



Questioning:

Try the Question Challenge:

$$6 \times 4 = 24$$

24 is the answer - what are the questions?

$$28 - 4 = 24$$

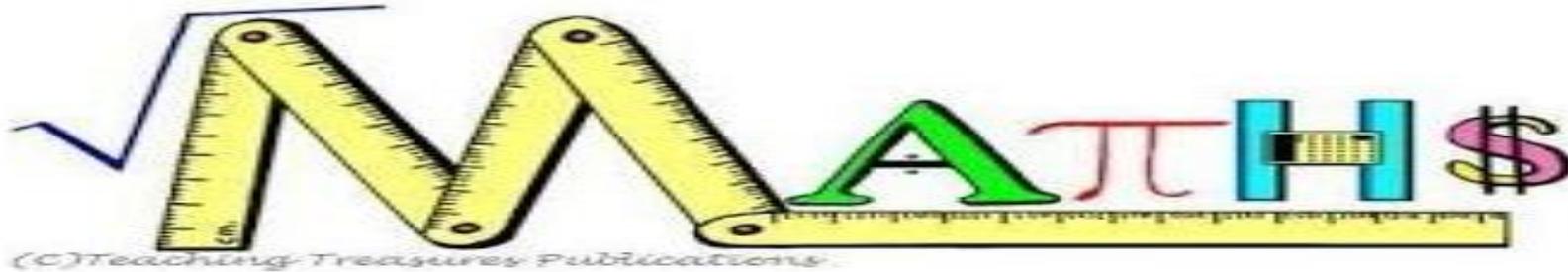
$$23 + 1 = 24$$

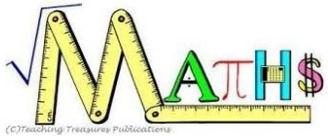
$$(8 \times 4) - 8$$

$$48 \div 2 = 24$$

$$5 \times 5 - 1$$

Welcome to our KS2 Maths Workshop

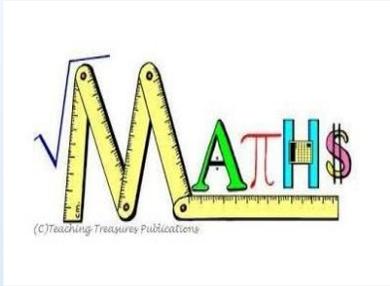




Aims of the workshop

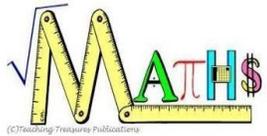
To share:

- how we teach children maths and to explain about mathematical reasoning.
- how you can support your child to develop their maths skills at home.
- any questions you may have about the maths curriculum.



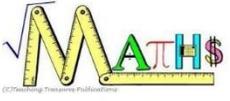
Discuss with your group: what do you remember about maths as a child both at home and school?

- What were your feelings about maths growing up?
- Do you think your feelings towards maths have passed on to your child?
 - What makes a successful mathematician?



What makes successful mathematicians?

- Understanding - concepts, operations and relations
- Applying - devising strategies for solving problems
- Reasoning - using logic to explain and justify a solution
- Engagement - seeing maths as sensible and useful. Being willing to have a go and work it out - there is nearly always more than one way!
- Enquiring - being willing to ask and answer questions - I'm not sure about ... Can you explain why? How did you work that out? Could you do it this way?

