

Grove Road Primary School
Curriculum workshop – KS2



Welcome to...

Supporting Your Child with Maths and Reading



Session outline

- Explain and show how maths and reading are currently taught in Years 3 to 6
- Give practical ideas for supporting your child at home
- Be an opportunity to ask questions about maths and reading
- Be a useful, fun and interactive session



The way we teach...

- Engaging
- Using 'Learning Questions'
- Practical / hands on
- Using ICT – iPads, laptops
- Real life experiences built in
- Questioning is key
- Questions are valued

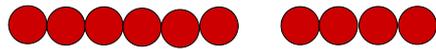


Number and place value

- Counting forwards and backwards
- Counting from any number (including 0 or 1)
- Counting in jumps – 2s, 3s, 4s, 5s... 9s, 11s..
- Counting in decimal or fraction steps
0.1, 0.2, 0.3... $\frac{1}{2}$, 1, 1 $\frac{1}{2}$, 2, 2 $\frac{1}{2}$...
- Extending to millions eg in jumps of 10,000
- Using negative numbers

Number Bonds (in KS1)

- Number bonds to 10



- Number bonds to 20



- Number bonds to 100

- $30 + 70$ $43 + 57$

Number Bonds (in KS2)

- Decimals to make 1: $0.6 + 0.4$



- $0.34 + 0.66$

- Decimals to make 10: $1.2 + 8.8$

- $3.45 + 6.55$

- Memory or quick calculation of these bonds then helps to speed up their mental and written calculation skills.

Place value

- Understanding the value of each part of the number

100	10	1
200	20	2
300	30	3
400	40	4
500	50	5

- Stamp, clap, click
- Then into 1000s, 10,000, millions...

H	T	U

Place value

The value of each part of the number

H	T	U	t
3	5	6	

H	T	U	t
	3	5	6

<p>Year 3: Number</p> <ul style="list-style-type: none"> count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number recognise the place value of each digit in a three-digit number (hundreds, tens, ones) compare and order numbers up to 1000 identify, represent and estimate numbers using different representations read and write numbers up to 1000 in numerals and in words solve number problems and practical problems involving these ideas. 	<p>Year 4: Number</p> <ul style="list-style-type: none"> count in multiples of 6, 7, 9, 25 and 1000 find 1000 more or less than a given number count backwards through zero to include negative numbers recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) order and compare numbers beyond 1000 identify, represent and estimate numbers using different representations round any number to the nearest 10, 100 or 1000 solve number and practical problems that involve all of the above and with increasingly large positive numbers read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.
<p>Year 5: Number</p> <ul style="list-style-type: none"> read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 solve number problems and practical problems that involve all of the above read Roman numerals to 1000 (M) and recognise years written in Roman numerals. 	<p>Year 6: Number</p> <ul style="list-style-type: none"> read, write, order and compare numbers up to 10 000 000 and determine the value of each digit round any whole number to a required degree of accuracy use negative numbers in context, and calculate intervals across zero solve number and practical problems that involve all of the above.

Multiplication tables progression

Expectations:

Year 2

Count in 2s, 3s, 5s, 10s (Forwards and backwards)

Recall and use multiplication and division facts for the 2s, 5s and 10s, including recognising odd and even numbers

Year 3

Recall and use multiplication and division facts for the 3s, 4s and 8s (up to $12 \times \underline{\quad}$)

Year 4

Recall multiplication and division facts for multiplication tables up to 12×12 (learning 6s, 7s and 9s)

Year 5

Multiply and divide numbers mentally drawing upon known facts

e.g. $17 \times 5 =$, using 10×5 and 7×5 OR $0.6 \times 8 =$, using 6×8 and place value knowledge

These are expectations for the end of the year (Summer term)

The expectations have raised over recent years, so some children are working towards these.

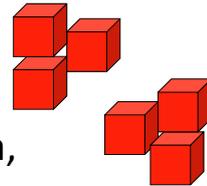
Learning tables: X Tables Fun

Choose a table you're child is not yet confident with, but is 'next on their list'

1 x 3 = 3
2 x 3 = 6
3 x 3 = 9
4 x 3 = ...

