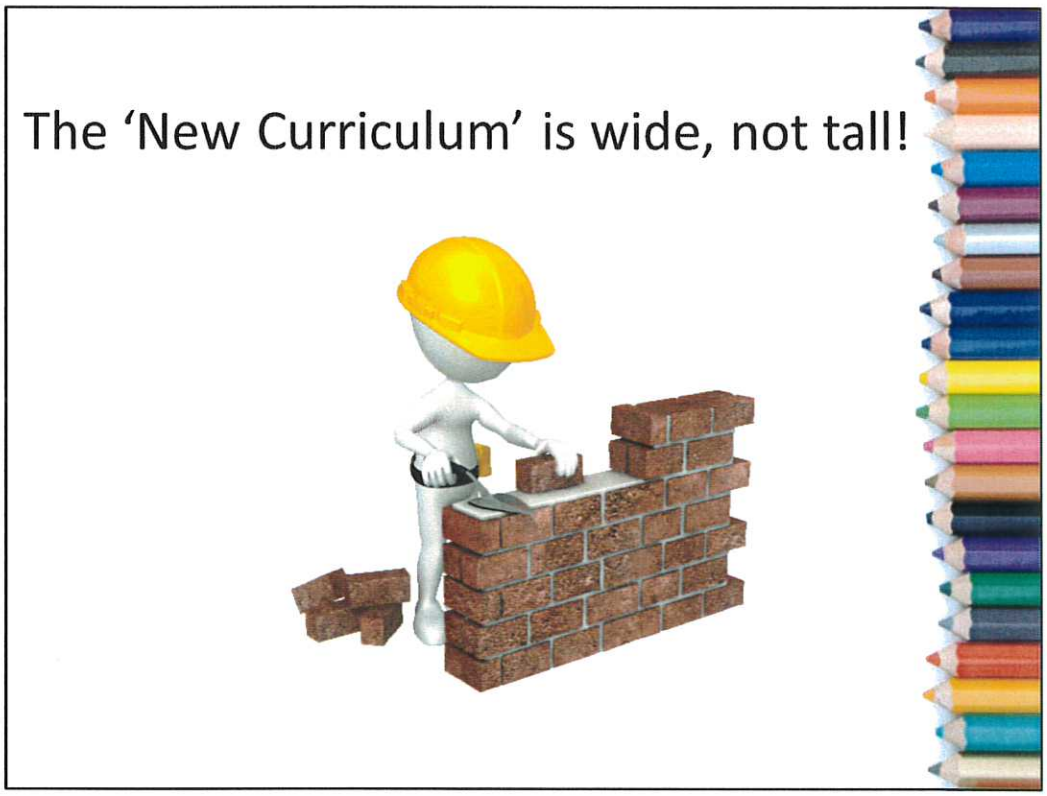
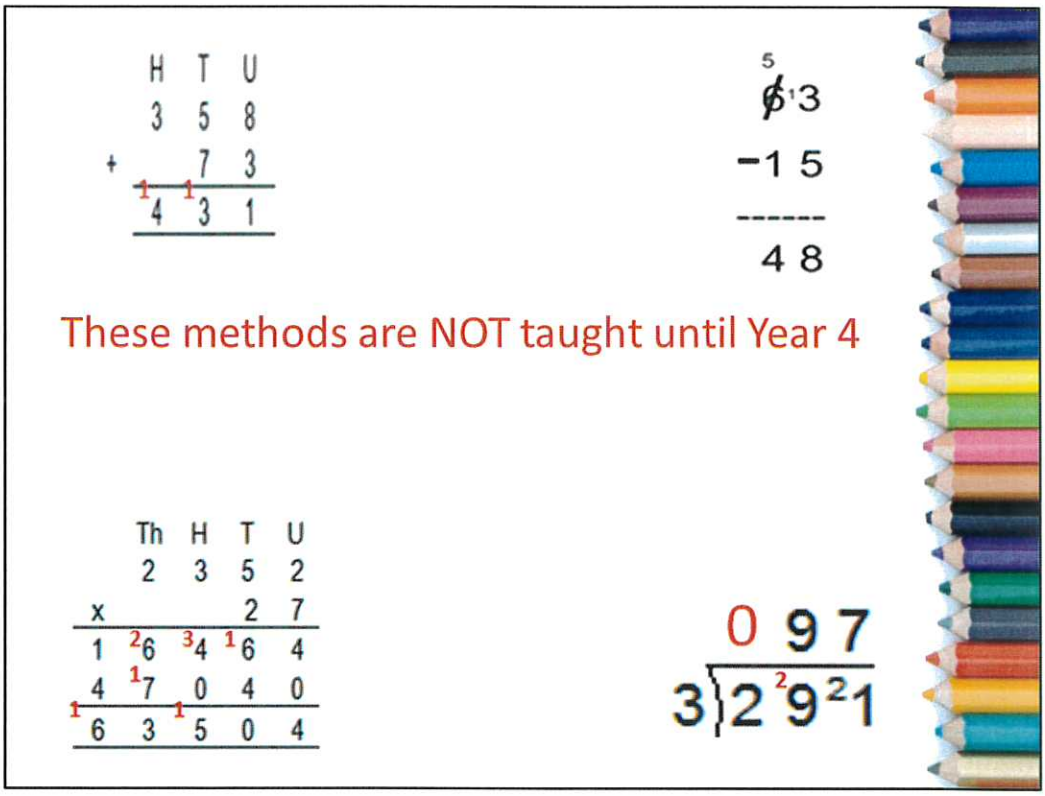
Top Tips for Maths at Home: What to do and what **NOT** to say!

