Isle of Man Department of Education

"Learning is a journey, to be taken together, one step at a time"

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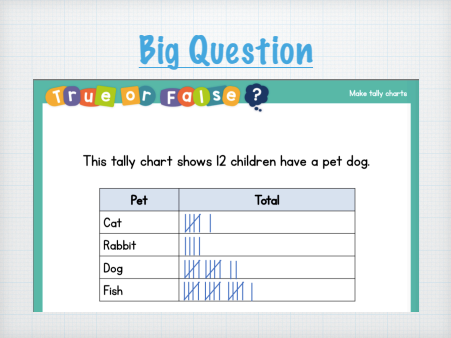
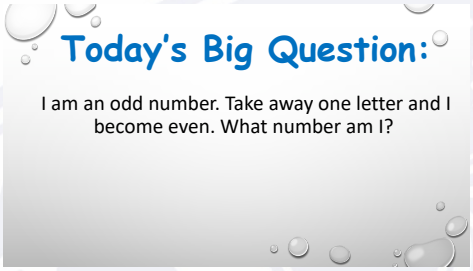
Helping your child with Reasoning at Home

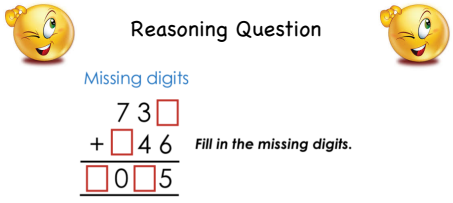
'Mathematical reasoning involves thinking through mathematical problems logically in order to arrive at solutions. It also involves being able to identify what is important and unimportant in solving a problem and to explain or justify a solution' (NCETM)

What does this look like in the classroom?

At the beginning of every Maths lesson, children are given a reasoning question to answer in partners or independently based on prior learning or new learning. Some examples of the types of questions used can be found below:







Number, Place Value and Calculation Activities to use at Home

Year One and Two Questions

Spot the mistake:

5,6,8,9

What is wrong with this sequence of numbers?

True or False?

I start at 3 and count in threes. I will say 13?

Explain

15+ 4 = ?

Explain how you worked the answer out

Year Three and Four Questions

Is this Always, Sometimes or Never true?

When you add an even and an odd number it makes an even number

What comes next?

8, 16, 24, 32

Convince Me

36 is a multiple of 12

Odd One Out

5, 25, 31

Year Five and Six Questions

Spot the Mistake

13, 26, 38, 52

What's the same, what's different?

6^2 36

True or False?

The temperature is -3. It gets 2 degrees warmer. The new temperature is -5?

Odd One Out

5, 7, 15

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Fractions, Decimals & Percentages Activities to use at Home

Year Two Questions

Spot the Mistake

9, 9 ½ , 10, 11 ½

True or False

¼ or 4 = 1

Always, Sometimes, Never

To find a half of something you divide it by 2

Year Three and Four Questions

True or False

1/20 of a metre = 20cm

4/100 of 2 metres = 40cm

Convince Me

1/2 of 50 = 25

What Went Wrong?

If I split a shape into any 3 parts, I have split it into 1/3

Year Five and Six Questions

What do you notice?

1/10 of £41

1/100 of £41

1/1000 of £41

Continue the pattern. What do you notice?

True or false?

$1\frac{5}{12}$ is the same as $\frac{17}{12}$

Questions/Ideas to help you create your own Activities

Spot the mistake – *Deliberately make a mistake in a calculation and ask your child to work out the mistake*

True or false? – *Create a question and ask whether the answer is true or false*

What do you notice? – *Create a sequence of numbers, shapes etc. What is the pattern? What can they notice?*

What else do you know? – *If I know that 6x3 = 18 what else do I know? 3 x 6 = 18,*

18 ÷ 6 = 3, 18 ÷ 3 = 6

Always, Sometimes, Never – *Create a statement and ask the children to decide if it is always true, sometimes true or never true and prove it.*

What's the same, what's different? – *Create two questions that have the same calculation and ask what is the same, what is different? For example, 6+4 and 7 + 8. The same would be that they both include numbers that are below 10 and they are an addition calculation. The difference would be that the answer is different and one crosses the ten boundary.*

Odd One Out – *Choose two numbers that have something in common and another number that isn't related in any way. For example, 5, 15, 19. (This has two options, 19 is the odd one out because it is not in the 5 times tables or 15 is as it is not a prime number).*