In Years 2, 3 and 4:

Make it using dried pasta,
Smarties or other small objects,



then write the list,

then work on memorising the facts

Make it a game

- Using small pieces of card
- Put the question on the front and answer on the back

5 x 3

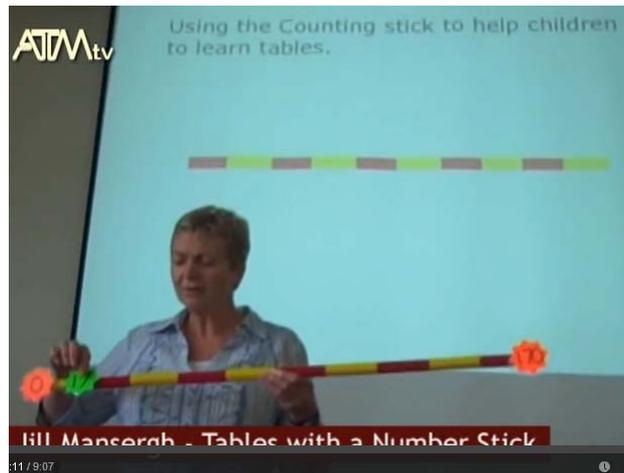
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- Play games:
 - Answering them in order, then out of order
 - Take turns to choose cards to answer, keep the card if you're right
 - Keep going until you make a mistake
 - Time challenge – can you get them all in a minute?

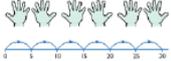
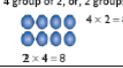
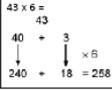
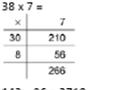
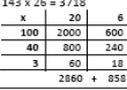
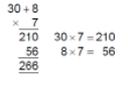
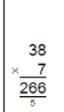
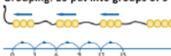
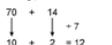
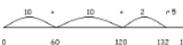
Do you know your 17 x table?

<https://www.youtube.com/watch?v=yXdHGBfog>

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Calculation policy – quick reference guide					
Addition					
<p>Phase 1: Counting and adding with objects Develop secure one-one correspondence and understanding of addition. Using practical apparatus and real objects.</p> <p>$3 + 2 = 5$</p>	<p>Phase 2: The number line and 100 square The number line helps children to move from using concrete objects. The 100 square supports children to understand that when adding ten to a number the units stay the same.</p> <p>$8 + 5 = 13$</p>	<p>Phase 3: The empty number line The empty number line helps to record the steps on the way to calculating the total. Children will partition the number to do this.</p> <p>$45 + 38 = 84$</p>	<p>Phase 4: Partitioning The next stage is to record mental methods using partitioning. Partitioning the numbers into tens and units before adding enables children to work with manageable parts, before recombining to find the answer.</p> <p>$47 + 76 = 123$</p>	<p>Phase 5: Expanded method in columns Using columns to add vertically, starting with units, then tens. This then leads into Phase 6: Column method (standard short method) This involves children understanding that digits can be 'carried' into the next column.</p>	
Subtraction					
<p>Phase 1: Counting backwards and subtracting with objects Develop secure one-one correspondence and understanding of subtraction.</p> <p>$8 - 1 = 7$</p>	<p>Phase 2: The number line and 100 square When children are ready to move on from concrete objects and begin recording, these can support their thinking. On a 100 square, when we take away 10 we can see that the units digit remains the same.</p> <p>$13 - 5 = 8$</p>	<p>Phase 3: Using the empty number line The empty number line helps to record or explain the steps in preparation for mental subtraction. A calculation like $74 - 27$ can be recorded by counting back 27 from 74 to reach 47. Children can also be taught that you can also count up between the 2 numbers to find the difference.</p> <p>$74 - 27 = 47$ worked by counting back:</p>	<p>Phase 4: Partitioning Subtraction can be recorded using partitioning to write equivalent calculations that can be carried out mentally. For $74 - 27$ this involves partitioning the 27 into 20 and 7, and then subtracting the 20 and the 7 from 74 in turn.</p> <p>$74 - 27 = 74 - 20 - 7$</p> <p>$74 - 20 = 54$</p> <p>$54 - 7 = 47$</p> <p>So: $74 - 27 = 47$</p>	<p>Phase 5 and 6: Expanded layout, leading to column method (standard short method) Partitioning the numbers into tens and units and writing one under the other mirrors the column method. When they are fully confident with partitioning and understanding the effect, they are ready to move to the more efficient short version.</p>	