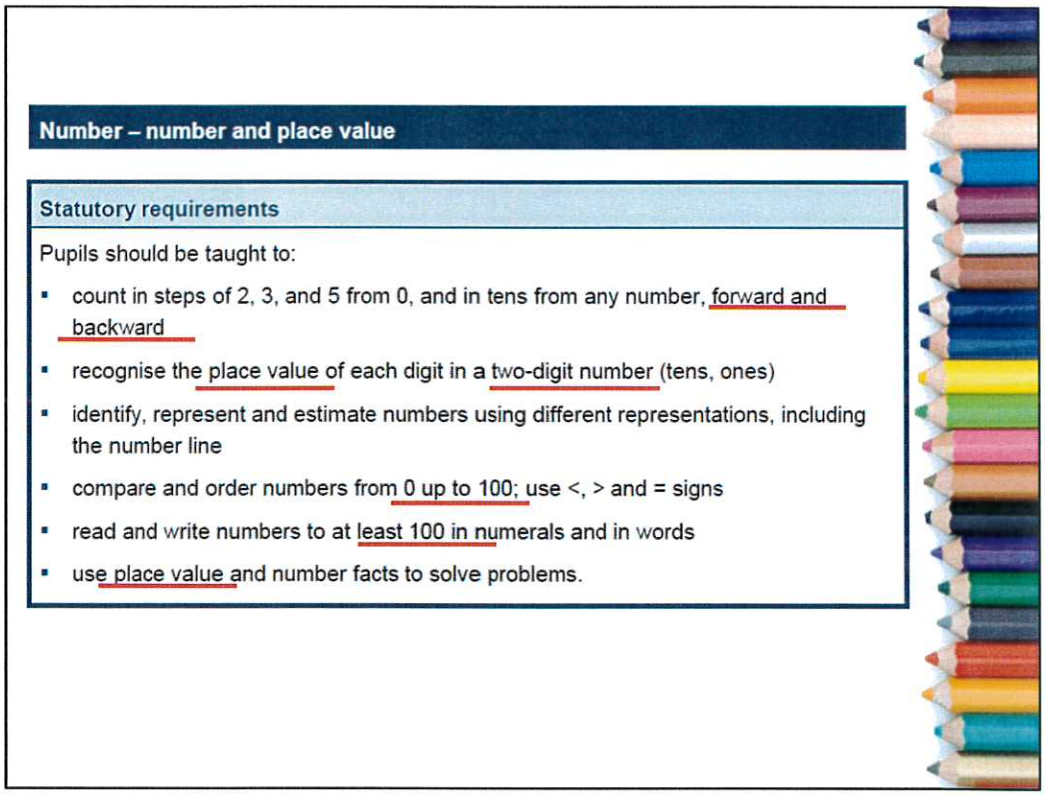
This presentation is designed for the parents of pupils in Year R, Year 1 and Year 2.



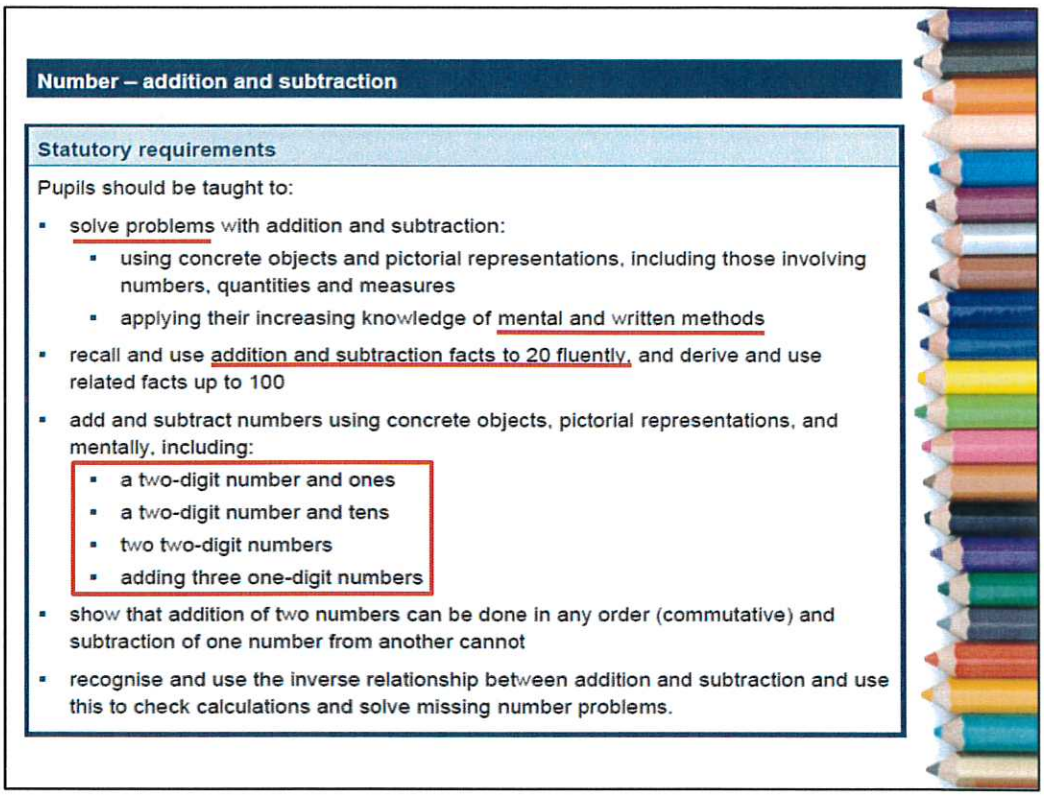
The curriculum which your child is now being taught, is not like the curriculum you were taught at school. Every year, there is a series of 'bricks' that each child has to learn to be assessed as reaching ARE (Age Related Expectations). The curriculum encourages and expects children to have a fluent, deep and secure understanding of each brick and does NOT allow schools to push children onto work which is considered 'ahead' of their age. With this in mind, think about your child's learning as building a wide, low wall. It is no longer the race it used to be to see how far and quickly your child could get.



