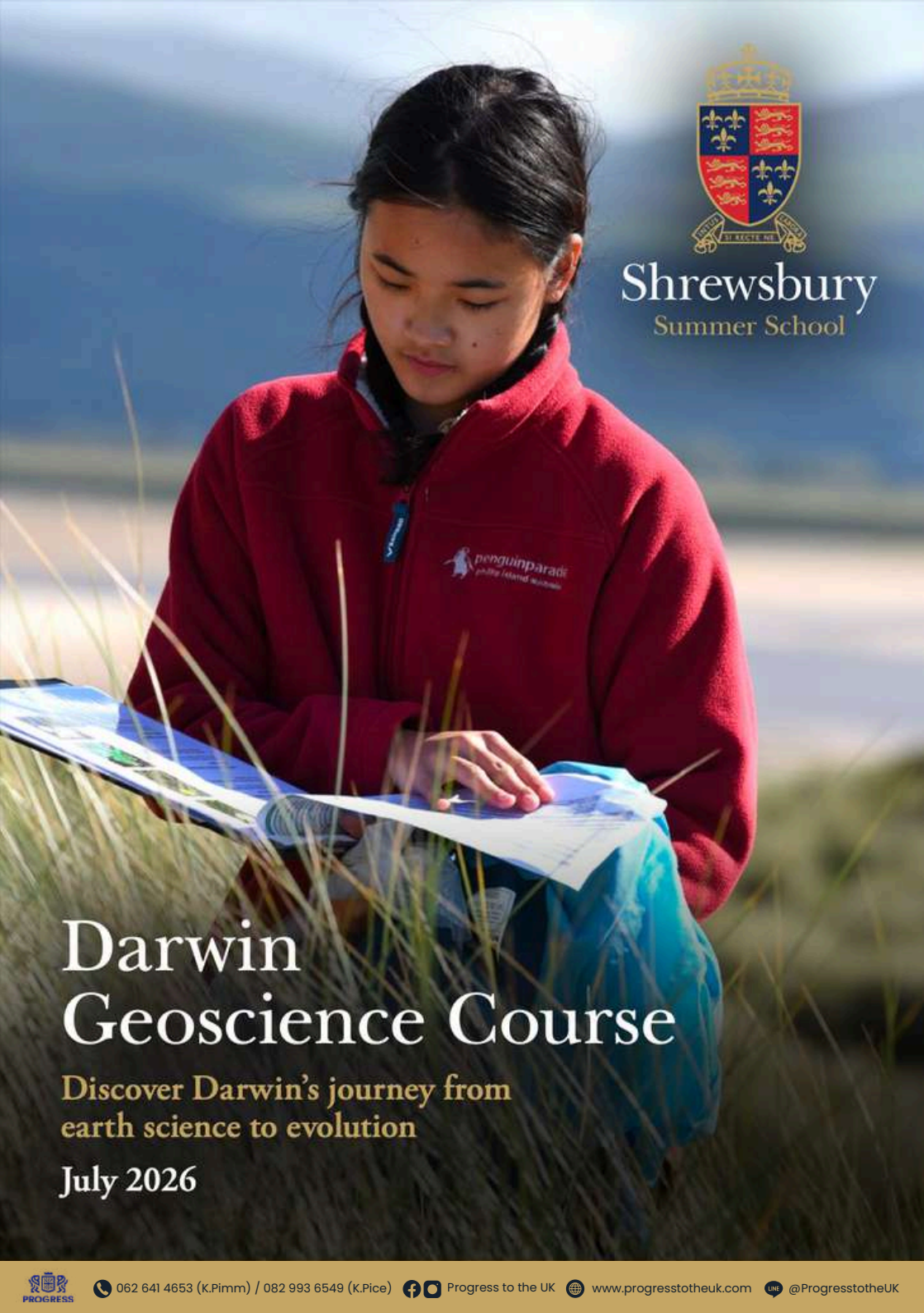

Shrewsbury
Summer School

Darwin Geoscience Course

Discover Darwin's journey from earth science to evolution

July 2026

Course Introduction

The Darwin Geoscience Course is a fantastic journey through Earth history.

