Helping your child with reasoning in mathematics

Year 5

National Curriculum

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

- become fluent in the fundamentals of mathematics,
- reason mathematically
- can solve problems

What is reasoning in mathematics?

Reason mathematically in mathematics is: following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.

Why should you help your child to reason?

The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. Research by Nunes (2009) says that 'ability to reason mathematically is the most important factor in a pupil's success in mathematics…Such skills support deep and sustainable learning and enable pupils to make connections in mathematics'.

Creating and thinking critically at home

- Model being a thinker, showing that you don't always know, are curious and sometimes puzzled, and can think and find out
- Encourage divergent thinking: what else is possible
- Value questions, and many responses, without rushing towards answers too quickly
- Support your child's interests over time, remind them of previous approaches and encourage them to make connections between their experiences
- Encourage your child to learn from their siblings
- Model the creative process, showing your thinking in as many possible ways forward
- Give reasons rather than directive 'rules' for any limits on your child's activities
- Be a sensitive conversational partner and co-thinker
- Show and talk about strategies - how to do things – include problem solving, thinking and learning.

Challenge your child to think and talk about their own learning process with questions such as:

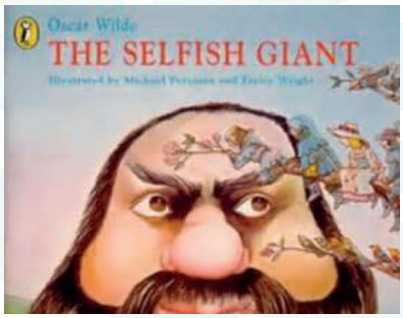
- How did you do that?
- How else could you have done that?
- Who did that a different way?
- What could you do when you are stuck on that?
- Convince me you are right.
- Can you create a similar problem for me?

LONDON BOROUGH OF BEXLEY

Activities and ideas to help your child with reasoning at home

Reasoning in Stories

When reading with your child look for opportunities to practise reasoning



The following activities link to the book:
The Selfish Giant by Oscar Wilde

Convince me that the giant is selfish.

Is the giant right to throw the children out of the garden? Does your opinion of the giant change over time? Why? Why not?

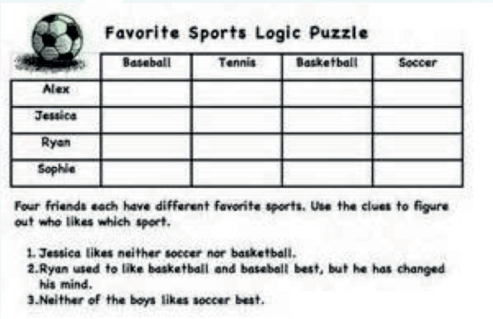
Why is the garden winter all of the time? Which other book it is always winter? Which is your favourite season? Why?

What is the perimeter of our garden? Is the giant's garden larger or smaller than our garden? How many times would a child need to walk across the centre of the garden in order to walk the same distance as someone who is walking around the perimeter?

True or false?
The giant is the same height as five children

Logic problems

Logic problem activities are a great way to develop reasoning.



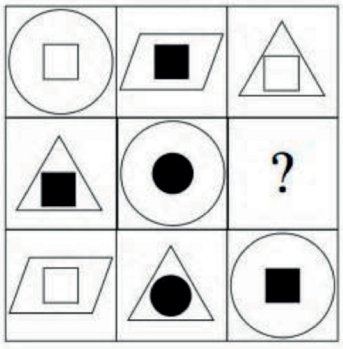
Favorite Sports Logic Puzzle

	Baseball	Tennis	Basketball	Soccer
Alex				
Jessica				
Ryan				
Sophie				

Four friends each have different favorite sports. Use the clues to figure out who likes which sport.

1. Jessica likes neither soccer nor basketball.
2. Ryan used to like basketball and baseball best, but he has changed his mind.
3. Neither of the boys likes soccer best.

What shape should go in the missing space?



Games: Strategy games

Reasoning with Time

True or false?

When is it day time in the UK it is daytime in Australia.

True or false?

There are more minutes in an hour than there are seconds in a minute.

In the Kitchen

Which is more,
1kg of apples or 2500g of apples?

Which is more,
1.7kg of apples or 1007g of apples?

Which is more,
1.25kg of apples or 1025g of apples?

Decisions, decisions: which is the best container to store a drink in?

For further information visit www.bexleyeis.co.uk

If you would like the information in this document in a different format, please call 020 8303 7777 and ask for Communications/Graphics.
The reference to quote is: 605985/1.15

LONDON BOROUGH OF BEXLEY