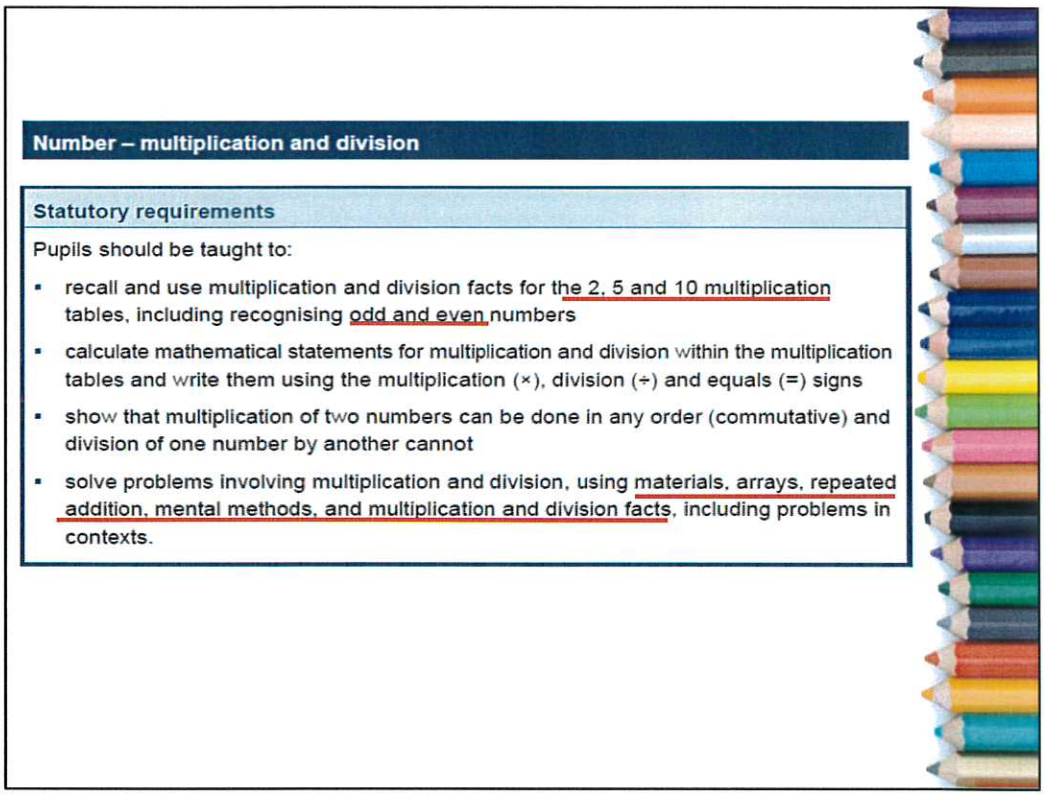
The methods displayed above, will NOT be taught or covered in school until Year 4 and in some cases Year 5. By teaching your child these methods at home before they are taught in school, you run the risk of giving them a misconception about a number's place value and they will not develop the deep understanding of why we carry over, or score out and exchange. The new curriculum is all about why and how. Why does this work? Why do you do this? How could you unpick this idea? How does your knowledge help you solve this?



These images are taken from the national curriculum for Year 2 which you can download from the government's website. The key details are underlined. Notice that the number knowledge is focused around 100, 2-digit numbers and the ability to move forwards and backwards through numbers.

