

Children's voices on mathematics

November 2024

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Context

The Children's Commissioner has an ambition that every child has access to a brilliant education, which they are supported to attend and be engaged in every day. Children's experiences of mathematics are an important part of this. Many children say they love maths, but others struggle or do not enjoy the subject. The Commissioner has launched an interactive resource for young people connecting maths to careers, skills and everyday life.¹ Alongside that resource, this report, published to mark Maths Week 2024, shines new light on children's views about mathematics.

Summary

Some children reported they enjoyed maths or demanded more maths in school, while others called on the government to make maths more fun. Children recognised the importance of maths, though some felt too much weight was placed on the subject at the expense of other areas. They saw maths skills as one element of life skills, with some calling for more practical maths education, applicable to real world contexts. There were some concerns about a need for more support for maths, and the pressure of maths exams and assessments.

Methods

This report is based on two sources of evidence which both shine light on children and young people's views about maths. The Children's Commissioner's office carried out new analysis of children's written comments about maths in *The Big Ambition* survey (September 2023 to January 2024) and hosted a roundtable in June 2023 with 15 pupils to discuss maths at a Sixth Form.

In *The Big Ambition*, children and young people aged six to 18 were prompted to write comments in response to the question 'What do you think the government should do to make children's lives

¹ <https://childrenscomm.shinyapps.io/WhereICanGoWithMaths/>
<https://www.childrenscommissioner.gov.uk/jobs-and-skills/maths/>

better?', some of whom mentioned maths, whereas the roundtable more specifically focused on post-16 maths with a group of children aged approximately 16 to 18.

The Big Ambition

The office analysed all the 1,227 comments from *The Big Ambition*, which included the term 'maths'. This represents around 0.7% of the 174,131 written comments that were analysed in total.² As the question prompt did not mention maths, the children who included a reference to maths in their written comments are likely to be those with particularly strong positive or negative views.

Most commonly, negative comments were focused on the then-government's plans, announced in January 2023, to ensure all pupils studied maths until age 18.³ At the time of the survey fieldwork, September 2024 to January 2025, before the 2024 general election and change in government, the policy was in force. Some children explained the reasons for their opposition to it, these included concerns about fairness, relevance of mathematical content, denial of choice at post-16, the impact on wellbeing or enjoyment of college, or challenges the policy would pose to children with Special Educational Needs and Disabilities (SEND). As a commitment under the previous Conservative government, the Advanced British Standard is no longer government policy. Therefore, rather than analysing comments about maths to 18 as a separate theme, this report integrates these comments into the analysis based on the reasons children gave for their opposition.

Sixth Form College roundtable

In June 2023, the Children's Commissioner hosted a one-off roundtable at Sir Isaac Newton Sixth Form Free School in Norwich. The roundtable was formed of 15 pupils in Year 12 and Year 13 in a specialist free school with a focus on maths and science, as well as professionals, including leaders of Academy

² Children's Commissioner's office, 2024. *The Big Ambition: Research*. Available at:

<https://www.childrenscommissioner.gov.uk/the-big-ambition/>

³ Prime Minister's Office, 2023. *Prime Minister sets ambition of maths to 18 in speech*. Available at:

<https://www.gov.uk/government/news/prime-minister-sets-ambition-of-maths-to-18-in-speech>.

Trusts and maths charities. Of the pupils, five were in Year 13 (and 17 or 18 years old), and 10 were in Year 12 (16 or 17 years old). Five were boys and 10 were girls.

The aim was to discuss the then Conservative government's ambition for all children in England to study maths until the age of 18 and what maths skills young people would want to be taught to this age. The Commissioner wanted to hear young people's views on what studying maths meant to them and how it could help them have good careers and live better lives. The roundtable discussed:

- **Skills:** Which maths skills should children learn to 18?
- **Courses and qualifications:** How could maths fit into different post-16 options?
- **Barriers and support:** How could all children be supported to learn maths and transferable skills?

