

MATHEMATICAL REASONING POLICY



ADOPTED DATE: OCTOBER 2016

The curriculum and Reasoning

At Glemsford Primary Academy we believe in a high-quality mathematics education which provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

Aims of this policy

To enable all children to reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language

Implementing this policy

All staff are expected to include where possible reasoning questions throughout a unit of work and at least one lesson a week with a focus on mathematical reasoning.

When planning, teachers are to refer to the agreed [Scheme of Work](#) and the [Mathematical Reasoning Progression Documents](#) to ensure that the reasoning questions/strategies are suitably demanding. These can be easily adapted into a range of contexts and can be integrated into classroom routines. They have been gathered from a range of sources including real lessons, past questions, children's work and other classroom practice.

Strategies include:

- Spot the mistake / Which is correct?
- True or false?
- What comes next?
- Do, then explain
- Make up an example / Write more statements / Create a question / Another and another
- Possible answers / Other possibilities
- What do you notice?
- Continue the pattern
- Missing numbers / Missing symbols / Missing information/Connected calculations
- Working backwards / Use the inverse / Undoing / Unpicking
- Hard and easy questions
- What else do you know? / Use a fact
- Fact families
- Convince me / Prove it / Generalising / Explain thinking
- Make an estimate / Size of an answer
- Always, sometimes, never
- Making links / Application
- Can you find?
- What's the same, what's different?

- Odd one out
- Complete the pattern / Continue the pattern
- Another and another
- Ordering
- Testing conditions
- The answer is...
- Visualising

These strategies are a very powerful way of developing pupils' reasoning skills and can be used flexibly. Many are transferable to different areas of mathematics and can be differentiated through the choice of different numbers and examples.

REVIEW DATE: OCTOBER 2017

CHAIR OF GOVERNORS: _____