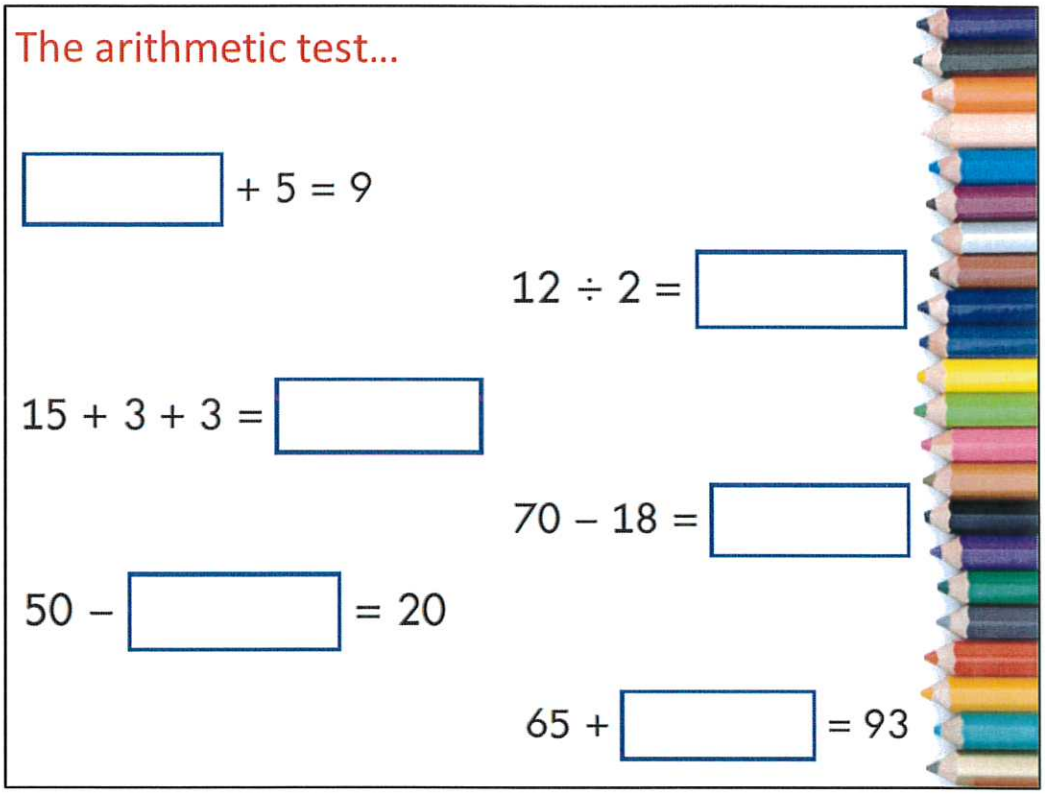


Problem solving includes finding the answers to number sentences like 12 + 8 = as well as solving worded problems. Although the curriculum mentions written methods, this does not mean the formal methods we were taught in school which were displayed on an earlier page. They mean working on a number line, informal jottings and drawing.

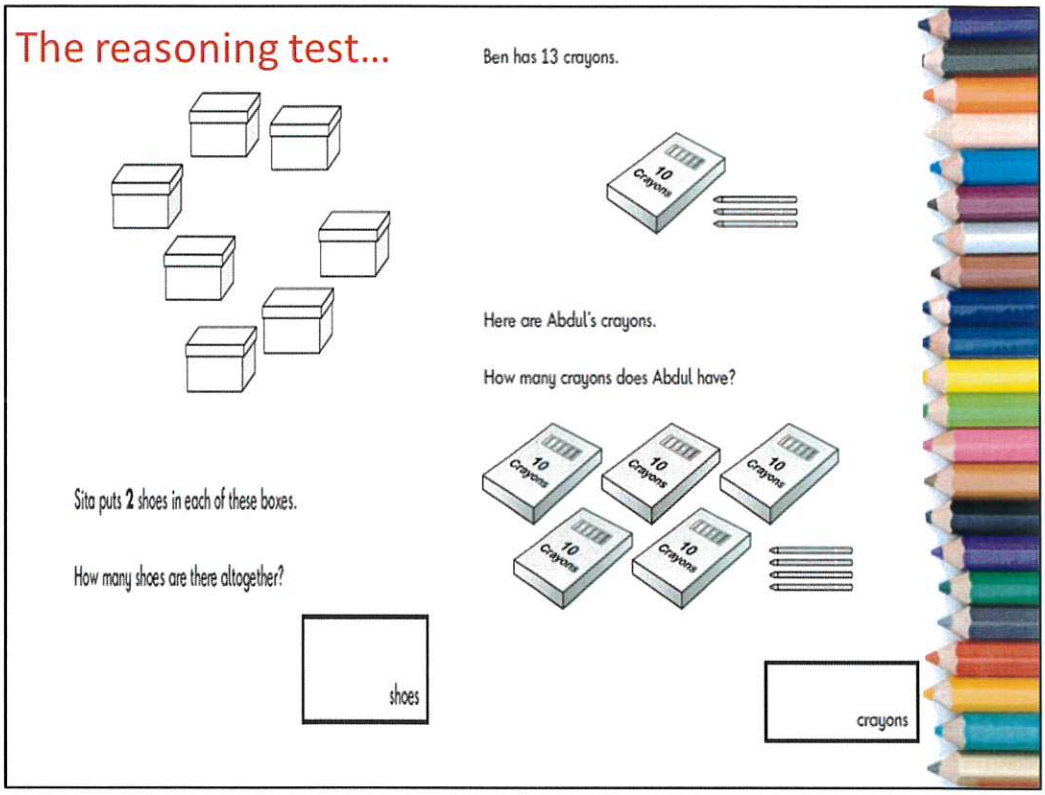


The children are NOT taught times tables until Year 2. Once secured on the 2, 5 and 10 multiplication facts, the school may decide to introduce the 3x table to your child because this links to the objective in place value, of counting in 3s. No other times tables will be taught. The aim is to have a child who fully understands the theory of multiplication, is fluent in the recall of facts for 2, 5 and 10, and is able to verbalise their understanding and use this to reason and solve problems.

The new curriculum is no longer a race. Every child is taught the same objectives but they might be taught them in different ways to their peers. To achieve ARE, your child needs to secure every block, so don't compare your child to others in the playground. They might have different home learning, different reading books or different levels of support. That is because every child will excel in different areas of the curriculum and will receive the support they need as and when they need it. Being great at addition doesn't mean they will automatically be brilliant at shape or place value. The ordering of children and the pushing on of 'able' children doesn't happen any more.



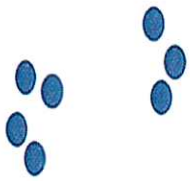
During the SATS in Year 2, the children will answer questions like these. Note that none of the numbers here are over 100.



The children also complete a reasoning test which uses word problems to test their understanding and application of what they have been taught.

Subitising

- The ability to quickly recognising how many objects are in a group without actually counting them. As adults, most people can subitise up to five objects – this is called **perceptual subitising**. We also subitise larger numbers of objects by 'seeing' them in groups of five or less and combining these – this is called **conceptual subitising**. How would you 'see' how many parakeets are sitting on this building?

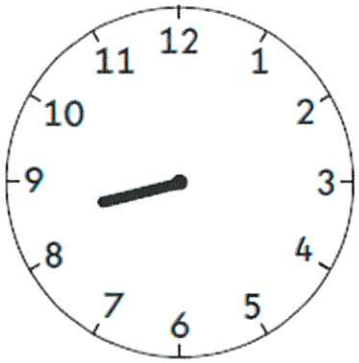


How many dots are here?

At school...

- Compare and sequence intervals of time
- Tell and write time to 5 minutes, including quarter to/past the hour and draw the hands on a clock face to show these times
- Know the number of minutes in an hour and the numbers of hours in a day

Draw the minute hand on the clock to show **twenty-five past eight**.



