

...recall important number and concept facts ...be fluent in number, choosing the most efficient ways to solve problems

...enjoy their Maths lessons

...have a deep and broad understanding of the curriculum



Our aims are for children to...

...take risks, be resilient and be enthused by challenge

...feel like they can succeed and make progress

...be able to apply their knowledge in both Maths and other areas of the curriculum

...be able to reason Mathematically by explaining and proving ...be able to make connections and links between different areas of Maths

...have a secure conceptual understanding of ideas

## **Our Curriculum**

- The National Curriculum is a statutory document which states the objectives for Mathematics however a school can choose how these objectives are taught
- We use 'White Rose' planning as a start point for our planning which was devised by a group of leading Maths teachers from around the world. This planning fulfils our school aims and teaches a 'Mastery' approach
- In a Mastery approach, the idea is that children study a Mathematical concept in depth and 'master' it before moving on



## Long Units with Number at the Heart

Year 5 – Yea	rly Overview
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	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	Number – Place Value Add and Subtract			Addition traction	Stati	Statistics Number – Multiplication and Division			Perimeter and Area		Consolidation	
Spring	Numbe ai	r – Multip nd Divisio	lication on	Number – Fractions Num Decin Percer				ber – nals & ntages	Consolidation			
Summer	Number – Decimals Geome			ry- Prope Shapes	rties of	Geometry- Position and Direction	Measur Converti	ement- ng Units	Measures Volume	Consolidation		

### Lessons

- Whole class teaching
- When teaching something new, the children start at the same point in learning – no assumptions are made
- Learning is not capped
- Lesson tasks start in a more simple way, covering earlier foundations then move on to more complex problems, this limits gaps in learning
- The children have the same opportunities but will move through 'steps' at a different speed, with varying amounts of support
- Children who grasp concepts at a faster speed can move onto more complex problems quicker



## Helping Children to 'keep up'



## Using pictorials and visuals

We use concrete resources and visual aids where possible to help children build a conceptual understanding, particularly in place value



## Using pictorials and visuals

The CPA approach (concrete, pictorial/visual, abstract) is used from Year R throughout the school to give meaning to numbers and number sentences







### Diagrams can help children to understand the structures of number sentences



These diagrams and structures help children to understand what they need to do to solve a problem







 a) In a survey of children's favourite dinner choice, these were the results.

	Red meal	Green meal
Percentage of children	45%	55%

12 more children chose red meal than chose green meal

How many children took part in the survey?



# Procedural skills are practised in lessons before applying them to contextual problems

28/03/19	\$385×55=21175/	d) It is Princeley's birthday.
1 can solve measure problem Using conversion and multiplacation multiplacation	385 <u>x 55</u> 1925	Altogether, there are 22 children at his party. Princeley's dad has 5 litres of coke.
d) 335×45=15075 335	19250 <u>XX</u> 21175	He pours 185ml of coke for every child.
X 45 1075 X X	+ × 9)684×55=37620/	How much coke is left over? 930 mlor 0.931
+ x 1 50 7 5 x	× 55 3420	185 $5L=5000$ ml
e) 335 x 55 = 18 4 2 5	34200	370 5000-4070= 930ml
335 <u>X 55</u> 1675	N684X77=	XX 3700 \$4800
16750 +8 18425	$\begin{array}{c} 684 \\ 84 \\ 77 \\ 458 \\ 77 \\ 77 \\ 77 \\ 77 \\ 77 \\ 77 \\ 77 \\ $	4070 - 4070
××	47880	

## Deep Thinking – breadth and depth in learning

In order to embed skills and understanding, children will solve more complex problems which will deepen their understanding of a concept



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What are all the possibilities? List them systematically

> Circle the mistake and explain what their misconception is

True or false A 2-digit number add a 1-digit number always totals a 2-digit number

## **Reasoning and Explaining**

Not all Maths is just wrong or right. In order to show a deep understanding about a concept, children need to be able to explain their thinking using Mathematical vocabulary



## **Stem Sentences**

Stem sentences are a oral or written framework which is repeated. It helps children to identify patterns and remember key facts.