Key themes

Children's views on maths

Children's enjoyment of maths and demand for more maths in school

The children who chose to comment on maths in their written comments are likely to be those with more positive or negative views than typical. Some expressed enjoyment of maths and some called for more maths (or in the case of one 12-year-old boy, "more maths teachers") in school. This included calls for "more tests about maths", "harder maths" and "more difficult maths." One 12-year-old boy also called for "more extracurricular math activities."

"More swimming. No bullying. More P.E. More trips. More lessons after school. More maths. More English." – Girl, 9, *The Big Ambition*.

"I think the Government needs to give [u]s longer time in maths like two hours." – Boy, 10, *The Big Ambition*.

"Different things to learn and do like: [...] in maths we want to learn about how to do long division e.g. 2459 divided by 45 and understand how it works." – Child, 10, *The Big Ambition*.

"The school should do more maths because I like it." – Boy, 10, *The Big Ambition*.

"We should have more maths, English and PE lessons." – Boy, 7, *The Big Ambition*.

Children's views on making maths more fun

Some children called on the government to make maths more fun, or suggested particular ways to make it more fun by changing how it is taught, or the content, such as adding quizzes or making the teaching of maths more varied. One 13-year-old boy argued that this would both "create a better environment at school" and also "help us learn better." Comments of this type were written both by children who did and did not enjoy maths. But sadly, other children simply commented that they did not find maths fun.

“They should make maths more fun.” – Boy, 11, The Big Ambition.

“I find lots of maths and English very hard so my whole day is difficult when I don’t get to do more fun things. The things I am better at.” – Girl, 7, The Big Ambition.

Children made a range of practical suggestions for making maths more fun, varied or rewarding.

“I think that the government should make a children's ambassador programme age 10-18 to represent each subject (e.g. dance, drama, maths) and I think that will help the government find out how children feel about certain subjects and make them more fun.” – Girl, 11, The Big Ambition.

“Instead of doing maths on the whiteboard I think they should make maths games that are fun but educational.” – Girl, 10, The Big Ambition.

“Make a little group, in years 5-6, that helps them with maths, in the morning, so that they feel confident in what they do.” – Girl, 11, The Big Ambition.

“I think they should make school way more fun for example educate us [in] maths but like a quiz basically.” – Girl, 11, The Big Ambition.

One 10-year-old suggested creating “more easier methods to learn things” like maths. Some children, who may not be fans of maths, wanted maths to be made easier.

Children’s mental health and wellbeing

Some children talked about the pressure and stresses they faced trying to study the necessary content for GCSE maths.

“They should help children in the sciences and maths by giving everyone the equations, so the student does not feel overwhelmed by the amount of equations they need to learn for both of the subjects.” – Girl, 15.

“School curriculum needs a large shake up, too much emphasis on unnecessary maths, the level of maths expected most adults don't know and have never had to know or use in their whole adult lives.” – Boy, 12.

Some children included themes of wellbeing or mental health in their comments about the proposals on the Advanced British Standard. Some argued that if the then government had introduced compulsory maths to 18 it would have added to the pressure or stress on teenagers, “make them sad”, or harm self-esteem (in that ‘not everyone will do well’).

*“It's damaging to self-esteem as well as school's grades as not everyone will do well.” – Young woman, 18, *The Big Ambition*.*

*“Prioritise children's health and safety wellbeing over school. Curriculum for A levels has way too much content (some content is from degree level - unnecessary). Can't cover it all comfortably in 2 years. Sort English and Maths teaching in YOUNGER years rather than make everyone carry it on until 18- will be too many A levels for people to take (way too much content).” – Girl, 17, *The Big Ambition*.*

One 15-year-old boy wrote that the then government's policy on the Advanced British Standard would lead to an “extra workload” which “many cannot mentally cope with. This leads to increased stress, mental health issues.”

The importance of maths

The children who attended the roundtable agreed on the fundamental importance of maths skills for their education and everyday life.

“Numeracy should be seen like literacy.” – Young person, roundtable.

“Studying maths does just build your confidence in life so much.” – Girl, roundtable.

“I can't think any area of life where maths skills aren't needed.” – Young person, roundtable.

