

What can parents do to transform maths for their children?

Advice for parents from Professor Jo Boaler at Stanford University

Here are some steps to take:

1. Encourage children to play maths puzzles and games. Award-winning mathematician, Sarah Flannery reported that her maths achievement and enthusiasm came not from school but from the puzzles she was given to solve at home. **Puzzles and games – anything with a dice really - will help children enjoy maths, and develop number sense**, which is critically important.
2. **Always be encouraging** and never tell children they are wrong when they are working on maths problems. Instead find the logic in their thinking – there is always some logic to what they say. For example, if your child multiplies 3 by 4 and gets 7, say – Oh I see what you are thinking, you are using what you know about addition to add 3 and 4, when we multiply we have 4 groups of 3...
3. **Never share with your children the idea that you were bad at maths at school**, or you dislike it. Research found that as soon as parents shared that idea with their children, their children's achievement went down.
4. **Encourage number sense**. What separates high and low achievers is number sense – having an idea of the size of numbers and being able to separate and combine numbers flexibly. The flexibility to work with numbers in this way is what is called number sense and it is very important.
5. Perhaps most important of all – **encourage a “growth mindset”**. Let children know they have unlimited maths potential and that being good at maths is all about working hard. When children have a growth mindset, they do well with challenges and do better in school overall. One way in which parents encourage a fixed mindset is by telling their children they are ‘smart’ when they do something well. That seems like a nice thing to do, but sets children up for difficulties later, as when children fail at something they will inevitably conclude that they aren't smart after all. Instead use a growth praise such as ‘it's great that you have learnt that’, ‘I really like your thinking about that’. When they tell you something is hard for them, or they have made a mistake, tell them: “That's wonderful, your brain is growing!”