Calculation policy – quick reference guide				
Multiplication				
<p>Phase 1: Hands on experiences, including \times facts and arrays Initially children put objects into groups/sets. They then move on to solve multiplication through repeated addition. We also use arrays to solve multiplication problems. Children start to identify patterns within multipliers and begin learning their \times tables facts.</p> <p>6 lots of 5 fingers $5 + 5 + 5 + 5 + 5$ or $6 \times 5 = 30$</p>  <p>An array to show 4×2 or 2×4: 4 group of 2, or, 2 groups of 4:</p>  <p>$4 \times 2 = 8$ $2 \times 4 = 8$</p>	<p>Phase 2: Mental and informal written multiplication using partitioning The number being multiplied can be partitioned, usually into tens and units, each part is then multiplied with the answers then added together to find the final total. Children use this as an informal written method before it becomes a mental method. Two possible methods are shown:</p> <p>14 can be partitioned into 10 and 4: $14 \times 3 = (10 + 4) \times 3$ $= (10 \times 3) + (4 \times 3) = 30 + 12 = 42$</p> <p>43 can be partitioned into 40 and 3: $43 \times 6 =$</p>  <p>$40 + 3$ $\downarrow \quad \downarrow \times 6$ $240 + 18 = 258$</p>	<p>Phase 3: The grid method As a staging post, an expanded method which uses a grid can be used. This is based on the distributive law and links directly to the mental method. It is an alternative way of recording the same steps, but can be used with more digits. This method can also work for decimals.</p> <p>$38 \times 7 =$</p>  <p>$143 \times 26 = 3718$</p>  <p>$2860 + 858$</p>	<p>Phase 4: Expanded short multiplication The next step is to represent the method in a column, but showing the steps in working out. Draw attention to the links with the grid method (phase 3). Children should describe what they do by referring to the actual values of the digits in the columns. For example 38×7 is 'thirty multiplied by seven and eight multiplied by seven.'</p> <p>$30 + 8$</p>  <p>56 $8 \times 7 = 56$ <u>266</u></p> <p>56 $\times 27$ 1120 392 <u>1512</u></p> <p>56×20 56×7</p>	<p>Phase 5: Short multiplication The recording is reduced further, with carry digits recorded below the line. If, after practice, children cannot use the compact method without making errors, they should return to an expanded format. It is important that children choose methods they feel comfortable with.</p> <p>38</p>  <p>$\times 7$ <u>266</u></p>
Division				
<p>Phase 1: Hands on experience, sharing and grouping, linking to \times facts and repeated subtraction To divide on a number line initially with no remainders and later with remainders.</p> <p>Sharing: 6 eggs shared between 2 nests:</p>  <p>Grouping: 15 put into groups of 3</p> 	<p>Phase 2: Mental division using partitioning One way to work out $TU \div U$ mentally is to partition TU into a multiple of the divisor plus the remaining part, then divide each part separately.</p> <p>$84 \div 7 = 12$: We know 70 and 14 are multiples of 7, so we can use these when we partition the number.</p>  <p>$70 + 14$ $\downarrow \quad \downarrow \div 7$ $10 + 2 = 12$</p>	<p>Phase 3 and 4: Chunking on a number line and 'Expanded' method for $(H)TU \div U$, using idea of repeated subtraction Children start by taking off groups of 10x the number, and when they have a secure knowledge of multiplication facts and place value, they should be able to move on quickly to using bigger 'chunks' e.g. 30x or 50x the number as appropriate.</p> <p>$137 \div 6 = 22 \text{ r } 5$</p> <p>Count up in groups of 6 e.g. $10 \times 6 = 60$ (These chunks help us to work out how many 6s are in 137).</p> 	<p>$196 \div 6 = 32 \text{ r } 4$</p>  <p>$6 \overline{)196}$ $\underline{-180} \quad 6 \times 30$ 16 $\underline{-12} \quad 6 \times 2$ 4</p>	<p>$560 \div 24 = 23 \text{ r } 8$</p>  <p>$24 \overline{)560}$ $\underline{-480}$ 80 $\underline{-72}$ 8</p> <p>$0 \ 4 \ 6 \ . \ 4$ $7 \overline{)3 \ 12 \ 14 \ . \ 78}$</p>

Mathematics is a life skill...

- Ask your child to show you what they have been learning
- Use everyday situations...(pencil and paper not needed)
e.g. when shopping, in the car or cooking
- provide opportunities to:
 - tell the time
 - use money
 - weighing things
 - practise number bonds (How could I make 10?)
 - ask questions (How many...?)
 - solve problems

Reading and phonics in KS2

- Daily English lessons
- Daily Guided Reading
- Spellings, grammar and punctuation sessions
- Handwriting practice

- Phonics interventions if needed
- Additional 1:1 reading if needed



Reading



- Following on from KS1, reading is taught using a wide range of strategies (Phonics, decoding, picture clues)
- Children have 'Guided Reading' sessions once a week in groups with a teacher (and/or TA)
- Shared reading – both fiction and non-fiction
- Reading for enjoyment – library books and individual reading scheme books sent home

Years 3 and 4: Reading

Develop positive attitudes to reading and understanding of what they read by:

- listening to and discussing a wide range of fiction, poetry, plays, non-fiction and reference books or textbooks
- reading books that are structured in different ways and reading for a range of purposes
- using dictionaries to check the meaning of words that they have read

Understand what they read, in books they can read independently, by:

- checking that the text makes sense to them, discussing their understanding and explaining the meaning of words in context
- asking questions to improve their understanding of a text
- drawing inferences such as inferring characters' feelings, thoughts and motives from their actions, and justifying inferences with evidence
- predicting what might happen from details stated and implied

participate in discussion about both books that are read to them and those they can read for themselves, taking turns and listening to what others say.