Even children who were negative about maths recognised its importance. Many children's comments in *The Big Ambition* were negative about their experiences of maths and rejected the idea of making

it compulsory for pupils up to age 18, as was government policy at the time of the survey. However, some explicitly recognised the importance of maths or wrote that maths should be compulsory:

*‘Make lessons shorter with more lessons included apart from English and Maths as these are the most important subjects.’ – Boy, 15, *The Big Ambition*.*

*‘Pick any lessons you want and pick what class you’re in apart from maths and English you have to do them.’ – Girl, 11, *The Big Ambition*.*

*‘Make sure Maths and English are compulsory but allow more options.’ – Boy, 16, *The Big Ambition*.*

Though homework, including maths homework, came in for criticism from many children, one girl singled out maths homework as a type of homework which should remain in place:

*‘We should only get homework for the essential subjects like Maths, English and Science and maybe Languages.’ – Girl, 11, *The Big Ambition*.*

Children’s views on the amount of importance placed on maths

Some children recognised that maths had an importance but felt that too much weight was placed on it, at the expense of other valuable areas of skills and knowledge.

One 13-year-old boy wrote that school “seems to be all about maths and English” and was among the children who preferred creative outlets in school and called for more of creative opportunities. Relatedly, the idea of maths to 18 was described by one 18-year-old young woman as “making us into robots.” However, not all children agreed with this view, with one 14-year-old boy writing:

*‘Get rid of pointless subjects such as drama, art, music. Just a waste of time, replace them with more English and Maths lessons and life skills lessons.’ – Boy, 14, *The Big Ambition*.*

Other children were negative in their comments about maths, with calls for less maths, no maths, or for maths to be removed from the school curriculum. For example.

*‘Don’t make us do maths because it’s boring.’ – Boy, 14, *The Big Ambition*.*

Others focused these comments on maths homework specifically, which came under criticism for the amount of time it took and the pressure it added, with some children singling out their homework provider for criticism.

“They should cut down on the home work as we get a lot especially for maths.” – Boy, 13, The Big Ambition.

“Less pressure with school, we are just kids let us be one! Let us develop without being scared about the maths homework due tomorrow.” – Girl, 14, The Big Ambition.

Maths skills are life skills

Children saw maths skills as one element of a comprehensive life skills offer that would equip them for success in various aspects of life. They emphasised the need for financial and economic literacy, and the numeracy to underpin it. This aligns with previous work by the Children’s Commissioner showing that children would value a greater emphasis on life skills, including financial education, in their personal, social, health and economic (PSHE) education offer.⁴

“Not just maths and numeracy focussed classes. It needs to be focused on general life skills. [...] There are things that are integral that aren't maths. [...] Basic life skills like cooking and cleaning and paying.” – Young person, who struggled with maths due to dyscalculia, roundtable.

“Maths is an integral skill. [...] Maths gives a lot of confidence. Like you're at the shops and something is 20% off and you know how much it costs.” – Young person, roundtable.

“[I want to learn about] getting onto the property ladder.” – Young person, roundtable.

“I know a lot of people who don't understand GCSE math, it's not so simple as teaching financial skills through just one hour a week.” – Young person, roundtable.

⁴ Children’s Commissioner, 2023. *Children and RSHE*. Available at: <https://www.childrenscommissioner.gov.uk/blog/children-and-rshe/>

Children expressed a desire for maths education to be more practical and applicable to real world contexts.

“Showing the importance of maths can be done in form time or PSHE by linking it to something in real life, like by looking at a mortgage. People have to be in form time, and it doesn’t take away from your other subjects, and there’s no exam, you just listen and can apply it to other life skills.” – Young person, roundtable.

“A way of proposing the maths skills which should be taught further into life is for the teacher to teach general life skills like cooking, cleaning, but also things like taxes which should be integral, but it’s not just maths skills we need to know.” – Young person, roundtable.

Confidence in public speaking was seen as an important life skill that was also necessary to encourage participation in science, technology, engineering and maths (STEM) subjects.

“Lots of people don’t have confidence in speaking in front of people as a life skill. That’s why girls don’t always want to do STEM or maths.” – Girl, roundtable.