These are the Year 2 objectives for telling the time. These are what we will be building towards in school.

At home...

- Compare amounts of time

  (How long do things really take? Can they estimate time realistically?)
- Time of key events

  (Daily time table: breakfast, diner, bath/bed time)
- Play with stop watches

  (time different events, who can stop closer to x?)
- 'Normal Clocks'

  (Do you have analogue clocks available?)
- Visual calendar

  (Day of the week, months of the year, before, after, next, then)

Children really struggle with the idea of how long something really is. If they can build up a deep understanding of how long a second, a minute and an hour are, it really helps them to tell the time and to reason with questions related to time.

Table Task...

On a 'post-it' write down one event/activity you have done in the last week.

Share your 'post-it' with your group and then put them in time order from shortest to longest.

How to use this with your children...

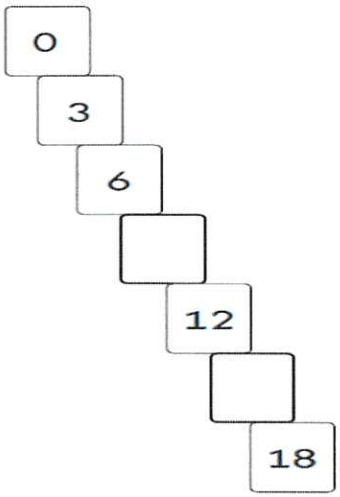
Do this as a family and then discuss how long they think each one took? Why? How does this compare to xyz?

You could time these events next time!

In school...

- count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward

Write the **two** missing numbers in this pattern.



Notice that counting in 3s reappears here. It features heavily in the sample SATS papers.

At home...

- **Board games**
  (Count and 'sticker' in sequences of 2, 3, 5. What would the pattern be if we go up/down in 5s? Will your number be more or less than mine?)
- **Playing cards**
  (Playing 'pairs' to 10/20, find the 'missing' number, continue the pattern)
- **Sequences**
  (Build the missing numbers or a full sequence with Lego/blocks/toys)

The idea to 'sticker' means to put coloured dots on the numbers to show the pattern of 2s, 3s, 5s etc. This visual aid helps the children to see the patterns which are formed. Most 'dot' stickers will peel off of shiny game boards but it is always good to test on the corner!

Try this...

Put the playing cards face down on your table. Turn two over. If they make a total of 10 or 20, you can keep them. If they are not, turn them back over and the next person can go.
(Ace = 1, Picture card = free choice!)

You could also try...

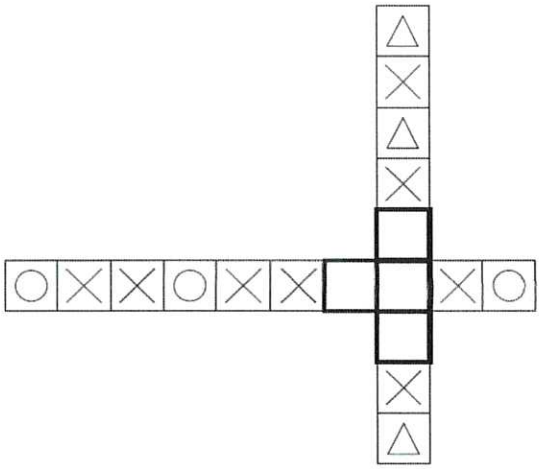
Turn all the cards face up, which 2 cards make 10/20? How many different combinations can you make?
To extend further, which 3/4 cards will make 10/20?

In school...

- order and arrange combinations of mathematical objects in patterns and sequences

Here are two shape patterns.

Draw a shape in each empty box to make the patterns correct.



At home...

- **Pasta patterns**

  (It is really cheap! You could thread patterns onto bracelets or necklaces, paint a certain pattern on etc. Christmas craft is a great way of doing maths without the children knowing they are doing maths.)

- **Lego**

  (Repeating patterns, make and copy, investigate symmetry)

- **Look in mirrors**

  (Which hand is waving? Why is police spelt backwards on the front of the car? What happens in spoons ,is the reflection the same?)

- **Threading beads**

  (Set challenges for colour/pattern which could be used as presents at Christmas)

Try this...

Take a handful or two of Lego and create a repeating pattern.

or

As a table, make something symmetrical using Lego.

To extend further...

Set brick limits and challenges

You could also think about potato printing and other arts/crafts

In school...

- recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value
- find different combinations of coins that equal the same amounts of money
- solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change

Amy buys an ice-cream for 90p.

(a) Tick (✓) **three** coins to show how Amy can make **90p**.

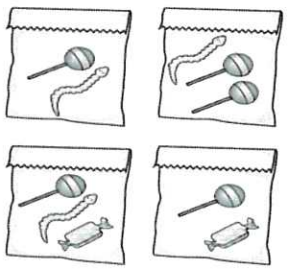
(b) Tick (✓) **four** coins to show another way to make **90p**.

A shop sells these sweets.

2p 5p 10p

Abdul spends exactly **20p** on sweets.

Tick (✓) the bag of sweets he buys.



Although the children will work with pounds and pence, they will not mix the two ideas together. For example, if they are adding they will only use pounds or pence, not both.

At home...

