



Maths Horizons Project: Terms of Reference

1) Overview

10 years after the national curriculum was last updated, the Government has launched its much-anticipated [review of curriculum and assessment in England](#), led by Professor Becky Francis CBE. This review has wide [terms of reference](#), covering all subjects, and has signalled that it will focus on 'evolution not revolution'. It is scheduled to report back by Autumn 2025, with any changes unlikely to be introduced until Autumn 2026, at the earliest.

Following the launch of the Francis Review, we are announcing the **Maths Horizons Project**, a new rapid review of mathematics curriculum and assessment. This review will be independent of the Francis Review, but is intended to inform and support it, with a deep focus on mathematics and related disciplines.

The Maths Horizons Project will be chaired by Professor Lord Tarassenko, President of Reuben College, Oxford, and former Head of Engineering Science at the University of Oxford. It will be co-led by Dr Helen Drury and David Weston, both former mathematics teachers, and the founders of Mathematics Mastery and the Teacher Development Trust, respectively.

The Chair and Co-Leads will be supported by an Executive Group, comprising experts from primary, secondary and further education, as well as higher education and industry.

As well as drawing on the Executive Group, the review will seek input from practitioners and other experts, including teachers, mathematicians and education researchers. It will consult widely with schools, further and higher education institutions, and with businesses, particularly those that rely heavily on mathematics, including in AI, data science and quantum computing.

The review will have a wide scope, covering all key stages, attainment levels and qualification types, including academic and technical. It will consider the full range of pathways and abilities, as well as issues around under-representation and disadvantage.

The methodology of the review will be focused on analysis and implementation. It will begin by outlining the 'must-haves' for any new curriculum and assessment model, based on the available evidence.

It will then develop a set of model options, test these with stakeholders, and provide analysis for the short- and long-term implementation of each option. It will report back in Spring 2025.

The review is being supported through a charitable donation from XTX Markets to Purposeful Ventures, a charity that helps to build and strengthen education organisations. The Chair, Co-leads and members of the Executive Group will be acting in an independent capacity.

Opportunity and Need

Mathematical skills are a key driver of discovery, innovation and the economy in the 21st century. England is a global centre for mathematical skills in academia and in industry. We are leaders in many related fields, including AI, climate simulations, computational



modelling for biosciences (e.g. drug discovery), cryptography, fintech and more. These areas of comparative advantage are expected to create economic growth and jobs at all levels; not just scientists, engineers and IP creators, but also technicians and users of technology.

There has been steady improvement in mathematics education throughout the 21st century, starting with New Labour's focus on numeracy and standards, and continuing with the Conservative Government's focus on mastery teaching.

However, this progress should not be taken for granted. In 2024, over 40% of children and young people who took the exams did not receive a grade 4 or above in GCSE mathematics ([Ofqual, 2024](#)). And although mathematics is now the most chosen A-Level subject ([Ofqual, 2023](#)), mathematics degree enrolments have remained flat for a decade ([Wakeling, 2024](#)). There are also gaps in the uptake of mathematics at an advanced level. In 2024, just over a third (37.0%) of entries to A-Level Mathematics, and just over a quarter (27.1%) of A-Level Further Mathematics entries, were from girls ([JCQ, 2024](#)).

In recent years, there has been significant interest in strategies to improve mathematics education and make it fit for the 21st century. This has included the Conservative Government's plans for 'Maths to 18', the Labour Government's commitment to a curriculum and assessment review, as well as an on-going focus across the education sector on teacher recruitment, retention and development.

Additionally, there have been significant consultations and policy proposals in mathematics from learned societies, including the Royal Society and the Academy for the Mathematical Sciences, as well as philanthropic funding for programmes from companies, such as XTX Markets, and from charitable foundations, such as The HG Foundation.

The Maths Horizons Project will be cognisant of the positive trends in mathematics education over the last 20 years, as well as the Francis Review's focus on 'evolution not revolution.' It will also seek to build on the various strategies, proposals and programmes that government and civil society have developed.

It will work quickly, pragmatically and collaboratively to produce a high-quality analysis, with the goal of improving mathematics education for all children and young people¹ in England, including for under-represented and disadvantaged groups.

¹ To note we have used the term 'children and young people' throughout to describe people aged 5-18, which this review is focused on. There are many different terms used to describe different age groups within this range so this broad term is intended to cover all of these.



2) Scope of Work

The Maths Horizons Project starts with the goal that all children and young people should be able to develop excellent mathematical knowledge, to understand the role and value of mathematics, and to have positive and enjoyable experiences of mathematics.

The rapid review will be wide in scope, covering the following parameters:

- Mathematics education in England;
- All key stages, from age 5-18²
- All attainment levels; and
- All qualification types and pathways, including academic and technical.