Specific subject matter suggested included personal finance themes like interest rates, mortgages, debt, investments, taxes and budgeting. Learning how to understand a pay slip and how to pay a bill were also cited. Some children suggested adding this to the maths curriculum, replacing existing maths subject content. Others suggested ways that other parts of the school day could cover these topics.

“They should add subjects like life skills and buying things like houses into the curriculum in order to prepare us for our futures rather than just doing small sections on compound interest in maths.” – Girl, 13, *The Big Ambition*.

“In schools especially in maths I think we should be taught how to mortgage a house, take out a loan etc.” – Girl, 15, *The Big Ambition*.

“Instead of learning about algebra surely we should be learning about things like mortgages and interest rates things we will actually use in life.” – Girl, 14, *The Big Ambition*.

“The government should teach students about how to make money, how to invest and how to pay tax without suffering debt. Not giving more attention to maths.” – Boy, 14, The Big Ambition.

“I think that children should be able [...] to learn about the real world, be able to be ready for life on their own as well as Maths, English etc. they should be ready for experiences like budgeting.” – Boy, 11, The Big Ambition.

“Include learning how to manage money. So things like mortgages, taxes, loans. This can be done in maths or maybe form time in the later years of secondary school so year 10 or something so that we actually know what to do when we leave school.” – Girl, 15, The Big Ambition.

“They should change the curriculum to be more relevant to today for example, budgeting and finance in maths rather than doing surds or Pythagoras theorem.” – Girl, 14, The Big Ambition.

“I don’t know how to open a bank account or take out a loan and I don’t know what taxes I have to pay when I get older. I don’t know any basic life skills that I’m going to need but I can tell you how to find the area of a circle.” – Girl, 15, The Big Ambition.

The lack of practical material and “life skills like money management” made one girl “nervous for the future” as she felt unable to make the smartest decisions with her money due to lack of understanding. She explained that:

“I understand that the maths syllabus is very extensive, and teachers have a lot to cover, but I believe certain things like complex Pythagoras and quadratic equation should be moved into the A-level syllabus, as these are more job specific skills, and people who want to be, for example, an architect will take A-level maths anyway, and so these skills should be in the optional A-level, rather than the mandatory GCSE. I think many life skills like money management are vital, and I know many people like myself who haven’t the faintest idea about things like interest, stocks and shares or mortgages.” – Girl, 14, The Big Ambition.

Many children made general points like these about life skills that would be useful to the future lives of most or all children. Others distinguished between those who would need maths skills and others

who would not. One 12-year-old girl described the subject as “a waste of brain space” for her, as “I’ll never use it because my dream job doesn’t require it”.

Understanding the world through data

In the roundtable, children saw the ability to critically analyse and interpret data and statistics as crucial to understanding the world. They emphasised the need to make informed judgments by discerning what was true and to avoid being misled by knowing which sources were credible.

“Interpreting the news, crunching the numbers and understanding statistics.” – Young person, roundtable.

“Important to figure out for yourselves what’s true.” – Young person, roundtable.

“Not just fake news, but also interpreting personal data like how much you’re saving.” – Young person, roundtable.

“Interpreting statistics is really important, being able to understand a number and figure out for yourself what something is telling you.” – Young person, roundtable.

“You can make statistics say anything.” – Young person, roundtable.

“I don’t think there needs to be loads of math, there’s the skills which aren’t covered by stuff like PSHE. Like understanding literature, understanding the news is really important but school literature is only about regurgitating what teachers telling you.” – Young person, roundtable.

“Maths should teach you to interpret stats in your life: how much you spend on different things; managing your own money. It should reach every county, even those not in school.” – Young person, roundtable.

The young people recognised the relevance of critical thinking skills in personal decision-making and evaluating information in other contexts. Even those children who were not studying maths saw that these were valuable skills for navigating an increasingly data-driven world.

“It’s not a maths issue.” – Young person, who was not studying maths, roundtable.

"It's logical thinking." – Young person, roundtable.

"I don't want to have to study other things that aren't beneficial for my future." – Young person, roundtable.

