

What do we do?

Every element of this GCSE Statistics course is built around the data handling cycle: specify the problem, collect the data, analyse the data, and interpret the results. Our statisticians develop the confidence to work with many statistical techniques, including sampling, representing data with diagrams, and performing sophisticated calculations such as standard deviation and Spearman's rank coefficient. The course takes students beyond mathematical processes and aims to foster critical thinking. Students are encouraged to decide whether data is clean and fit for purpose, to identify the most appropriate calculations to perform on it, and to detect misleading information. At the heart of this course is the ability to understand the underlying meaning of data and to effectively communicate it.

How does Statistics equip students with powerful knowledge?

Statistics is arguably the most versatile area of mathematics. The skills developed in this course complement not only the study of Mathematics, but also Science, Geography, Business Studies, and Sports Science to mention just a few. It has been said that the world's most valuable resource is no longer oil, but data. It is our task to prepare our students for life in this fast-changing world, to understand it and fully participate in it.

What skills and cultural capital do students gain in Statistics?

We recognise that the majority of data handling in a real-life context involves the active and effective use of databases and spreadsheets. To address this in the summer term of year 9, students work on a project in collaboration with the Exeter Maths School looking at developing their Excel skills.

How do we support literacy in Statistics?

With a strong focus on technical communication and precise written work, students also acquire a set of very specific literacy skills. Comprehension and analysis of questions is a large part of being successful in Statistics and students also learn to use their words effectively, efficiently and precisely in their answers. These are hugely transferable and useful skills in many areas.

How is the Statistics curriculum designed?

The Statistics curriculum is designed to cover the knowledge and skills required in the specification by the end of year 10, cycle 1. This allows for a great amount of time to be spent in year 10 working in detail on the softer skills of question analysis and exam specific skills to build confidence in students prior to sitting one of their first GCSE exams.

How do you use spaced practice / retrieval practice?

Retrieval practice is a feature of every lesson using Do Now activities to secure the retention of knowledge. These tasks include retrieval of facts, practising key skills and attempting exam questions on previous learnt material. As part of their extended learning students also complete a knowledge quiz every week, which encourages them to be learning the key facts from their knowledge organisers.

What content do you cover and how is this delivered over time?

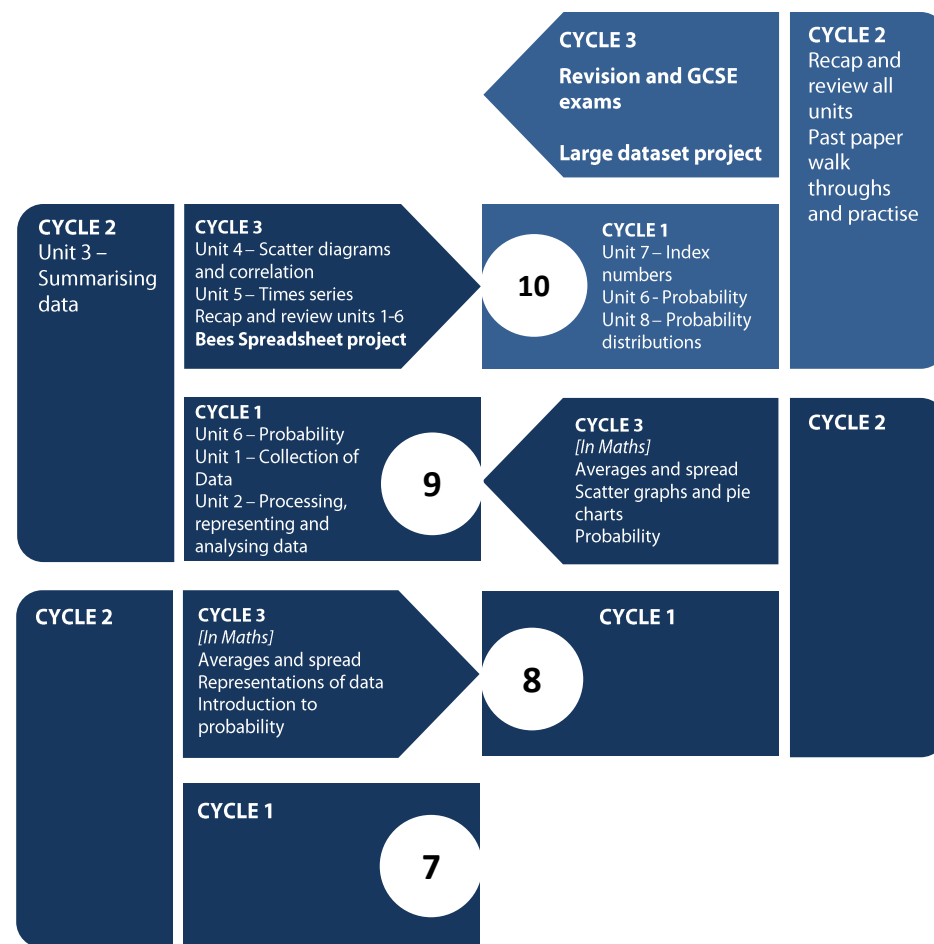
There are 8 units that make up the GCSE Statistics course. The course begins purposefully with unit 6 (probability) as this is one of the more engaging parts of the course to help students connect with the course. It is also one of the more challenging units and so this allows a chance for repetition later in year 10. The majority of the course content is covered in year 9 and the curriculum is designed so that the more challenging units are covered in year 10. This also allows time in year 10 for sufficient exam practise as tackling the wordy nature of exam questions requires practise.