In terms of content, the rapid review will focus primarily on three areas:

1. Developing and analysing options for the mathematics curriculum, which may include a high-level map of children and young people's progression, but will not include a comprehensive curriculum specification.
2. Developing and analysing options for qualifications and pathways, which will focus on the existing structure of qualifications, but will also consider ideas for potential qualifications reform.
3. An accompanying commentary on system coherence, including how curriculum and assessment relate to other areas such as teacher development and the use of education technology.

3) Methodology

Some reviews of curriculum and assessment consult a wide range of stakeholders in general terms, synthesise their views and then write up a single set of recommendations.

The Maths Horizons Project take a different consultative approach. We will:

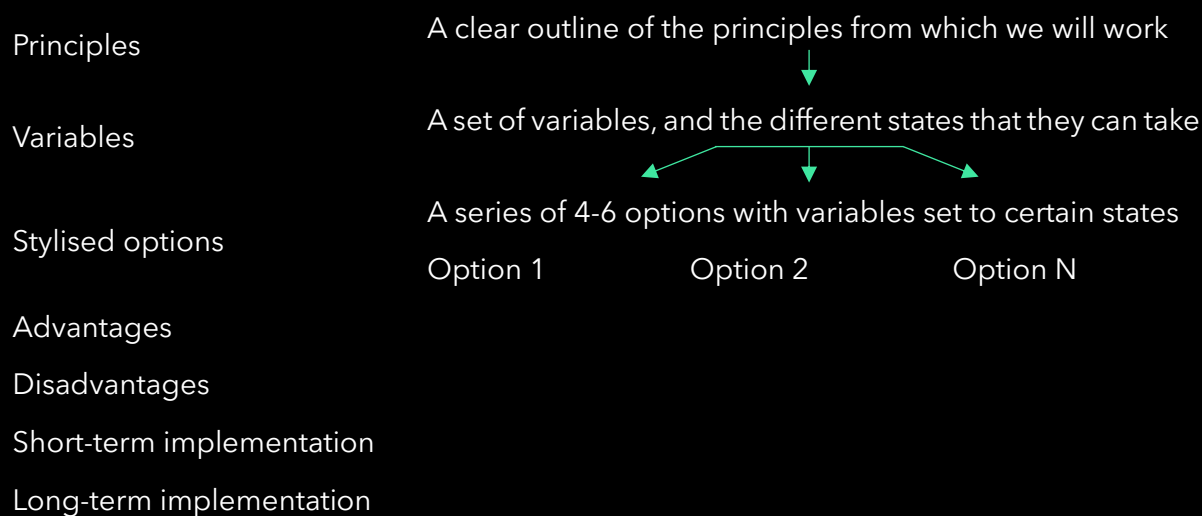
1. Identify principles that should apply to any new curriculum and assessment model.
2. Identify variables which may be changed under different models.
3. Explore the consequences and trade-offs of combining these variables in various ways.
4. Develop a set of 'stylised options' to test with stakeholders.
5. Provide an analysis for the short- and long-term implementation of each option.

This process may or may not conclude with a recommended model. However, the intention is less to arrive at 'the right answer' and more to outline the options, considerations and trade-offs between choices, and how the education system might successfully implement any option.

² While the review will look at the important relationship with early years mathematics and future thinking needed in this space, it will focus on the national curriculum, which begins with Key Stage 1. Similarly, it will consider the important role of learning after the age of 18 – adult learners – but this is equally out of scope from this piece of work.



The following diagram outlines the proposed methodology:



4) Principles

We will be conducting the rapid review based on a set of principles as follows.

1. The goals of the mathematics curriculum should be:
 - a. That children and young people, regardless of their background, should attain a common core knowledge in mathematics and also have the opportunity to learn more mathematics beyond the common core;
 - b. That children and young people have engaging and fulfilling experiences learning mathematics, including studying mathematics for pleasure;
 - c. That children and young people are prepared for further study, including in mathematics and other quantitative disciplines, but also in any other subject that uses mathematics;
 - d. That children and young people are prepared for using mathematics in everyday life;
 - e. That children and young people are prepared for using mathematics in the labour market, with a concern for the likely affects AI will have; and
 - f. That at the age when compulsory education ends, children and young people's mathematics knowledge should be on a par with their peers in any of the highest performing education systems in the world.
2. Mathematics is a universal way of understanding the world, and it is relevant and essential for everyone. The curriculum should focus on the universal nature of mathematics, and it should not dilute or restrict access, based on socio-cultural considerations, to different types of mathematics.
3. Mathematics is a fundamental language to understand all aspects of science and technology, and therefore mathematics will always be important for children and young people to learn, whatever new technologies may arise in the future.



