ROYAL STATISTICAL SOCIETY

DATA | EVIDENCE | DECISIONS

RSS RESPONSE TO ROYAL SOCIETY MATHEMATICAL FUTURES PROGRAMME REPORT

October 2024

The Royal Society recently published its **report and recommendations for mathematical and data education,** as part of its Mathematical Futures programme[1].

As we shared on social media (via LinkedIn and X posts), the Royal Statistical Society is pleased to see some of **our curriculum recommendations** mirrored in the Royal Society's recent report. These include the call for **increased focus** on statistics, data and quantitative literacy in the curriculum, using **real-world, relevant examples** and **digital technology** to ensure that **no pupils are left behind.** As we also set out, statistics and data education should be **joined up** across subjects, and **assessment** should better reflect the skills we value.

We are encouraged to see that the Royal Society view aligns closely with our view in so many respects and are pleased to hear the Royal Society call for **data and statistical education to take a more prominent place in mathematical education**. We agree that the 21st century has brought with it changes in data availability, computing capacity, and statistical methodology that demand a shift towards statistics, data science and computing within the field of mathematics. We recommend that the current Department for Education Curriculum and Assessment review also takes this shift and the necessary demand for statistics and data skills into consideration.

We wholeheartedly support the **need for general quantitative literacy** (which mirrors the statistical analysis cycle) and agree that statistics and data should be **taught in subjects other than statistics and mathematics.** However, we note the need to ensure that this embedding of statistics and data in other subjects is done well, and **not at the expense of more academic statistics** – especially as statistics and data are likely the aspects of 'mathematical and data education' that are most easily transferrable into other subjects. We believe that statistics and data still have a necessary place in the 'foundational and advanced mathematics' stream, as well as within general quantitative literacy and in other subjects.

We are pleased to see the call for increased use of **technology**. This will help data and statistical education to be **relevant and interesting**, so that more students can **enjoy it and engage** with it, and it can provide students with the relevant **skills** they need for daily life and the world of work. We note

[1] The RSS, along with other mathematical societies, provided some financial support to enable this research to be conducted.

the importance of ensuring that technology, such as programming platforms and apps, are used **effectively**, so that the teaching of statistics does not over-rely on unimaginative spreadsheets.

On assessment, we support the introduction of **lower-stakes assessment** (around age 14) to help students master concepts. We also eagerly support the exploration of **alternative methods** of assessment that reflect how statistics and data skills are used in practice, including **non-examination assessment** and the use of **online tools** to aid assessment.

We recognise that significant effort and investment will be required to **support teachers**, in areas including recruitment, training, professional development, and ensuring that teachers are on board with these changes – particularly to enable teachers of **all disciplines** to teach mathematics, statistics and data within their subjects. These calls are reflected in our manifesto, Statistics in Action: A manifesto for empowering society through data, in which we outlined our asks of the new government, including on teacher recruitment and continuing professional development.

The main **difference** between our recommendations and the Royal Society report is our call for statistics and data education to be **separated** from mathematics by the creation of two parallel streams – leading to separate Mathematics and Statistics/Data GCSEs, and the option for students to either take two GCSEs or one dual GCSE composed of elements of both subjects. We believe that separating statistics and data from mathematics would allow for a coherent statistics/data curriculum enabling progression and recognition of these subjects, improving the subject identity and allowing students to recognise the particular aspects they enjoy (or do not enjoy) within mathematical, statistics and data education. We hope that within the three streams of the Royal Society framework (foundational and advanced mathematics; general quantitative literacy; and domain-specific competencies) there remains the option for students to **recognise** the disciplines they are studying and for the curriculum to be **coherent** and **joined-up** and allow for **subject-specific progression.**

Finally, we support the recommendation that the government should sponsor an **independent task force** to plan for long-term changes, and call for **statistics and data to be well represented** in this group. Relatedly, we are pleased to see the Department for Education Curriculum and Assessment review, and hope this review will take into consideration the Royal Society's and our points about the importance of data and statistics for daily skills, the world of work, and future study. The Royal Statistical Society would be pleased to help facilitate representation on relevant task forces and feed in to work in this area.