



Shrewsbury
Summer School

Darwin Maths Evolution Course

Exploring Maths from Darwin and
Newton to Turing and AI

July 2026



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Course Introduction

Darwin Maths Evolution is an exploration of the discoveries of Charles Darwin and some of the most influential Mathematicians in history through to current day AI.

More than just the “what” of Mathematics, we will discover the “why” and the “how” of the knowledge that underpins the whole subject.

This course will encourage students to be inquisitive and investigative, allowing them to develop a deeper understanding of the language of Mathematics and logical links within it. Through studying this course at Shrewsbury, pupils’ eyes will be opened to the unity within Mathematics, preparing them for more advanced study. This, alongside team

challenges and competitions, encourages pupils to develop a critical knowledge and ability to communicate mathematically.

Through classroom discussions, practical experiments, and eye-opening trips, this course is guaranteed to provide an unmatched insight into this interesting subject. Through the variety and depth of the unique methods of discovery, this course is certainly serious fun and will help to shape students’ future studies or careers in Mathematics.



Ages : 12 - 15

Date : 5 - 18 July

Price: £3,950



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The Course

This course is designed to be delivered to students between the ages of 12-15.

The course will be based in Hodgson Hall, situated prominently on the school site and overlooking the River Severn, where centuries of Salopians have been taught.

We will spend time looking at how Maths was intertwined with the story of Charles Darwin. Over time, species evolve and adapt to the ecosystem around them, but at what rate does this happen, and can we calculate the probability of certain characteristic changes permeating through the specie?

Newton's experiments changed humanity's understanding of the world around us. Through looking at Shrewsbury's first edition of *Philosophiæ Naturalis Principia Mathematica*, we will repeat Newton's groundbreaking experiments and come to the same conclusions that transformed the world.

Computing is currently changing the world around us at an astounding rate. Ava Lovelace is regarded by many as the Mother of modern computers; we will look at her work and then use Micro:Bit computers to demonstrate the power of computer code on a small scale. We will also spend some time looking at the power of AI and the Mathematical logic behind it.

Maths shortened WWII by over 2 years. Alan Turing, a brilliant Mathematician who studied at Cambridge and Princeton universities, design a Mathematical machine which cracked the Enigma code which the German army used to communicate through WWII.

We will look at Turing's work and the logical process behind cracking a cipher. We will look at how Maths can allow us to optimise problems in the real world. We will use Kruskal's, Prim's and Dijkstra's algorithms to design 'ideal towns'. We will also investigate graph theory and it's applications to designing the perfect country flag.

Throughout the course, we will be learning about high level Mathematical techniques and we will complete several challenges provided to us by the UK Mathematical Trust.



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Course Overview

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Week 1 Example Timetable

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
7.30 - 8.30	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast
Morning Session	<p>Welcome and Orientation An insight into the life of Darwin at Shrewsbury.</p> <p>The Probability of Evolution An investigation into modeling evolution using probability techniques to estimate the likelihood of traits being successful adaptations.</p>	<p>Team Maths Challenge Completing a team maths challenge provided by the UK Maths Trust.</p>	<p>Issac Newton's Moment of Genius Exploring the life of Sir Isaac Newton and recreating his famous apple drop moment.</p> <p>Isaac Newton and His Findings A tour of the school archives and a look at Shrewsbury's first edition copy of <i>Philosophiæ Naturalis Principia Mathematica</i>.</p>	<p>Trip: London Including the London Natural History Museum, Imperial College London, and an Open Bus Tour.</p>	<p>Newton's Laws in Space A history of geocentric and heliocentric models of the Universe - what mathematical breakthroughs changed everything?</p>	<p>Connecting Towns Efficiently Looking at Decision Maths in the real world and exploring Kruskal's and Prim's algorithms, in the context of Steiner Problems.</p> <p>Colouring in Maps Efficiently Looking at the Four Colour Theorem and an insight into graph theory.</p>	Leisure activities at School
12.30 - 1.30	Lunch	Lunch	Lunch		Lunch	Lunch	
Afternoon Session	<p>Fisher the Darwinist Examining the work of Ronald Fisher, a British polymath who first combined Darwin's natural selection theory with other disciplines and explored its mathematics.</p>	<p>The Millenium Problems Exploring some of the problems posed by the Clay Mathematics Institute in 2000. \$1,000,000 prize for solving!</p>	<p>Isaac Newton and His Experiments Using an air track and light gates to replicate some of Isaac Newton's experiments to derive his Second Law of motion.</p>		<p>Maths in Space What is the link between astronomy and the angle inside a circle? Investigating the influences behind mathematical reasoning through history.</p>	Onsite Activities	
6.00 - 7.00	Supper	Supper	Supper	Supper	Supper	Supper	
7.00 - 9.00	Evening activity	Evening activity	Evening activity	Evening activity	Evening activity	Evening activity	

Course example timetables may be subject to change.