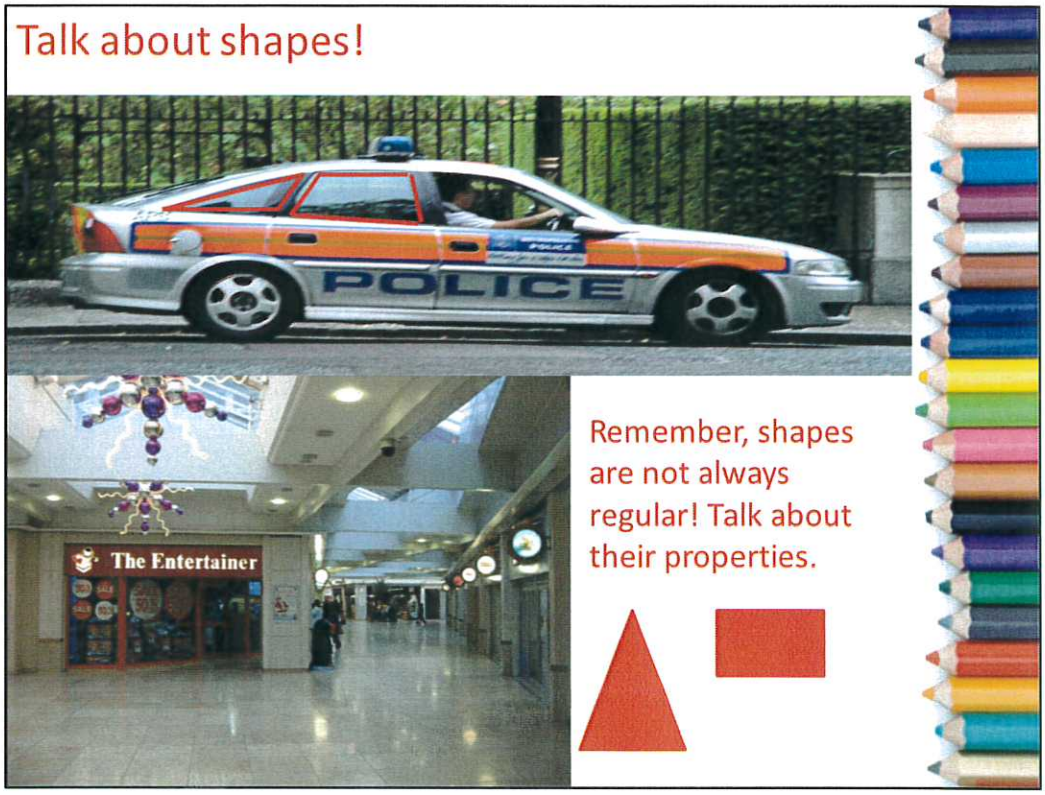
- Go shopping!
  (Let them pay, what will the change be, can we afford it, how much more?)
- Play with money
  (Role play shops, make a menu for dinner, make different totals)
- Pocket money/treats
  (If you can make the same amount two different ways, you can have both piles/which hand is worth more? Pick the hand you would like)

Try this...

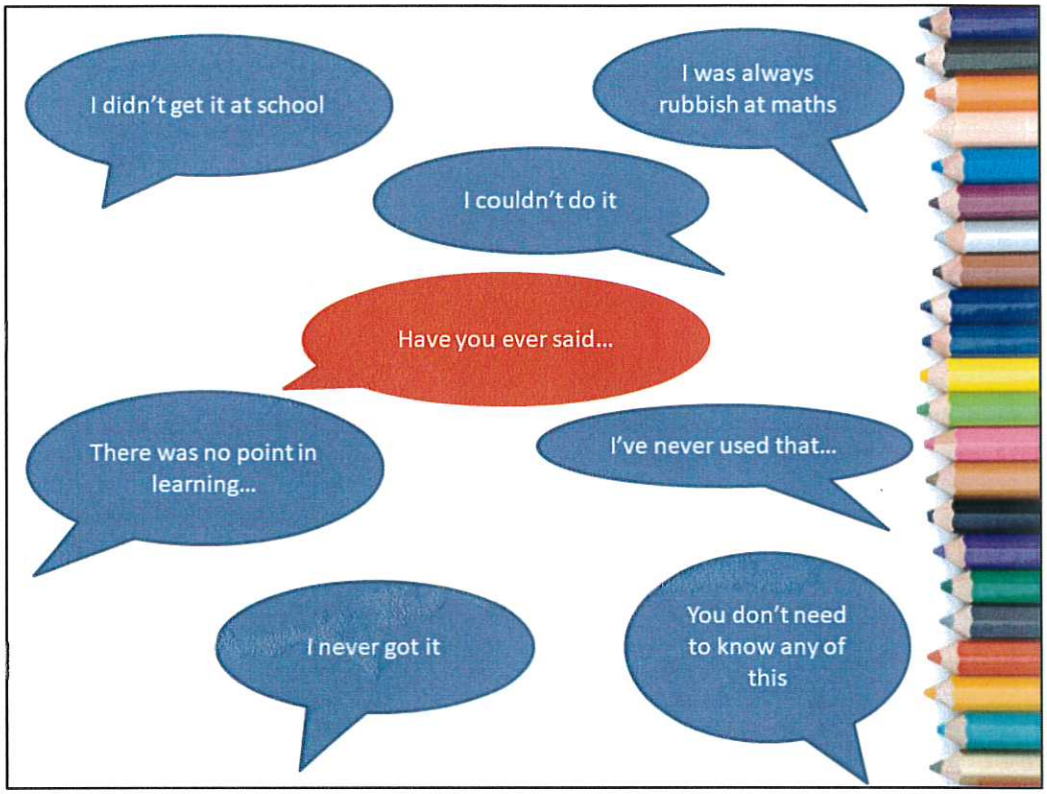
Using the coins on your table, how many different ways can you make 37p?

To extend further...

