

# Helping your child with reasoning in mathematics

## 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 at Year 1 is: conjecturing relationships and generalisations, and justification or proof using mathematical language.

## Why should you help your child to reason?

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

- Use language of thinking and learning – think, know, remember, forget, idea, makes sense, plan, learn, find out, figure out, trying to do
- 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
- Aim for a balance of structure and freedom, guiding but not controlling your child's learning
- Build opportunities for your child to play with the materials before using them in planned tasks
- 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.

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

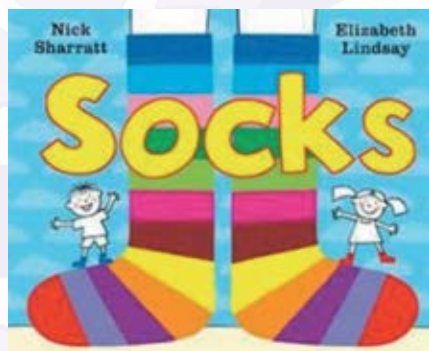
- How did you do that?
- How else could you have done that?
- Who did that a different way?
- What could you do when you are stuck on that?



## 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:

### Socks by Elizabeth Lindsay and Nick Sharratt

Which is your favourite sock? Why?

Which is the most colourful?

Which sock would be most suitable for a boy?

Which sock would be most suitable for a girl?

Which sock would be most suitable for a five year old?

Which sock would be most suitable for a six year old?

Which is the odd one out?

Why don't these make a pair?

How many socks would you need for a dog?

Slowly reveal the crocodile, what do you think it is?

What lies beneath the salty waves?

How long do you think the socks need to be, to be a monster?

Why are the three bears cross?

If you could wear a sock in a different place

where would you wear it?

### Walking to school

The next house number will be...?

Why?

### In the home

Pick three toys, three books or three ornaments and ask your child:

Which one is the odd one out? Why?

What do they have in common?

Ask your child to sort them e.g. how many holes, colours or shapes?

For further information visit [www.bexleyeis.co.uk](http://www.bexleyeis.co.uk)

### In the kitchen

Which spoon would you eat soup with? Why?

Which piece of crockery would you eat a piece of cake from? Why?

### Getting dressed

Get three items of clothing out that are appropriate for different seasons.

Which top would be best worn on a sunny day?

Which top would be best worn on a winter's day? Why?

### Decisions, decisions

Tell your child that he/she is going to make a decision about what he/she is going to wear but he/she must only come to this decision after he/she have considered a range of reasons and used their reasoning skills. Emphasise that he/she cannot make this decision on guess work. Things to consider are: weather conditions, what activity he/she will be doing today. Encourage your child to explain their reasoning as well as their decisions.



Collect a pile of socks from your laundry basket. Ask your child, 'What is similar, what is different?' Help them to compare using one of the following criteria: size, colour, use, materials, parts or shape.

After play the game sock snap with your child.

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