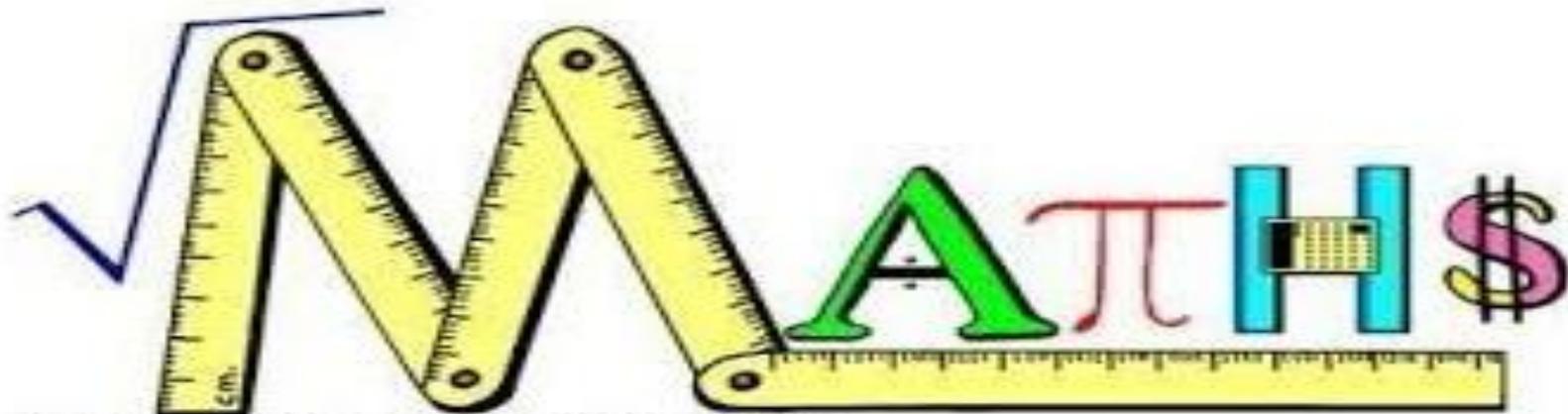


The Maths Curriculum

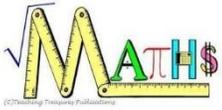
The DFE says:

- The curriculum is aimed at allowing children to become fluent in the fundamentals of mathematics, giving them 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.
- In other words, children need to have good knowledge of basic maths skills and be able to reason logically.

What are Reasoning skills?
Talk to your group.



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Reasoning skills are:

- The ability to explain and reason ideas using the correct mathematical vocabulary - children should be able to use, read and spell mathematical words correctly.
- There is now a real emphasis on being able to reason mathematically. This could be by following a line of enquiry or solving a problem by discussing relationships and patterns and then developing an argument, justification or proof for their findings using mathematical language.
- For example: $16 + 3 = 9$ Is it correct? How do you know?
- Reasoning enables children to make use of all their other mathematical skills and apply them to a new situation. Reasoning could be thought of as the 'glue' which helps mathematics makes sense.

$$3.12 - 2.38 =$$

$$3.12 - ? = 2.38$$

$$\begin{array}{r} 3.12 - \\ \underline{2.?8} \\ ?74 \end{array}$$

Two numbers have a difference of 2.38 . The smaller number is 3.12 . What is the bigger number?

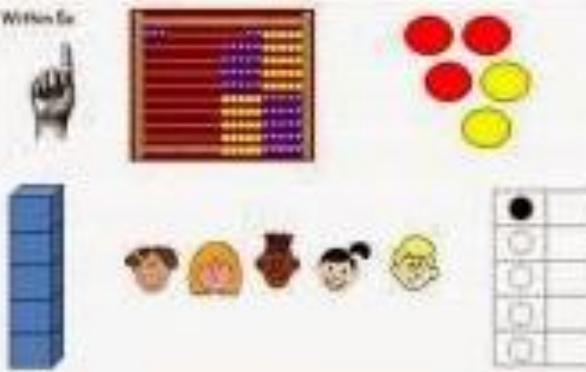
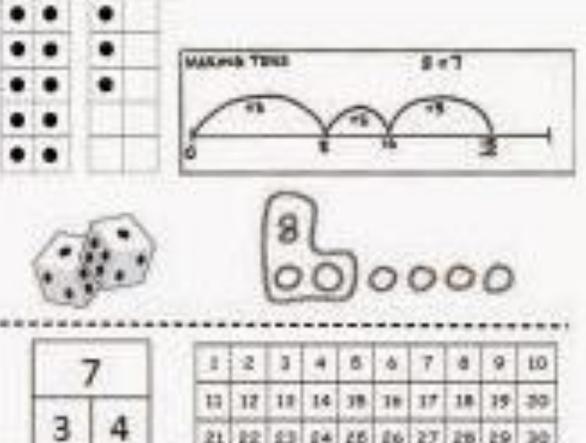
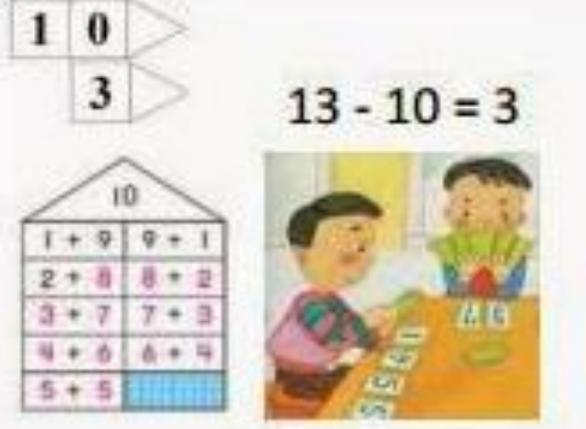
Two numbers have a difference of 2.3 . They are both less than 10. What could the numbers be?

-

Have a look at some example reasoning questions.

Do any of the questions surprise you?

