# British Summer School

# Maths

The Maths specialism is delivered by suitably qualified and / or experienced maths teachers and includes 7½ hours of lessons per week.

## COURSE DETAILS 2024

**Centre:** Oundle

**Course:** Academics of the future

**Ages:** 12-17yrs

**Academic Levels:** GCSE / A Level

**Tuition Ratio:** 1:14

**Tuition Time:** 7½ hours p/w

**Days:** Mon, Tues, Wed, Thurs, Fri

**Times:** 13:00-14:30

**Specialism:** Students study a range of Maths topics every week.

**Syllabus:** Adapted from the Cambridge IGCSE Maths Curriculum

## OBJECTIVES

- To increase students' academic and theoretical knowledge in some of the key maths topics
- To experience studying Maths "the UK way"
- To enable students to participate in practical work, where appropriate
- To develop independent study and research skills
- To improve students' English to help them communicate more freely, accurately, and confidently

## OTHER BENEFITS

Academic study brings many benefits such as:

- Expanding and diversifying students' general knowledge
- Improving time management
- Enhancing critical thinking skills
- Developing self-understanding and perseverance
- Increasing employability and career opportunities

## "To improve students' English to help them communicate more freely, accurately, and confidently."

> **"The objective of this specialism is to develop an understanding of mathematical principles, concepts and methods in a way which develops a positive attitude towards mathematics."**

## AIMS:

• Develop an understanding of mathematical principles, concepts and methods in a way which encourages confidence, provides satisfaction and enjoyment, and develops a positive attitude towards mathematics

• Develop a feel for number and understand the significance of the results obtained

• Apply mathematics in everyday situations and develop an understanding of the part that mathematics plays in learners' own lives and the world around them

• Analyse and solve problems, present the solutions clearly, and check and interpret the results

• Recognise when and how a situation may be represented mathematically, identify and interpret relevant factors, select an appropriate mathematical method to solve the problem, and evaluate the method used

• Develop an ability to apply mathematics in other subjects, particularly science and technology

• Develop the ability to reason logically, make deductions and inferences, and draw conclusions

• Acquire a foundation for further study of mathematics or for other disciplines

## OUTCOMES:

### Number

• Ability to identify and use natural numbers, integers, prime numbers, square and cube numbers, common factors and common multiples, rational and irrational numbers, real numbers and reciprocals

• Ability to use the language and notation of simple vulgar and decimal fractions and percentages in appropriate contexts; recognise equivalence and convert between these forms

### Algebra

• Ability to use letters to express generalised numbers and express basic arithmetic processes algebraically.

• Ability to derive and solve simple linear equations in one unknown; derive and solve simultaneous linear equations in two unknowns

### Shape & Space

• Ability to demonstrate familiarity with Cartesian coordinates in two dimensions

• Ability to use current units of mass, length, area, volume and capacity in practical situations and express quantities in terms of larger or smaller units

• Ability to apply Pythagoras' theorem and the sine, cosine, and tangent ratios for acute angles to the calculation of a side or of an angle of a right-angled triangle

### Probability & Statistics

• Ability to calculate the probability of a single event as either a fraction, decimal or percentage

• Ability to collect, classify and tabulate statistical data

• Ability to construct and interpret bar charts, pie charts, pictograms, stem-and-leaf diagrams, simple frequency distributions, histograms with equal intervals and scatter diagrams