How do you sequence the curriculum so that new knowledge and skills builds on what has been taught before?

Thought and attention has been given to how the course overlaps, supports and builds on the Maths curriculum. The more knowledge heavy content of unit 1 and 2 is covered in year 9, cycle 1 to allow for plenty of time for this knowledge to embed before assessment at the end of year 10.

Future careers in Statistics

Statistician, research scientist, actuary, data scientist, investment analyst, civil service, economist.



EMS Digital project:

- Modelling project developing Excel spreadsheet skills.
- Data analysis using Excel and Desmos.

What do we do?

The Further maths qualification is the focus in year 11 with the aim of developing the higher end algebra, number and geometry skills for these students. Much of the course complements their GCSE Maths learning and really deepens their understanding of the topics in Higher GCSE Maths. It develops student confidence particularly in algebra skills which are key for success at A level Mathematics.

How does Further Maths equip students with powerful knowledge, skills and cultural capital?

As well as complementing their GCSE Mathematics course, Further Maths introduces students to other topics that would otherwise only be seen at A level. Matrices and binomial expansion are both accessible and engaging parts of the course for all students encouraging students to take Maths courses post-16. As part of the course students take part in a project with the Exeter Maths School creating links and offering students an alternative pathway for post-16.

How do we support literacy in Further Maths?

As part of the options course students take part in projects with the Exeter Maths School. The projects culminate in the creation of a written report. Students are given scaffolding and support in the creation of their report and given both verbal and written feedback on their projects.

How is the Further Maths curriculum designed?

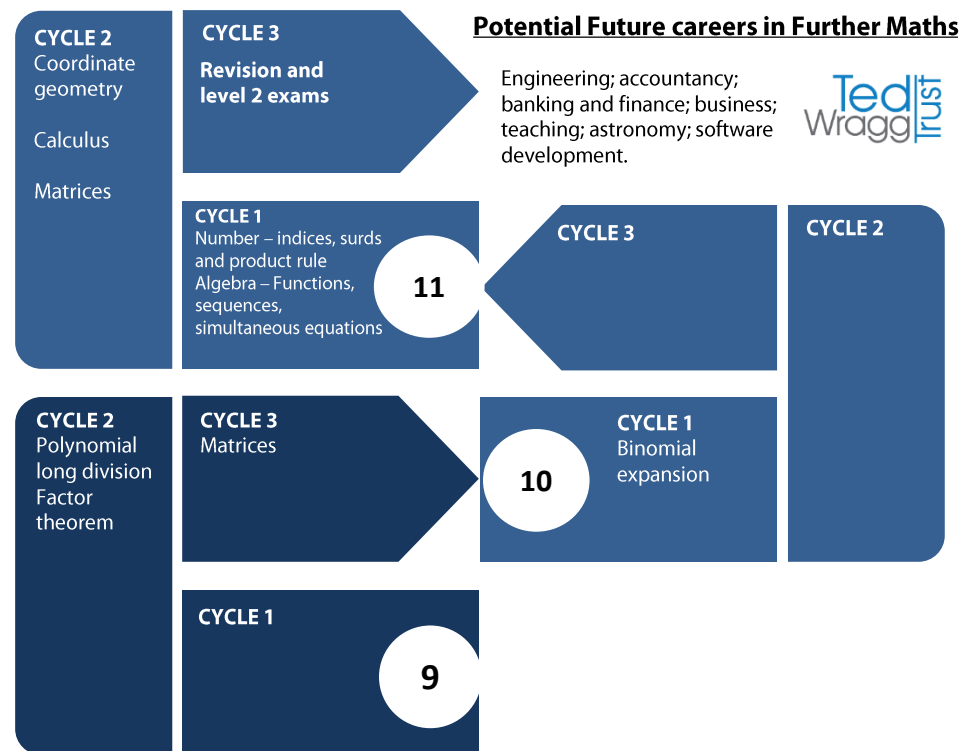
Much of the Further Maths content is only accessible once most of the GCSE Maths curriculum has been covered which is why it is covered in year 11. Matrices can be taught as a stand alone subject and so is covered in cycle 3 of year 9. This is to both engage learners and to allow for repetition of a topic which is not also in the Maths curriculum. Polynomial long division and the factor theorem are covered in year 9 as this aligns with the studying of function notation in Maths. Binomial expansion taught in year 10, cycle 1 lays the groundwork for binomial expansion and distribution in GCSE Statistics.

What content do you cover and how is this delivered over time?

Several strands make up the Further Maths Level 2 qualification: Number, Algebra, Coordinate Geometry, Calculus, Matrices. Where appropriate these are taught in year 9 and 10 but mostly rely on strong knowledge and skills already worked on in Maths.

What content do you not cover (that others might) and why?

It is unusual to cover further maths content in year 9 and 10 but it works well to engage interested learners and to create links between the qualifications in Maths, Statistics and Further Maths.



EMS Digital project:

- Investigation into visual representations of functions using Desmos.