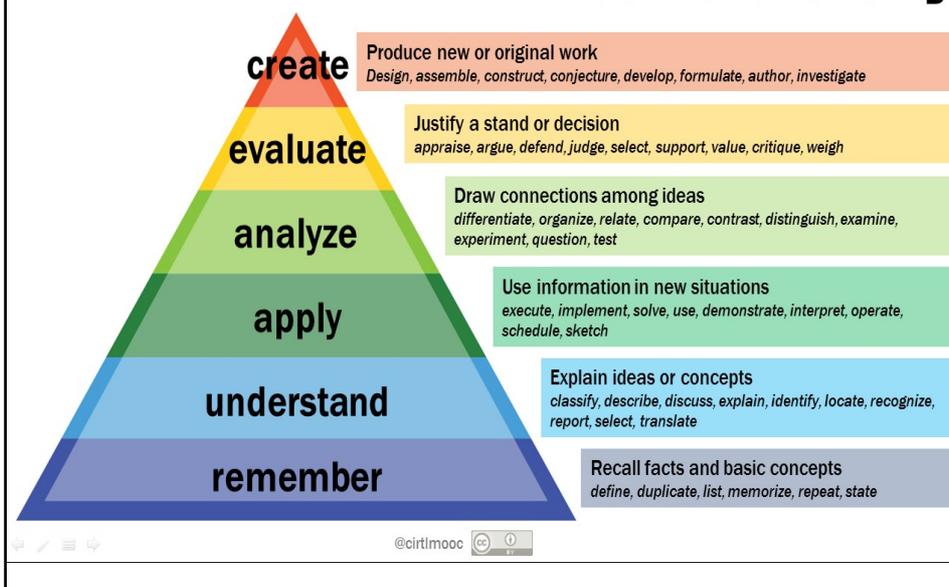
Years 5 and 6: Reading

Maintain positive attitudes to reading and understanding of what they read by:

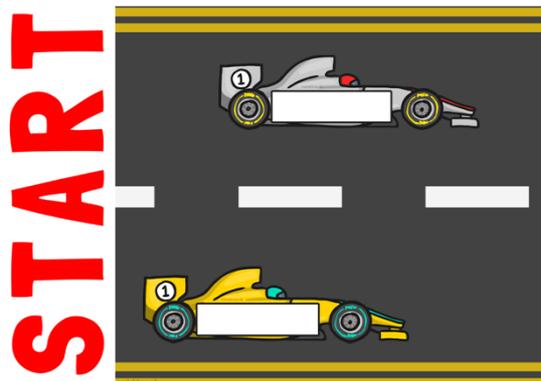
- continuing to read and discuss an increasingly wide range of fiction, poetry, plays, non-fiction and reference books or textbooks
- reading books that are structured in different ways and reading for a range of purposes
- recommending books that they have read to their peers, giving reasons for their choices

Understand what they read by:

- drawing inferences such as inferring characters' feelings, thoughts and motives from their actions, and justifying inferences with evidence
- predicting what might happen from details stated and implied
- discuss and evaluate how authors use language, including figurative language, considering the impact on the reader
- distinguish between statements of fact and opinion
- provide reasoned justifications for their views.

Bloom's Taxonomy

Grove Road Reading Grand Prix



Grove Road Reading Grand Prix

- A **whole school** reading incentive to encourage children to read more at home with an adult and to encourage discussion around what they have read.
- For each child to read at least **3 x a week for 10 minutes each time.**
- They must read to an adult (or older sibling) and have a written comment and **signature** in their yellow reading records.

Grove Road Reading Grand Prix

- A letter has been sent out to parents explaining this new reading incentive.
- In each class there will be a Grand Prix reading display with a child's name on each car.
- Each child will be at the start line at the beginning of **every half term**.



How it works...

- The children will move their car along the race track each time they read at home with an adult. **They will move along one flag per read.** *(If they do more than the number of flags then they will achieve a lap and start again.)*
- There will be a laminated race card next to the display to record the number of laps that each child does.



Thank you

- Evaluation form to complete
- PowerPoint will be available on school website next week (in PDF form)
- Set of resources to take away
- Talk to your child's class teacher

