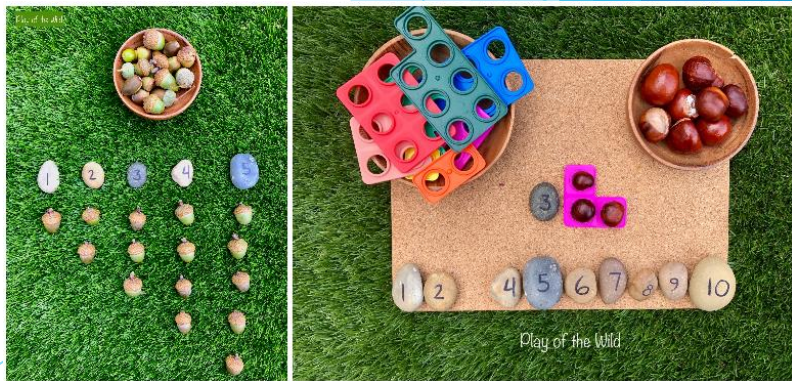
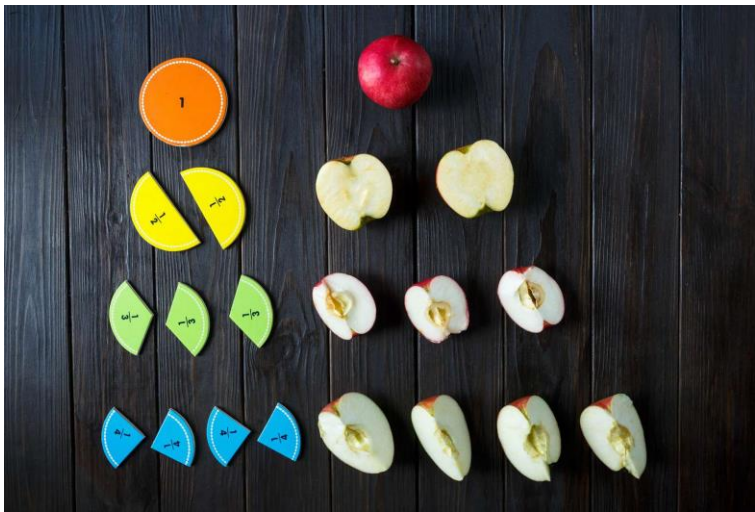
1	2	
2.

54	55	
3.

		37	

Life Skills: in school and at home

Regular practise of telling the time, measures, shape work, fractions and food, distance or time of a journey... etc.



What does a Maths Lesson look like in KS1?

Whole class mental maths session (10 mins)

Whole class counting / warm up – active

Number games / songs

Shape games and identification.

Mental maths (real life situations)



Introduction to 'Learning Bubble': "I am learning to..." (15 mins)

Teacher models new approaches / consolidates prior knowledge for lesson focus.

Focussed activity (20–25mins) - at tables

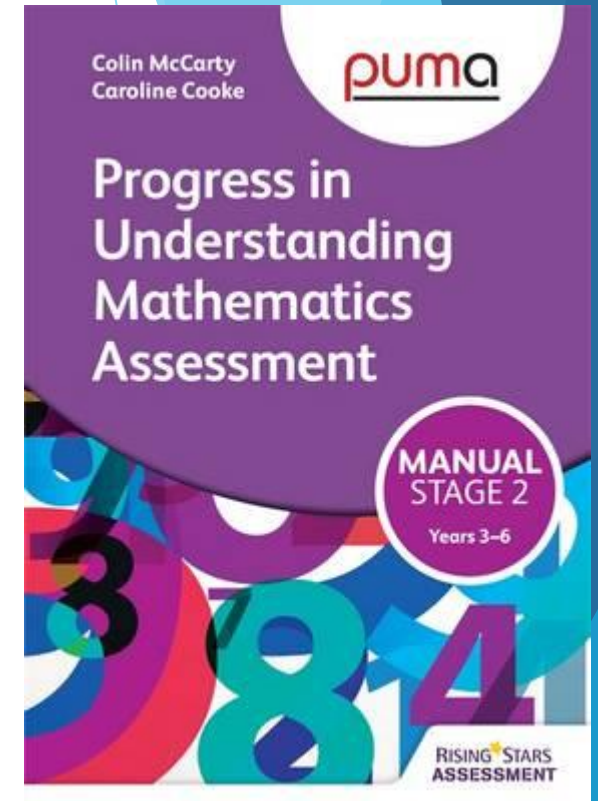
Activities linked to lesson learning bubble – independent, in groups, supported (teacher led / TA). Choice from 'Maths Shop'.

Maths challenges / extension.

Plenary or Reflection / Evaluation time (10 mins)

Record Keeping & Assessment

- 📖 Teachers assess children against the NC content for their year group
- 📖 Unit target sheets for children to reflect on their understanding and confidence levels
- 📖 End of unit assessments to identify gaps for future teaching and learning opportunities
- 📖 PUMA end of term assessment (standardised score)



Supporting Learning at Home



- ▶ Regular practice of Mental Maths (Fridays) and KIRFs
- ▶ Getting outdoors and using natural resources to count with!
- ▶ Mathletics - supporting set tasks and activities
- ▶ Google Classroom weekly tasks (more practical based, rather than just 'worksheets').
- ▶ Starting to explore Times Tables Rockstars and Numbots.

Encourage your child to be confident with numbers and counting – make it fun!

Play games / board games

Talk about numbers / look for patterns.

Cooking and measuring ingredients / looking at numbers on food packets.

Shape /number I spy.

Counting in as many situations as possible.

Estimating: how many conkers, cars, biscuits...

Handling money and shopping together – playing supermarkets or cafes together (with a toy till).

Looking at house numbers and comparing, are they odd/even, which is the largest number we have seen?

Going on a number trail / scavenger hunt around the house or local area.

Telling the time together and looking at both analogue and digital clocks.

Thank you for supporting your children's learning

Regular, little and often practise will really help children's mathematical development...
counting in the car, numbers bonds whilst cooking dinner - every little helps!