Solving problems with maths

Children prized problem solving skills highly and recognised that maths skills were integral to developing them. They noted that identifying patterns and applying them to solve problems was a key maths skills used in various areas of life.

"It's about being presented with something that looks complex and then figuring out what you need to do, where you need to go. [...] There's no better way to do that than maths." – Young person, roundtable.

"An underrated part of maths is recognising patterns, like in the medical field where finding patterns in patients is really important." – Young person, roundtable.

"We need to stop calling it maths and call it problem solving." – Young person, roundtable.

Separating functional and theoretical maths

Some children considered that the priority should be functional maths skills taught with reference to real world applications, rather than theoretical maths. Other children highlighted the difficulty in distinguishing between the two and noted that the practical applications of mathematics would vary depending on their future study and career choices.

Children made a range of practical suggestions for how maths could be made more relevant and practical. Some children contrasted the maths they learned in school with the role of maths in most adults' lives.

"School curriculum needs a large shake up, too much emphasis on unnecessary maths, the level of maths expected most adults don't know and have never had to know or use in their whole adult lives." – Boy, 12, *The Big Ambition*.

Similarly, one girl argued that the maths curriculum needed sorting out, because:

"I do not think we will use half the things we are learning." – Girl, age unspecified, *The Big Ambition*.

They suggested ways of teaching, subject matter, and dividing material between basic maths for all pupils, and more advanced content for "those who want to learn more." One 17-year-old boy contrasted "normal maths" with "real maths, to do with taxes."

"For maths we could learn about things like addition, subtraction etc, as we use those in our daily life. And for those who want to learn more they can take an extra course where they learn things like algebra, pi, trigonometry, shapes etc." – Girl, 15, *The Big Ambition*.

Supporting younger children to access maths

Children emphasised the need for prioritising maths education at a much younger age to help foster a greater attitude towards maths for the future. They expressed that better maths education makes it more enjoyable if you embrace maths younger.

"I don't agree with stretching out GCSE maths over longer. [...] It needs to be younger!" – Young person, roundtable.

"It's not an issue for teenagers. We need to teach it younger." – Young person, roundtable.

Building on GCSE maths

Some children saw the need for improvement in how maths is taught in secondary schools. The majority of young people agreed that current GCSE maths education may not be sufficient for everyone. Roundtable participants noted that many young people and adults had poor problem solving skills because they had not understood maths.

"A lot of people don't have the confidence to take A-level maths, in GCSE we need to build confidence." – Young person, roundtable.

"Lots of students don't understand GCSE maths." – Young person, roundtable.

“A change needs to be made. [...] Tweak the GCSE syllabus.” – Young person, roundtable.

Young people emphasised the practical application of maths in various careers and the need for additional skills beyond what is covered in GCSE maths.

“You don't need lots of maths but there are lots of skills that you don't get at GCSE PSHE. [For example] cooking and textual analysis, learning how to read critically.” – Young person, roundtable.

“In most careers you need to use graphs and statistics and analysis. I don't think that is mentioned enough.” – Young person, roundtable.

How could all children be supported to learn maths?

The negative culture around maths

Children talked about the negative culture around maths in and outside of school, noting that this puts children off learning maths. They particularly mentioned parental attitudes and their lack of confidence in their own maths skills.

“Lots of adults don't understand maths and so say they hate it.” – Young person, roundtable.

Children noted the negative impact of prioritising competition over learning within classroom dynamics, exacerbated by the perception that maths was about innate intelligence rather than a set of skills to be learned. Girls, in particular, highlighted the negative impact of competition within maths and how it made them feel inadequate. They saw the importance of reframing failure and creating a supportive learning environment.

“The boys who were whizzy at maths were getting all the gold stars and it made me think I was bad at maths. I got that question wrong but that doesn't mean I'm bad at maths. Failure isn't a bad thing, mistakes aren't a bad thing.” – Girl, roundtable.

“In England we have a culture around maths that it's about smartness. [...] Children who excel at humanities are not seen as academically talented.” – Young person, roundtable.