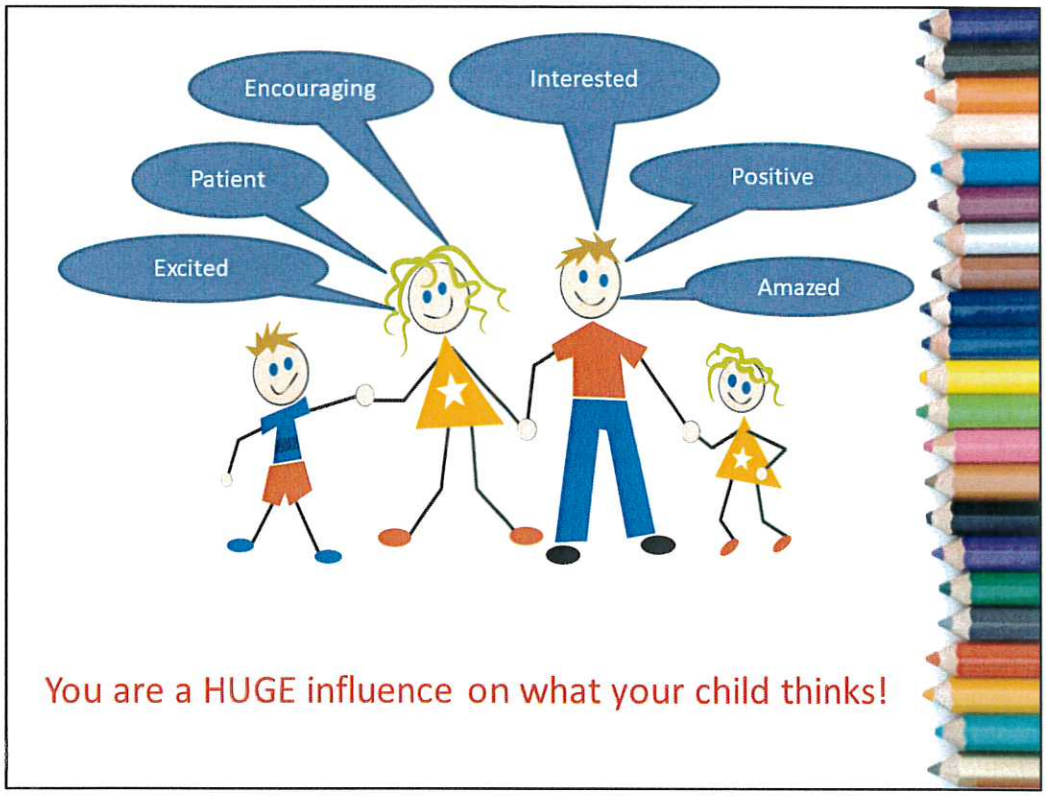
Can you make xyz with 2 coins? How about 3? 4?



Children's mathematics books usually show shapes in traditional orientation like the red examples above. The children really need to know that a triangle is a 3 sided shape. The police car window is a great example of a shape which you could talk about with your children. There are shapes everywhere. How many can you spot in the shopping centre? Having discussions like this whilst you are out and about will really help bring mathematics to life, it'll provide a great context for discussion and will allow your child to reason about what they can see.



Many parents (and teachers!) have a phobia of maths as a result of a bad experience at school. I often hear comments like this during meetings with parents and many have told me this prior to our workshop! Never, ever say this to your child! In their subconscious,they will link that mum and dad are successful and they didn't like or couldn't do maths, so they don't need to do it either. They will also pick up on your negative feelings and they will take these on board. If you are positive about maths (even if you have to act!), they will be more positive about it too. Many people say negative things about themselves mathematically, but wouldn't dream of saying they couldn't write or read well!



With the previous slide in mind, try to be all these things about maths!

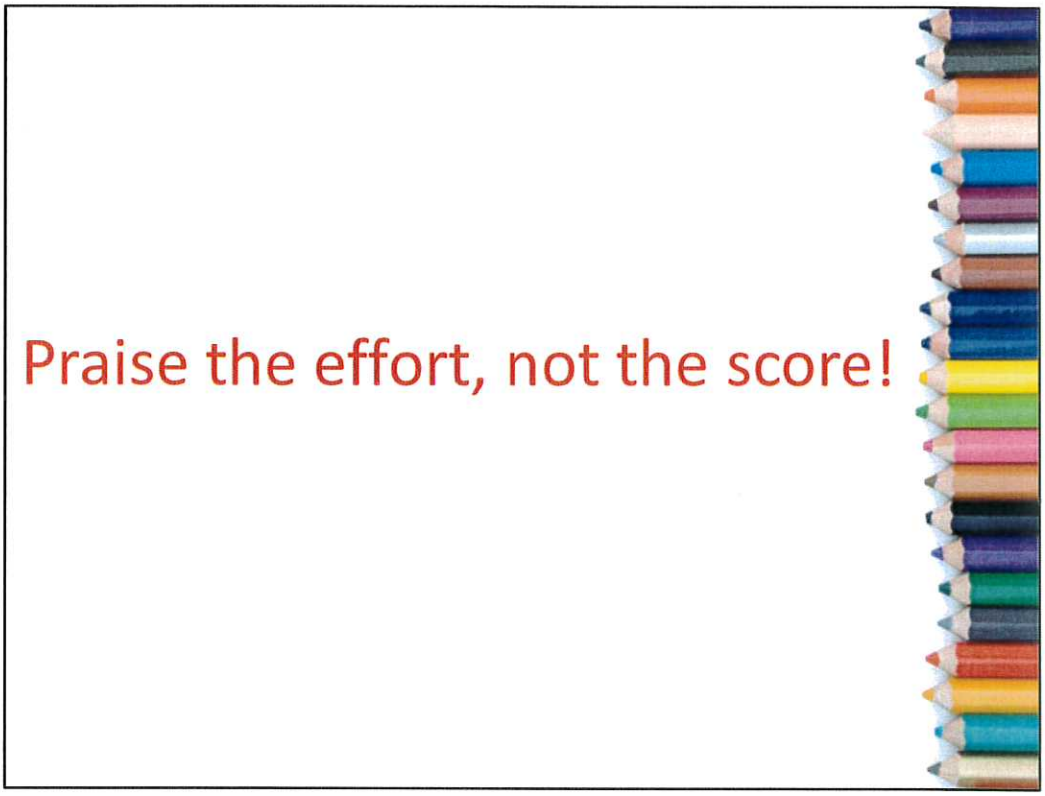
What **NOT** to say (or do)!