Course Overview

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Week 2 Example Timetable



Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
7.30 - 8.30	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	
Morning Session	<p>Trip: National Space Centre We will spend the day at the UK National Space Centre, looking at how Newton's Laws are observed in space from Earth. We will have workshops on "Rocket Science" and spend time in the full-dome 360-degree planetarium. We will also start our study of coding with a workshop on making our own Mars Rover.</p>	<p>Ada Lovelace Who was she and why did she change computing forever?</p> <p>Practical Creating codes on Micro:Bits using computer code.</p>	<p>Trip: Bletchley Park This is the site that the Enigma code was broken in WW2 by Alan Turing. We will be able to spend time looking at codes and ciphers used throughout history, specifically looking at the Engima machine, 'the Bombe' and the wider operations of Bletchley Park.</p>	<p>Puzzling problems - can you crack the cipher? We will look at different types of ciphers and look at how you can use numerical analysis to crack them.</p> <p>Who was Alan Turing? A brief history of his achievements and a study of how he managed to crack the enigma.</p>	<p>Team Maths Challenge Completing a team maths challenge provided by the UK Maths Trust.</p>	Transfers and travel
12.30 - 1.30		Lunch	Lunch	Lunch	Lunch	
Afternoon Session		<p>Practical Creating codes on Micro:Bits using computer code.</p>	<p>Could you be the next Alan Turing - crack the enigma We will look at the building of 'the Bombe', Turing's code breaking machine.</p>	<p>How to win a strategy game Gaming Afternoon in Shrewsbury Games Cafe. (Go, Othello, Chess, Bridge and Cribbage)</p>		
6.00 - 7.00		Supper	Supper	Supper	Supper	
7.00 - 9.00		Evening activity	Evening activity	Evening activity	Evening activity	

Course example timetables may be subject to change.

Course Features

On this course, through a series of engaging, practical lessons, students will be inspired by the work of Darwin, Newton, Lovelace and Turing and discover how Maths has shaped the world around us, whilst they learn about AI preparing them for further study or careers beyond learning.

Excursions:

As part of this course students may have the opportunity to visit key locations across the UK, such as:

- ✦ Bletchley Park - the home of Alan Turing's Enigma machines, the Bombe, which cracked the Enigma Code and changed the course of World War II.
- ✦ Science and Industry Museum, Manchester
- ✦ Oxford University
- ✦ Shrewsbury and Shropshire
- ✦ National Space Centre, Leicester

Activities:

Afternoon and evening activities will allow students to mix socially and enjoy fun sessions. Below is a list of examples of sessions for 2026:

- ✦ Bubble football
- ✦ BBQs
- ✦ Movie nights (some outdoors)
- ✦ Swimming
- ✦ Water sports
- ✦ Local walks
- ✦ Art
- ✦ Dance
- ✦ Sports - football, badminton basketball, cricket, plus an introduction to fives and rowing

All of the above course features are included in the price of the course but may be subject to change.



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Accommodation

Shrewsbury School has a beautiful green-hearted campus site on the banks of the River Severn within one of the most historic county towns in England.

Our Houses make for the perfect place to come back to after a day of learning. Each boarding house has a common room providing ample space for pupils to relax and unwind, study areas for them to continue their educational journey as well as social areas with televisions, games, table tennis and other activities that will allow students to bond outside of the classroom.

Boys and girls will be separated in accommodation and allocated age-appropriate rooms for their stay, with experienced pastoral care on site.

Catering

Meals at Shrewsbury are enjoyed in our purpose-built catering hall, Kingsland



Hall ('KH'), where students will choose from a wide variety of freshly prepared dishes and then eat with their friends and tutors from the courses.

Food is provided by our contract catering company who are committed to the provision of delicious meals that bring both ingredients and cultures to life. Students with special dietary needs such as dairy/lactose intolerance, vegan, vegetarian or gluten-free diets and halal food can also be catered for.

Course content and trips may be subject to change.

Registering Interest:

To register interest in Shrewsbury School's 2026 Summer School courses, please use the QR code to access and complete our registration form.

