

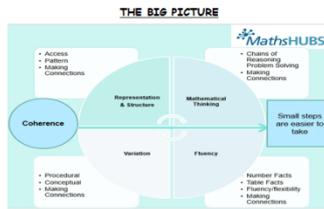
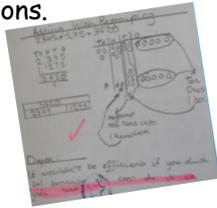
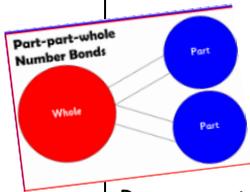


Maths at Grovelands (Policies)

Teaching for Mastery maths policy

At Grovelands, we are at the beginning of an exciting journey to Teaching for Mastery. We value the importance of teaching approaches that give pupils the best chance of securing both deep understanding of mathematical concepts and a varied fluency in applying them.

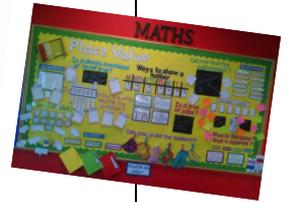
At Grovelands, teachers strive to deliver both depth and breadth and ensure that pupils grasp the fundamental concepts that unlock the door to mastery. We also want pupils to have a Growth Mindset 'can do' attitude, by being resilient, determined in the face of a challenge, cooperative, creative and most importantly, having a positive attitude to making mistakes and seeking solutions.



Concrete - children should have the opportunity to use concrete objects and manipulatives to help them understand what they are doing.

Pictorial - alongside this children should use pictorial representations. These representations can then be used to help reason and solve problems.

Abstract - both concrete and pictorial representations should support children's understanding of abstract methods.



Representation and structure:

To provide concrete and pictorial experiences so that pupils acquire a sound understanding of mathematical skills and concepts.

- To use concrete and pictorial approaches to access the maths and reveal the 'big ideas'.

Additionally, to see patterns and make connections.

- To develop pupils confidence in mathematical understanding so they see the relevance of mathematics in the outside world.

Variation:

- To enable pupils to think logically and work in a systematic way.

- To allow pupils to apply what they have learnt in a variety of ways, e.g. systematic, imaginative, independent and co-operative.

Fluency:

- To ensure that pupils become fluent and accurate at rapid recall of number facts. (Number facts, times tables, making connections.)

Mathematical Thinking:

- To enable pupils to communicate through mathematics by discussion, so developing their conceptual understanding and verbal reasoning.

- To give opportunities for pupils to investigate and make discoveries for themselves.

- To follow chains of reasoning and make connections.

- To ensure that pupils have an in-depth knowledge of mathematical vocabulary and its meaning.

- To enable pupils to make links within mathematics and with other areas of the curriculum.

Within the terms mastery and greater depth mastery, all pupils require depth in their learning and understanding. All pupils are required to:

- Use mathematical concepts and facts and procedures fluently.

- Recall key number facts with speed and accuracy and calculate unknown facts.

- Use understanding to reason and explain a mathematical problem.

Calculations policy:

The aim of our Calculation Policy is to ensure all children leave Grovelands Primary School with a secure understanding of the four operations and can confidently use both written and mental calculation strategies in a range of contexts.

This policy states the required mental strategies and sets out the progression of written procedures that the children will use as they progress in their understanding of the four operations.

In order for children to develop a full understanding of the written procedures, they must first have a firm understanding of place value. It is expected that the majority of pupils will progress through the calculation stages as stated in this policy. However, children should not be made to go onto the next stage if: - They are not ready- They are not confident

Children who do grasp concepts rapidly should be challenged through sophisticated and diverse problems, before being accelerated through new content.

Furthermore, it is essential that at each stage, children are making choices about whether to use a mental or written method.

Finally, it is essential that the strategies in this policy are being taught through mathematical problems and activities that are contextualised through real life, relevant and rich in key mathematical vocabulary.

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Fluency variation, different ways to ask children to solve $21 + 34$:

Sam saved £21 one week and £34 another. How much did he save in total?
 $21 + 34 = 55$. Prove it!

$21 + 34 =$
 $21 + 34 =$
 $\square = 21 + 34$
 What's the sum of twenty one and 34?

Always use missing digit problems too.

10s	1s
0	3
0	?
?	5

Arrays showing commutative multiplication

Create arrays using counters/cubes to show multiplication sentences

Draw arrays in different rotations to find commutative multiplication sentences

Link arrays to area of rectangles

Use an array to write multiplication sentences and reinforce repeated addition

$5 + 5 + 5 = 15$
 $3 + 3 + 3 + 3 = 15$
 $5 \times 3 = 15$
 $3 \times 5 = 15$

Fractions policy:

The fractions policy takes you through stages of fractions. Each stage builds upon the previous one. The stages are recognising fractions, counting in fractional steps, comparing and ordering fractions, equivalent fractions, using the four operations with fractions and solving problems with fractions.

It is expected that the majority of pupils will progress through the fraction stages as stated in this policy. However, children should not be made to go onto the next stage if: - They are not ready - They are not confident

Children who do grasp concepts rapidly should be challenged through sophisticated and diverse problems, before being accelerated through new content.

Choose a number of counters. Place them onto 2 plates so that there is the same number on each half.
 When can you do this and when can't you?
 What do you notice?



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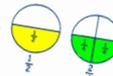
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Spot the mistake

7, 7 $\frac{1}{2}$, 8, 9, 10

8 $\frac{1}{2}$, 8, 7, 6 $\frac{1}{2}$

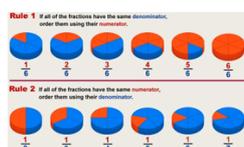
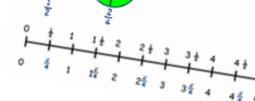
...and correct it



What comes next?

5 $\frac{1}{2}$, 6 $\frac{1}{2}$, 7 $\frac{1}{2}$, ...

9 $\frac{1}{2}$, 9, 8 $\frac{1}{2}$, ...



Ordering without pictures
 Order these fractions from smallest to largest:
 $\frac{1}{7}$, $\frac{1}{5}$, $\frac{1}{10}$, $\frac{1}{3}$

Here is a chocolate bar.



William eats 3 pieces and Amber eats 2 pieces.

What fraction of the chocolate bar remains?

Sarah has a packet of balloons.