- Don't get them to explain the wrong ones
  (They associate explaining with mistakes)
- Don't get frustrated
  (They will not get it right every time, even if they did yesterday!)
- Don't make maths (or homework) a chore
  (Be excited and interested in what they've been sent home!)
- Don't say negative things about yourself
  (It doesn't make then feel better! It associates success without maths)
- Don't show them a formal method
  (They will not have seen it, it doesn't support reasoning and it requires understanding they don't have yet.)

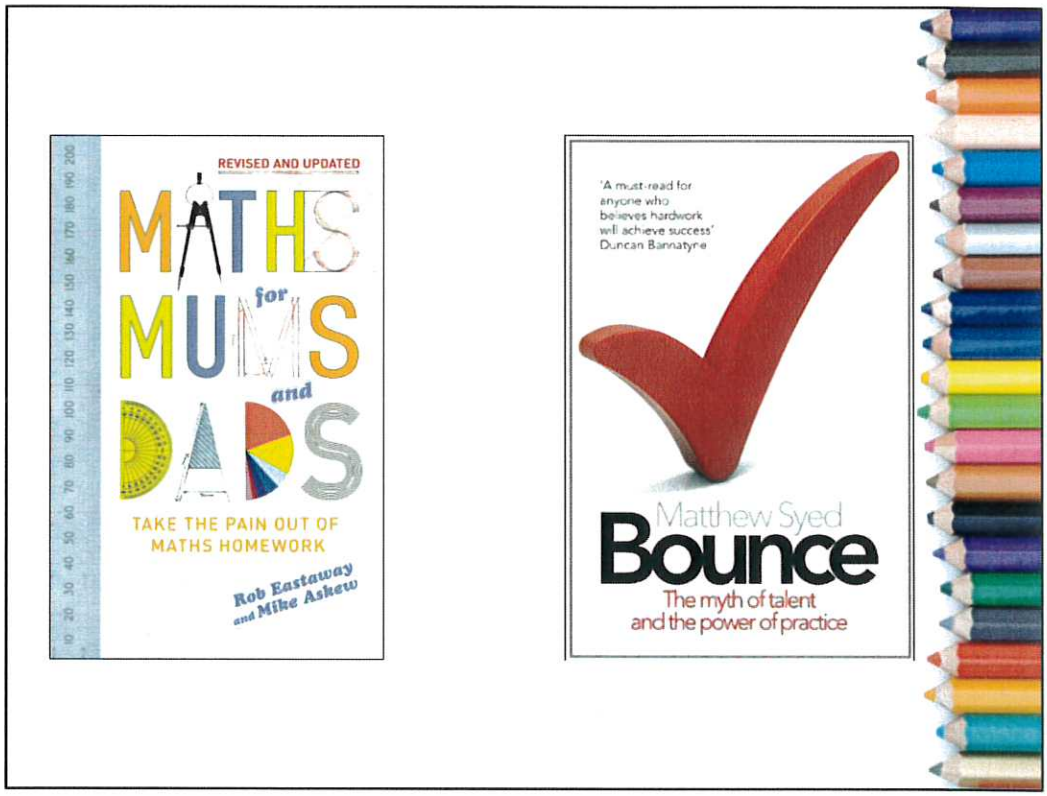
We often ask children to explain the problem or calculation which is wrong so we can help them get better. They soon realise that they are only asked to explain when they are wrong. Because of this, they associate explanation with failure. Ask them to explain one that is correct. Be amazed at the answer and comment on things like, "I'd forgotten an odd+odd = even, that is so cool!" Then try things like, "I make that one 11, what have I done wrong?" and let them teach you by explaining why you're wrong. By building up these positive conversations, you will be able to help them fix errors when they do get one wrong without it being a negative event for your child.

What to do...

- Play games
  (with numbers in!)
- Sneak it in
  (sitting to do sums = boring = resistance (like eating greens!))
  (When you are getting ready to eat, asking things like: "Do we have enough bowls?" or "How many more do we need?" really help to get maths into the day without them realising you are doing maths!)
- Cash, clocks and cooking,
  (Ask the children things like: "I make it 11:30, what do you make it?"
  Cooking is great for reading scales, adding on, subtraction etc.)
- Train and bus numbers
  (Wow – look at that number, it is xyz! Can you find the 40? How many 1s are there? How many more do you need to get to xyz?)
- Be excited by numbers



There are lots of studies about praising effort rather than results and the impact it has on children's learning, effort and end result in terms of testing. If you would like to know more, feel free to talk to Mr Gray on the playground, or, search for Carol Dweck and effect of praise on Google. Please note, we have not checked any of the links which google will produce. This is simply the area of her research.



These are excellent books and very easy to read and dip in and out of. Bounce investigates the idea that people are born with natural talent and therefore, some aren't and will not be as successful as others. There are sections of Carol Dweck's praising effort, not the score as well as lots of examples of how practice is linked to progress and results. Maths for Mums and Dads explains a lot of the new methods of maths which we were not taught as children. It explains why schools do not teach formal methods straight away and areas where your child might struggle. Do not buy Maths for Mums and Dads 2, it is for secondary school aged pupils.