

Maths education policy

Providing a world class maths education to all young people is of vital importance for our future. Policy reforms should be:

- carefully coordinated at all stages of generation, development and implementation
- well designed, with adequate time for planning, piloting and evaluation
- transparent and overseen by an authoritative and expert standing body with a broad mandate.

- **Develop a clear, shared vision for maths education through the implementation of a long-term strategy.**
- **Ensure that reforms are transparent and involve a wide range of subject experts.**
- **Build in time for planning, piloting and evaluation.**

Where are we now?

There is widespread recognition of the importance of maths education.

- Maths education in England is undergoing considerable change.
- A new National Curriculum started in 2014; new GCSE Maths commences in 2015; AS/A level Maths and Further Maths will be introduced in 2017; new post-16 'Core Maths' qualifications will be rolled out from 2015.
- Other reforms include changes to school and college funding and the structure of teacher education.

Year	Curriculum and Qualifications
2014	National Curriculum Core Maths (early adopters)
2015	GCSE Maths Core Maths A level sciences
2016	GCSE sciences
2017	A level Maths and Further Maths

- Some reforms are being introduced rapidly and may lack coherence, for example GCSE and A level Maths reform timescales are widely thought to have been rushed.

The education landscape is shifting.

- The Department for Education (DfE) and the Department for Business, Innovation and Skills (BIS), and their agencies are responsible for different aspects of learning and teaching.
- During curriculum and qualification reform in recent years, government agencies, awarding organisations and individual experts have been involved in reform processes. Not all reform processes have been transparent. (1)
- There has been a significant shift to 'local autonomy' (2), which is leading to a reconfiguration of expertise, responsibility and accountability. 'Local autonomy' is sometimes geographical, as is the case with the Maths Hubs for maths professional development (3), and sometimes virtual, as with academy chains.



What are the challenges?

There is a mismatch between political timescales and what is needed for improving maths education.

- A typical maths education in England lasts from 5-18. Rapid and extensive policy change makes sustained improvements in education very difficult.
- Coherent education reform requires timescales that are considerably longer than the electoral cycle that influences political timescales.
- There is currently no ongoing system of evaluation, monitoring and revision of the curriculum, as happen in many other countries. (4)

Getting coherence in policy reform is challenging.

- Processes of policy advising and influencing are always changing and have not always been transparent. (1) Commercial awarding organisations have been closely involved in recent qualification reform.
- Maths reform cannot be looked at in isolation, given its connections to other subjects, including the sciences and social sciences.
- As multiple organisations are responsible for policy advice, enactment and change, there needs to be joined-up thinking. For example the 'Core Maths' qualification requires coordination across the Department for Education, Department for Business Innovation and Skills, Ofqual, the National College for Teaching and Leadership, schools, universities etc.. (5) (See **Maths Snapshot: Maths for all to 18.**)
- Rapid policy changes may affect retention rates and lead to a loss in specialist maths teacher education expertise at a time when more maths teachers are needed. (See **Maths Snapshot: Teachers of maths.**)



What needs to happen?

1. A clear, shared vision for maths education should be developed with an agreed long-term strategy to realise this vision.
 - A high-level, well-articulated vision for maths education provides a framework for policy. A vision needs a well-designed strategy that can guide coherent implementation of reforms. The process of reform to realise the vision needs continuous monitoring. (6)
2. Reforms should be transparent and led by an authoritative and expert body.
 - An authoritative and expert body with a long-term remit should be established with a broad mandate to include reviewing the curriculum and qualifications in maths, advising on reform and developing a vision for maths education.
 - A wide range of subject experts with experience across all phases of education needs to be involved in this standing body; their selection and involvement should be transparent.
3. Reforms need to be well designed to include time for planning, piloting and evaluation.
 - Changes should be informed by relevant evidence, incorporate piloting where appropriate, and be robustly evaluated.
 - Full reviews of curriculum and qualifications should be undertaken infrequently, perhaps every 10 years as is the case in high-performing jurisdictions. (4) This would promote stability for teachers and learners, and reduce negative effects of constant change. (See **Maths Snapshot: Maths curriculum.**)

1. <http://www.parliament.uk/business/publications/research/briefing-papers/SN06798/national-curriculum-review>
2. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/175429/CM-7980.pdf
3. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/288817/DRAFT_Maths_hubs_guidance_doc_v10.pdf
4. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/184064/DFE-RR178.pdf
5. <https://www.gov.uk/government/publications/core-maths-qualifications-technical-guidance>
6. <https://royalsociety.org/~media/education/policy/vision/reports/vision-full-report-20140625.pdf>