



AVANTI HOUSE

EXCELLENCE · VIRTUE · DEVOTION



TEACHING FOR MASTERY IN KEY STAGE 1 (YEARS 1 AND 2)

PRESENTATION FOR PARENTS 20TH JANUARY 2021







THE NATIONAL CURRICULUM

Aims

The national curriculum for mathematics aims to ensure that all pupils:

- Become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **Reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
- Can solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

NATIONAL CURRICULUM

The national curriculum gives all schools the statutory objectives and guidance for each main topic:

- Number & Place Value
- Addition and Subtraction
- Multiplication and Division
- Fractions
- Measurement (including Money and Time)
- Geometry Properties of Shape
- Geometry Position and Direction
- Statistics (Year 2 only)

MASTERY AND THE NATIONAL CURRICULUM

- The expectation is that most pupils will move through the programmes of study at broadly the same pace. When to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage.
- Pupils who grasp concepts rapidly should be challenged through rich and sophisticated problems before any acceleration through new content.

TEACHING FOR MASTERY

What does this mean? It means teaching in depth. Not just rote learning all the time and hundreds of sums!!

This helps the children:

- embed their learning
- use their maths skills in other areas of the curriculum
- work at pace that most children can follow and progress together
- reasoning focus
- mathematically makes more sense!

CONCRETE – PICTORIAL – ABSTRACT (C-P-A) APPROACH



Concrete (manipulatives/hands-on)

Pictorial (pictures/models)

Abstract (numbers/equations)

CONCRETE RESOURCES



Let's try it! Your Turn!

What comes to your head when you think of 10?

Now, represent 10 in any way you wish.





Your Turn!

What comes to your head when you think of 10? Now, represent 10 in any way you wish.



VARIOUS STRATEGIES

You can see the different representations that were on the previous slide.

In a similar way, *our children are different*, so we need to **teach a range of strategies** so they can use them in different situations in school and life, in general.

These skills are transferrable so they help in other curriculum areas and in life too!

MATHEMATICAL VOCABULARY

- Sharing essential vocabulary/language <u>regularly</u> is important so the children understand what they are doing and what it means, *e.g. find the difference, find the total amount, share amongst 3 friends, partition 108, etc.*
- Modelling clear sentence structures using mathematical vocabulary supports the children with understanding and reasoning/problem solving tasks. *I am sure you have seen that when your child articulates their answers in reasoning questions during homework tasks.*

Number and Place Value

Partitioning is so important as the basis of children's understanding of **place value**, e.g. using tens and ones (dienes) to represent numbers:



Number and Place Value

You can use dienes or place value counters to explain the difference between 36 and 63.



Knowing numbers up to 100 securely, reading and writing them in **numerals** is essential.

Part – Whole Model

Helps children to visualise the questions and work out missing number questions as well as corresponding number facts.



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Helps children to visualise the questions and work out missing number questions as well as corresponding number facts.



Bar Models

Also, helps children to visualise the questions and work out missing number questions as well as corresponding number facts.



Bar Models



Understanding Equivalence

the same as





Missing Number Questions

Important to get them to **understand the equal sign**, not always just at the end of a calculation!

$$= 15 - 2$$

$$20 + = 70$$

$$98 - = 28$$

$$addition$$

$$commutative$$

$$13 + 6 = 10 + = 16$$

Importance of a Ten Frame

Quite a new resource for many parents but a fantastic visual tool that can be used all the way through primary school.



Over time, a counter could represent 10 so it could be used to work out number bonds to 100 or a counter could represent 0.1, etc.

Addition

Some can do it mentally; others need more time or a different approach as their confidence and skills build.



72 + 23



Adding 1-digit to 2-digit numbers

Your child will be encouraged to do this type of calculation 'in their head'. For example, 7 + 82, becomes 'put 82 in my head and count on 7 using my fingers - 83, 84, 85, 86, 87, 88, 89, 90. It is important for efficiency that the biggest is always put 'into the head'.

Addition

Some can do it mentally; others need more time or a different approach as their confidence and skills build.