How do we prepare children to answer these questions?

Concrete	Representational	Abstract 
<p>Students manipulate hands-on, concrete materials</p>	<p>Students draw and observe diagrams, or watch the teacher touching and moving hands-on materials</p>	<p>Numbers and mathematical symbols</p>
		

We try to allow children to have as much hands on maths as possible to give them a context.

We also try to show how maths can be used in real life.

Eg- if we are doing capacity we will use scales and measure liquids.

This is called **concrete learning** where children can explore maths.

Then we can move our learning on and show children the object in a picture form.

This **pictorial form** can take many different forms- this is key as it exposes children to a variety of ways maths can be presented.

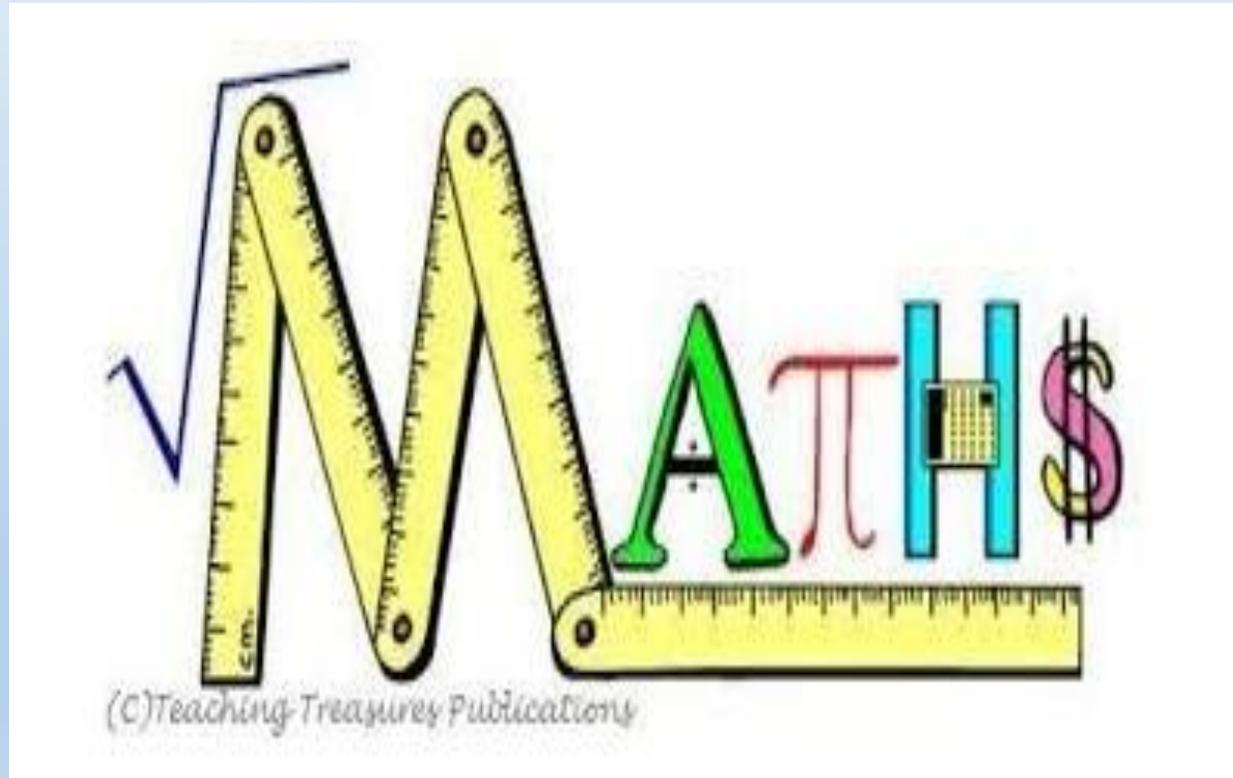
We give children questions in different ways so they are exposed to lots of different ways to use their maths.

- We also use a lot of questioning.
- How many?
- How many more/less?
- How do you know?
- How could you work this out?
- Why do you think?
- What would you do if....?
- Did anyone do it a different way?
- If I have....what would...?
-

Look at this question- what do you need to know?

- A regular hexagon and a regular square have the same perimeter.
- The length of each side of the hexagon is 8 cm.
- Work out the area of the square.

How do you support your child with their maths? Discuss as a group.



What can you do to support your child at home?

- Timestables – you tube has some great bits
- Cooking
- Get your child to teach you or a sibling
- Board games
- Get them to pay and count money
- Use car number plates to make up rules about numbers
- Card games
- Interactive games- j2e
- Pinterest



Battleships!

