

Methodology

Building the research base: a summary

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What is the Cambridge Mathematics Framework and how is it evidence-based?

Summary

- The Cambridge Mathematics Framework is a map of mathematical ideas and their themed connections
- The Framework illustrates the mathematics that may be learned by 3-19 year olds
- The Framework is based on a range of research evidence from mathematics, education and psychology
- Secondary research informs content creation and is externally evaluated by international experts in mathematics education
- Primary research (through the work of a Delphi panel) has evaluated the structure and elements of the Framework
- In order to be transparent about what we do, we publish summary papers such as these

Who are we and what are we doing?

Members of the Cambridge Mathematics team have experience in: teaching mathematics; designing assessment, designing resources and curricula; writing textbooks; conducting education research and classroom action research, developing information systems for teachers and designing and delivering professional development sessions.

The team is developing the Cambridge Mathematics Framework: a flexible connected structure, which aims to map the potential mathematics and mathematics learning for 3-19 year olds. The map and its elements are based on research and evidence from a range of different fields, including education, mathematics and psychology.

The Framework and written summaries of different areas within it (called **Research Summaries**) clearly highlight how evidence informs the writing and decisions. Where we cannot find evidence underpinning our decisions, we make this clear, as transparency is an important goal of the project.

By illustrating the connected nature of the subject, the Framework aims to be useful for different users; for instance resource and curriculum developers, teachers, academics and trainee teachers.

Selecting research – how do we choose what to include?

We follow a set of practices to help us choose which evidence to include in the Framework. When writing a section of the Framework, each writer conducts a review of evidence in that area. Based on shared criteria they decide the relevance and quality of each source and if the source should be included in the Framework. Checking if evidence has come from a good **peer-reviewed** source helps to decide whether selected research can be considered trustworthy. The team might also think about whether research is **transferable** and **dependable**.

Evaluating research – how do we evaluate what we write?

The research underpinning the design of the Cambridge Mathematics Framework has been evaluated by an international panel of experts in curriculum research and design. This Delphi panel study allowed the team to collect feedback on the Framework which fed into further work.

The team is currently conducting an **internal review** of Research Summaries and areas within the Framework. This process requires checking the consistency of writing between team members and preparing Research Summaries to go out for **external reviews**. These will be conducted by experts in appropriate areas of mathematics education and research. Their feedback will help the team to decide whether any key pieces of information or research are missing from the Framework and should be included, whether research has been interpreted appropriately and whether the content of the Framework is coherent.