1 ten is equal to 1000

2 thousands are equal to 2000

3 thousands are equal to 3000

- 4 thousands are equal to \_\_\_\_
- 5 thousands are equal to \_\_\_\_
- \_\_\_thousands are equal to \_\_\_

\_thousands are equal to \_\_\_\_

\_thousands are equal to \_\_\_\_

and step problems involving converting						
Part I - Copy and complete these sentences						
A	B					
I litre is made up from 1,000 ml. 2 litres is made up from <u>2000</u> ml. 3 litres is made up from <u>3000</u> ml. 7 litres is made up from <u>9000</u> ml. 9 litres is made up from <u>9000</u> ml. 12 litres is made up from <u>12,000</u> ml.	1.5 litres is equivalent to 1,500 ml. <u>2.5</u> ✓ litres is equivalent to 2,500ml. <u>3.5</u> ✓ litres is equivalent to 3,500ml. <u>5.5</u> ✓ litres is equivalent to 5,500ml. <u>1.5</u> ✓ litres is equivalent to 7,500ml. <u>10.5</u> ✓ litres is equivalent to 10,500ml.					
C	D					
1.2 litres is equivalent to 1,200 ml. 2.2 litres is equivalent to 2,200 / ml. 2.3 litres is equivalent to 2,300 / ml. 5.3 litres is equivalent to 5,300 / ml. 9.4 litres is equivalent to 9,400 / ml. 10.9 litres is equivalent to 10,900 ml.	1.25 litres is the same as 1,250 ml. 2.35 / litres is the same as 2,350ml. 3.45 / litres is the same as 3,450ml. 5.45 / litres is the same as 5,450ml. 7.65 / litres is the same as 7,650ml. 10.75 / litres is the same as 10,750ml.					
E	E					
1.12 litres is equal to $1,120 \text{ ml.}$ 2.32 litres is equal to $2,320 \checkmark \text{ ml.}$ 2.33 litres is equal to $2,330 \backsim \text{ml.}$ 5.53 litres is equal to $5,530 \checkmark \text{ml.}$ 9.04 litres is equal to $9,040 \checkmark \text{ml.}$ 0.49 litres is equal to $10,490 \checkmark \text{ml.}$	1.005 litres is then same as 1,005 ml. 2.005 litres is equal to as 2,005ml. 3.007 litres is equal to as 3,007ml. 3.067 litres is equal to as 3,057ml. 3.087 litres is equal to as 3,087ml. 10.046 litres is equal to as 10,046ml.					

I can solve two star -----

## Re-visiting previous concepts and making connections

We aim to keep learning alive by revisiting concepts during Morning Maths Challenges or in future lessons. When children are able to make connections with other Mathematical concepts, then their learning becomes more purposeful

What you learned last month...

What you learned last week...

What you learned yesterday...



### Number Fluency – Written Methods

Our calculation policy ensures steady progression from Year R – Year 6.

These posters are displayed in classrooms to aid children in their working.





## Variation and Making Small Steps

When a new concept is introduced, we provide questions that begin with just slight variations before moving onto more mixed practice



## Number fluency





When solving number problems, we need to equip our children with the ability to choose efficient methods drawing on their knowledge.

Alongside more formal methods, we teach children a range of mental maths skills and how to use jottings to support their thinking.

## **Daily Fluency Practice**

	Week 12 - Day 1	Week 12 – Day 2	Week 12 – Day 3	Week 12 – Day 4	Week 12 – Day 5	
	180÷30= 6	180 ÷ 60 = 34	150 ÷ 30 = 5.	120÷30= 4	120 ÷ 60 = 2	
	XXIX = 244	XL = 740	LIV = 54	LIX = 59	XC =	
	$2/5 \times 2 = 4/3$	$2/5 \times 3 = 13$	2/3 x 2 =	$2/3 \times 5 = 3'_{3'}$	4/5 x 4 =	
	1.57 x 3 = 4.7147.	2.36 x 3 = 7.0	4.76 x 5 = 23.4	4.63 x 7 = 84	1.02 x 8 =	
	1/2 + 1/9 = 1/11 3	$3/4 \times 3/7 = 9/28$	$4/5 - \frac{1}{2} = 3/10$	$1/3 \div 5 = 1/15$	2/7 + 3/14 =	
	943 ÷ 41 = 23	14,104 ÷ 41 = 344	1.435 ÷ 42= 47.07	$\times 18942 \div 42 = 451$	$14.663 \div 43 = 311$	
	0.8 + 0.3 = 1.1	0.9 + 0.2 = 1.1	0.9+ 0.5±14	$05+0.0\sqrt{-14}$	$03 + 11 \sqrt{-14}$	
	4/7	7/7	6/7	0.51 677		
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## **Times Tables/ Multiplication Recall**

Learning their times tables is fundamental for solving more complex number problems as this knowledge is required for most areas of Mathematics

National Curriculum - Statutory Guidance for multiplication and division tables

#### Year 2

Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables.

#### Year 3

Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.

#### Year 4

Recall multiplication and division facts for multiplication tables up to 12 × 12.

**2x**÷ **3x**÷ **4x**÷ **5x**÷ **6x**÷ **7x**÷ **8x**÷ **9x**÷ **10x**÷ **11x**÷ **12x**÷



## Join us back in the classrooms

• Lesson about place value:

# I can understand the value of each digit in a number and use this to compare and order numbers

- Resources will be out on tables encourage your children to explain how they use them
- Feel free to question their understanding how do you know? Can you explain that to me?