4. The mathematics curriculum must avoid thinking traps like “X children and young people cannot do mathematics” and that “Y children and young people will be fine whatever.” It must ensure that children and young people who struggle with mathematics are properly supported and, equally, must enable children and young people who excel in mathematics to continue to pursue a degree in mathematics or another quantitative subject.
5. This evidence base, where it is available, should inform the design of curriculum and assessment. There is a good evidence base that shows how some features of mathematics teaching and learning are more or less effective, e.g. the Education Endowment Foundation’s systematic reviews and evidence trials.
6. As noted, children and young people should attain a common core knowledge in mathematics, which should be consistent among all children and young people, regardless of their school type, exam board etc.
 - a. This common core knowledge should support the other goals of the curriculum (fulfilment, further study, everyday life, labour market).
 - b. Those who attain the common core knowledge more quickly should have more mathematics content to study within compulsory mathematics (currently to 16).
 - c. Those who have not attained the common core knowledge by the end of compulsory mathematics (currently to 16) should be required and supported to study towards it until the end of compulsory education (currently to 18).
7. The system should incentivise, encourage and support children and young people to continue studying mathematics beyond the end of compulsory mathematics, with a particular focus on those who are currently less likely to take it up in any form.
8. The curriculum should bring mathematics to life for everyone and aim to increase the enjoyment of studying mathematics. It should provide context as to why mathematics is useful, including for careers and in day-to-day life.
9. The curriculum should generally be stable. It is hard to predict the future, but the underlying principles of mathematics are constant, even if the applications of it are constantly evolving. Furthermore, the cost of change is high, e.g. in financial terms, in teacher workload terms. For these reasons, there should be a high bar for content to be included in the curriculum, especially in the common core knowledge in mathematics.
10. Public assessments should validly and reliably assess what children and young people know. They should not give rise to perverse consequences in the teaching or learning of mathematics, and they should support curriculum choices, not drive them.

5) Ways of Working

Chair and Co-Leads



The rapid review will be chaired by [Professor Lord Tarassenko](#), President of Reuben College, Oxford and formerly Dean of Engineering at the University of Oxford. In his role as Chair, Professor Lord Tarassenko will oversee an Executive Group.

The Co-Leads of the Executive Group will be:

- [Dr Helen Drury](#), Dean of Maths Excellence at Purposeful Ventures and formerly Founder and Executive Director of Mathematics Mastery and a secondary mathematics teacher.
- [David Monis-Weston](#), AI Lead at Purposeful Ventures and formerly Founder and CEO of the Teacher Development Trust and a secondary mathematics and physics teacher.

Executive Group

The Executive Group brings together representation from across the education sector and beyond. This includes practitioners and other experts from primary, secondary, further education, higher education and industry.

The members of the Executive Group are:

- [Professor Lord Tarassenko](#) (Chair), President of Reuben College, Oxford
- [Dr Helen Drury](#) (Co-Lead), Dean of Maths Excellence at Purposeful Ventures
- [David Monis-Weston](#) (Co-Lead), AI Lead at Purposeful Ventures
- Shahed Ahmed OBE, Chief Executive of New Vision Trust
- [Peter Foulds](#), School Improvement Advisor for Maths at Lingfield Education Trust
- [Professor Camilla Gilmore](#), Professor of Mathematical Cognition at Loughborough University and Director of the ESRC Centre for Early Mathematics Learning
- [Professor Catherine Hobbs](#), Professor of Mathematics and Mathematics Education at the University of Bristol and Chair of the Heilbronn Institute for Mathematical Sciences
- [Dr Asyia Kazmi](#), Global Education Policy Lead at the Bill and Melinda Gates Foundation
- [Matthew Ley](#), Director of Design Engineering at Rolls-Royce plc
- [Angie Ma](#), Co-Founder of Faculty.ai
- Lisa Pollard, Director of Education for Palladian Academy Trust
- [Nitarshan Rajkumar](#), Co-Founder of the AI Safety Institute
- [Sarah Waite](#), Founder and Chief Executive of Get Further
- [Professor Anne Watson](#), Professor Emeritus of Mathematics Education at the University of Oxford

Non-Executive Group

The rapid review will also have a Non-Executive Group to support governance. This will comprise a group of experts convened by [Purposeful Ventures](#) and include representatives of some of its partner organisations, including Axiom Maths and XTX Markets.

Secretariat



The secretariat support for the rapid review will be provided by [Public First](#), a policy, research, opinion and strategy consultancy. This will include responsibility for managing the ongoing programme of activities, such as gathering input from practitioners and other experts, and supporting communications throughout the project.

Funding

The rapid review is being funded via a charitable donation from [XTX Markets](#) to Purposeful Ventures. XTX Markets is an algorithmic trading company based in London, and a leading donor to mathematics education.