Subtraction

Some can do it mentally; others need more time or a different approach as their confidence and skills build.

1-digit number from a 2-digit number

Using a hundred square, find the 2-digit number and count backwards. Progressing to mental calculation. For example: 79 - 3 becomes 'put seventynine in my head and count back 3 on my fingers... 78, 77, 76

Number line 73 - 21



Start at 73 - Jump back in two lots of 10. Then jump back in 'ones' once.

Subtracting 2-digits from 2-digits Partitioning 73 - 21 70 - 20 = 50 3 - 1 = 2



Subtraction

Exchanging one ten for ten ones - most challenging!!





Subtraction



31-8= 000000000

Ben has 63 beads.

He gives **37** beads away.

How many beads does Ben have left?





Multiplication / (Doubling)

Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot





Multiplication Using Number lines



4 × 5 4 Jumps of 5 4 × 5 = 20

Multiplication

Ben has five marbles. 8. Match each addition to a multiplication. One is done for you. 5 x 2 Kemi has seven times that number. 5 + 5 + 5 + 5 2 x 3 How many marbles does Kemi have? 2 + 2 + 2Sita puts 10 balls in each bag. 5 x 4 marbles 3 x 4 6+6+6+6 6 + 5 x 5 3 + 3 + 3 + 3 6 x 5

How many balls are in the bags altogether?

balls

Division / (Halving)



How many 5's make 20? Count up in 5's - 5, 10, 15, 20 There are 4 lots of 5 in 20 so 20 ÷ 5 is 4

Division



Use only these numbers to make a **different** number sentence each time.

One is done for you.







Ajay has **30** pencils.

He shares them equally between **3** pots.



Complete the number sentence to show how Ajay shares the pencils.





A shopkeeper has 20 fish and 5 fish bowls.

He puts the same number of fish in each bowl.

How many fish go in each bowl?

fish

Calculations Policy

We know these new concepts can be tricky for parents as we learnt in a different way so the calculations policy will give you a better idea to support your children. This is available at: <u>https://avanti.org.uk/avantihouse-primary/ks1-maths/</u>.

Here is an example of a page:

| Addition | — | | |
|--|--|---|---|
| Objective and Strategies | Concrete | Pictorial | Abstract |
| Combining two parts to make a whole: part- whole model | Use cubes or counters to add two numbers together as a group or in a bar. Part-part whole | J J J | 4 + 3 = 7 4 7 3 Use the part-part whole diagram as shown above to move into the abstract. |
| Starting at the bigger number and | | +1 +1 +1 +1 | 8 + 5 = 13 |
| counting on | Start with the larger number on the bead string and then count on to the smaller number 1 by 1 to find the answer. | 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 Start at the larger number on the number line and count on in ones to find the answer. | Place the larger number in your head and count on the smaller number to find your answer. |

* We are using the White Rose Maths resources for the virtual learning as they give a good foundation and the feedback from parents has been that the videos have been supportive for their children.



Please remember...

- **Don't expect them to understand after you've explained it <u>once</u>. It is normal for a child to 'get it' one day, and then in a different context not know how to find an answer regular practise makes perfect!**
- Homework good to amend numbers to check understanding as well for consolidation.
- Encourage your child to talk in full sentences.
- Take every opportunity to look at maths that happens around you everyday.
- <u>https://avanti.org.uk/avantihouse-primary/ks1-maths/</u> the school link has more information, particularly examples of reasoning questions.
- Use resources all the time to support your child you don't have to buy them, e.g. instead of dienes, just use sticks and stones for tens and ones for place value, etc.
- Some examples of the questions we showed in the presentation are for year 2 pupils so please focus on the year group curriculum for your child we have two academic years of lockdowns so we are adjusting concepts as and when we see fit, based on our assessment for learning.
- If you have any questions, please ask your class teacher on Google Classroom.
- This presentation will be upload onto Google Classroom and/or the school website by the end of the week.

Thank you for your continued cooperation, support and understanding.



Hare Krishna.