

“Early achievement and mastery in maths is a strong predictor for later academic success in all subjects.”

# An Overview of the Numeracy Curriculum for KS2

To include:

- Curriculum objectives
- Breakdown of formal methods of calculation
- Reasoning with mathematics
- Great websites and helpful links

# The Curriculum

The curriculum is broken down in to 3 main areas of numeracy and teaching:

- Fluency
- Reasoning
- Problem Solving

What do these mean?

# Fluency

Children to fluently remember number facts with ease and confidence.

This takes practice and patience.

$$100 - 42$$

$$32 + 54$$

40 divided by 5

$$6 \times 8$$

1/5 of 35

$$£3.00 - 1.43$$



# Reasoning

Children to explain their thinking about a problem and show how they know.

What do you think?

Prove it?

**I** A football and toy train together weigh 360g.



Three footballs and two toy trains weigh 810g.



Find the weight of a toy train.

# Problem Solving

Children to use a variety of numeracy skills to solve open ended and more challenging problems.

**How many solutions can you find to these two alphanumeric?**

**Each of the different letters stands for a different number.**

$$\begin{array}{r} \text{ONE} \\ +\text{ONE} \\ \hline \text{TWO} \\ \hline \end{array}$$

$$\begin{array}{r} \text{TWO} \\ +\text{TWO} \\ \hline \text{FOUR} \\ \hline \end{array}$$

# Curriculum Objectives

By the end of Year 6, it is our hope that the children feel confident in applying all of these skills.

## SATS

- Arithmetic Paper: testing formal methods and fluency
- Reasoning papers 1 & 2: testing the children's ability to work through word problems and use their knowledge to explain their thinking.

# Formal Methods of Calculation

There are four methods that curriculum dictates the children must learn to use and apply.

# Column Addition

Starting at the end of Year 2, children will learn to progressively add larger numbers together using a column.

E.g.  $7948 + 1223$

Th	H	T	U	
7	9	4	8	
1	2	2	3	+
<hr/>				
9	1	7	1	
<hr/>				
1		1		



Carrying

# Column Subtraction

From Year 3, similarly to column addition, the children will use a column to take numbers away.

E.g.  $72 - 16$

The diagram illustrates the column subtraction process for  $72 - 16$ . It shows the numbers arranged in columns: 7 in the tens column and 2 in the ones column for the minuend, and 1 in the tens column and 6 in the ones column for the subtrahend. A horizontal line is drawn under the 6. A red arrow points from the 6 to the 7, with the word "Exchanging" written inside it. This indicates that the 7 is being exchanged for a 6 and a 1. Below the horizontal line, the result is shown as 1 in the tens column and 6 in the ones column, with another horizontal line drawn under the 6. The number 6 in the tens column of the result has a small green '6' above it, and the number 2 in the ones column of the minuend has a small green '1' above it, indicating the exchange.

$$\begin{array}{r} 6 \cancel{7} 1 2 \\ - 1 6 \\ \hline 1 6 \end{array}$$

# Short & Long Multiplication

Short multiplication is where you are multiplying by a one digit number.

E.g.  $24 \times 6$

$24 \times 6$  becomes

$$\begin{array}{r} \phantom{\times} 24 \\ \times \phantom{00} 6 \\ \hline 144 \\ \hline \phantom{14} 2 \end{array}$$



Carrying



# Short and Long Division

Short division is when you divide a number by a single digit number.

432 ÷ 5 becomes

$$\begin{array}{r} 86 \text{ r} 2 \\ 5 \overline{) 432} \end{array}$$

# Short and Long Division

Long division is when you divide a number and write down the page to show

## Long division

432 ÷ 15 becomes

$$\begin{array}{r} 28 \text{ r } 12 \\ 15 \overline{) 432} \\ \underline{300} \\ 132 \\ \underline{120} \\ 12 \end{array}$$

Answer: 28 remainder 12

432 ÷ 15 becomes

$$\begin{array}{r} 28 \\ 15 \overline{) 432} \\ \underline{300} \quad 15 \times 20 \\ 132 \\ \underline{120} \quad 15 \times 8 \\ 12 \end{array}$$

$$\frac{\cancel{12}}{\cancel{15}} = \frac{4}{5}$$

Answer:  $28 \frac{4}{5}$

432 ÷ 15 becomes

$$\begin{array}{r} 28.8 \\ 15 \overline{) 432.0} \\ \underline{300} \\ 132 \\ \underline{120} \\ 120 \\ \underline{120} \\ 0 \end{array}$$

Answer: 28.8

# Recap of the formal methods

Column Addition

Th	H	T	U	
7	9	4	8	
1	2	2	3	+
9	1	7	1	
1		1		

Column Subtraction

6	<del>7</del>	12	
	5	6	-
	1	6	

Long & Short Division  
Multipl.

432 ÷ 15 becomes

			2	8	
1	5	4	3	2	
		3	0	0	15×20
		1	3	2	
		1	2	0	15×8
		1	2		

Long & Short

24 × 16 becomes

		2	4
×	1	6	
	2	4	0
	1	4	4
	3	8	4

# What can you do at home?

Basic skills – telling the time, talking about money and change, playing with measurements (height, mass, volume), on the spot times tables, number bonds to 10/20/100.

Homework – opportunity to talk with your children and challenge them. How do you know that? Explain. Teach me!

Importance – discuss the importance, share and encourage.

# Useful Websites/links/help

Education City: <https://ec1.educationcity.com>

Nrich: <http://nrich.maths.org/>

My Maths: <https://www.mymaths.co.uk>

Apps: Maths Splat; Maths Sumo; Puffin Academy; Logic Squares; Telling Time.

OUR website! Check out our videos for the formal methods.

# Any questions?

Thank you for listening!

If you did have any  
questions then please  
come and see me at the  
end.