My Ships



A								
B								
C								
D								
E								
F								
G								
H								
	1	2	3	4	5	6	7	8

Aircraft Carrier **A A A A A**

Battleship **B B B B**



Cruiser **C C C**

Destroyers **D D** **D D**

Submarines **S** **S**

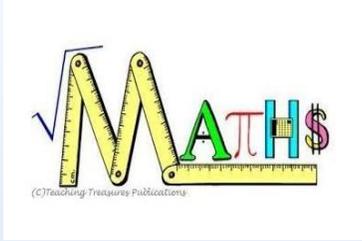
Their Ships





What do I do if my child is really struggling with maths?

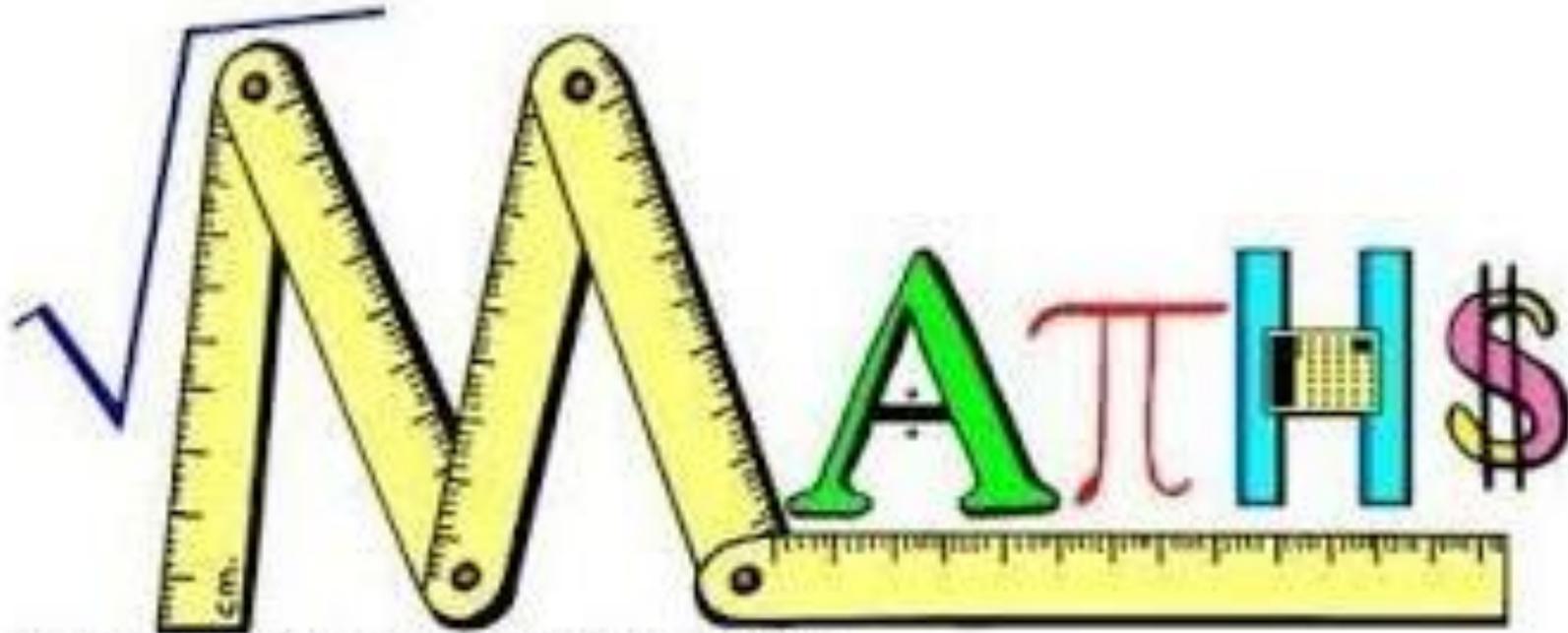
- Make sure they know that everyone can do maths! Some people just need a little longer to feel comfortable with some concepts.
- Let them know that getting it wrong is alright - they can learn from their mistakes for next time.
- Find a quiet place for them to work. They can't concentrate with background distractions.
- If your child is struggling, don't tell them the answer. Ask them what they think they need to do to work it out and guide them to try different strategies to get to the answer.
- Liaise with their teacher.



Finally....

- Supporting your child with basic maths skills will really help them to achieve to their full potential.
- Your child's confidence in their ability will be greatly enhanced if they know their number bonds, times tables and have basic time/measuring skills and knowledge of money. These are all the back bone of what they learn in school.
- If your child knows the answer to a maths question - ask them to explain how they know it! It will really help their reasoning skills.

Any questions?



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