The experience of girls in maths

Almost every girl present at the roundtable agreed that they had experienced bias in their maths education and that it had put them off maths to some extent. The young people spoke about the need to promote equal engagement, address bias and improve culture, provide positive role models, and foster supportive learning environments for girls.

“It's less of a question on if girls like hard maths, and more if girls are being engaged in maths in the same way as boys.” – Young person, roundtable.

“Are girls being engaged with maths in the same way? No, they aren't.” – Young person, roundtable.

“Why is gender even a question in education?” – Young person, roundtable.

Almost every girl present at the roundtable agreed that they had experienced bias in their maths education and that it had put them off maths to some extent. Several children spoke about the difference in learning maths in co-educational or single gender schools, and how improving their maths skills had given them confidence in other areas of their studies and life.

“It's about perception. I thought I couldn't do maths because that's what I was told. [...] When I went to an all-girls school for the first time my hand up was being taken seriously.” – Young person, roundtable.

“I see a huge divide between an all-girls school where you're encouraged to try different questions, look at the statistics, the news, and engage with the world through maths.” – Young person, roundtable.

Children's comments about increasing support for maths

Some children's written comments focused on the need for more support for maths or maths tutoring. Children recognised that some children need more help than others with maths. One 10-year-old girl commented that 'the system favours students who are strong in maths'.

"More support with maths and English." – Girl, 9, The Big Ambition.

"More support in school for maths tutoring" – Girl, 9, The Big Ambition.

"They could help children who find maths very hard. Teachers can give them extra help and easier lessons." – Child, 10, The Big Ambition.

"Tutors should be for free, for those who feel like they need more help with maths mainly so that they feel more confident in tests and SATS." – Girl, 11, The Big Ambition.

A few children called for equation sheets to be made available to children. One girl explained why:

"They should help children in the sciences and maths by giving everyone the equations so the student does not feel overwhelmed by the amount of equations they need to learn for both of the subjects. So the child can focus on the question in the exam knowing that they have a chance to get it right as they have help as some find it very hard to remember and take in loads of information for the subjects." – Girl, 15, The Big Ambition.

Support for pupils resitting maths

It is current government policy to require pupils who do not achieve a pass in maths to resit this exam at college. This provides a vital second chance for young people who did not secure a pass at GCSE to secure this qualification. Some young people mentioned this policy in their response to *The Big Ambition*.

While this policy gives young people a vital second chance, the process of resitting the maths exam can be a stressful experience. Several respondents to *The Big Ambition* said that the current process for resits sometimes led to a difficult process of being re-entered for the exam and failing multiple times. They said that they wanted a system which gave them the numeracy skills they needed for life

but balanced this aim against their mental health and wellbeing. Respondents mentioned that the process of repeatedly being entered for resits was demoralising, especially when their challenges with the subject stemmed from SEND.

*“One of my peers has been diagnosed with severe dyscalculia [...]. He failed his GCSE mathematics exams and had to resit in his first A level year. He failed a second time [...] and has therefore now had to enter for a second year of resits. [...] it seems rather unfair [...] when he was born with a condition which severely limits his ability to undertake even the most basic of mathematics. [...] as if somebody born without legs was being forced to walk and run.” – Boy, 17, *The Big Ambition*.*

*“I don’t think candidates who fail English and/or maths GCSE should necessarily have to retake them, if the candidate has the ability to really succeed in the subject but they put no effort in then this is a different matter. However, for the few who really struggle with maths and/or English due to disability, autism or dyslexia for example, they should not be forced to sit in a classroom for years afterwards to pass these exams when they could have succeeded in a career which did not require them, for example agriculture or farming.” – Girl, 15, *The Big Ambition*.*

However, some young people stated that the current resit system needed greater investment. One young person said that the government should not persist with the Advanced British Standard reform but instead invest in improving the resit opportunities for children who don’t pass maths at GCSE.

*“Not extending forced lessons further on into A-levels and instead making sure that teachers and schools get enough pay and funding to properly aid those who don’t do as well in subjects such as mathematics and English.” – Girl, 17, *The Big Ambition*.*



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