Shrewsbury is uniquely placed geographically to study long term environmental change and its influence of the evolution of all living things. The geological outcrops of the area date to more than 600 million years ago and the Precambrian, the geological period when life first exploded onto our planet. These geological deposits are our only window into early life and therefore crucial to our understanding of evolution. Equally this region of Britain hosts pristine glacial deposits that are less than 20,000 years in age and have become important tools for climate scientists as they deepen our knowledge of long term climate dynamics. There are few areas in the world today as well placed as Shropshire and its surroundings to study the continuing and progressing effects of environmental and climatic change and its effect on flora and fauna.

The importance of this part of Britain was not lost on some of Earth Science's foremost thinkers. During the 17th Century, as the scientific revolution swept across Europe, pioneers in the study of Geology and Earth Science where drawn to these landscapes. Students will walk in the footsteps of many of the disciplines' founding scholars. They will explore the role of volcanism, tectonics, and climate change in shaping the world around us.

During field excursions, students will recreate the famous 1831 trip of Charles Darwin and Cambridge Professor of Geology Adam Sedgwick into the heart of Eryri National Park (Snowdonia). Sedgwick led this expedition annually and his invitation to Darwin would prove revolutionary for modern environmental science. It was on this trip that Darwin first internalised the power of geological time in shaping physical landscapes and biological organisms. On his return to Shrewsbury, an invitation awaited Darwin to join the expedition of the Beagle. Darwin's time in the mountains of Eryri were crucial to the geological work he later conducted on Quail Island whilst with the Beagle. Students will visit the very rock outcrops that Darwin and Sedgwick wrote about and sketched in their field diaries.

The Course

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

The Darwin Geoscience Course is largely field based and students should expect to spend considerable amounts of time in the outdoors. We believe that the best way to understand the power of Earth Science is through an immersive teaching experience that starts in the landscape. Field days will be lead by Dr Matthews-Bird an experienced Shrewsbury teacher with a research background in Earth Science. Students will learn to read the landscape using a range of qualitative and quantitive techniques including; field sketching, sediment coring, geological logging, and mapping. Students will gather their own data in the field and use this during the laboratory days where they will be introduced to Geographical Information Systems (GIS) to view data spatially, and quantitative statistics. Once students have developed some core skills, they will recreate Darwin and Sedgwick's journey to view the very same geological formations that proved so fundamental to modern Earth and Environmental Science.

For field days in Snowdonia to study Glaciation students will meet for breakfast in full fieldkit so as to be ready for an early departure. Following breakfast they will receive a short expedition briefing about the glacial history of upland Britain during the Last Glacial Maximum (20,000 yrs BP).

Students will drive to the National Park and head into the Glyderau mountain range. Here they will see first hand the effects of glaciation. They will produce field sketches of the landscape, record the position of glacial features using GPS, chart the direction of ancient ice flow using glacial striations and till deposit orientation, and use lichenometry to date the glacial retreat. This day will introduce students to many of the core field skills of Earth Science and the data collected will form the basis of many of the classroom sessions later in the week.

During classroom days students will use Geographic information systems (GIS) to create, manage, analyse, and map all types of data. GIS links any data to a map, by integrating location (where) with all types of descriptive information (what). GIS helps users understand patterns, relationships, and geographic context. It is now the foundation of every business or sector which involves some element of mapping information (e.g., Snap Map, Deliveroo, Google Maps). Students will use the data collected in the field to create their own digital map of glacial features in upland Britain. They will learn how to manipulate GPS data to display the orientation and relationship of geological features to further their understanding of how geological processes play out across an entire landscape.

Students will also focus on environmental statistics as Geoscience is an analytical discipline offering more than descriptions of the landscapes. Quantitative statistical tools are an important tool in a geoscientists toolkit. Over the previous days of the course students will have collected a range of data. This classroom session will introduce them to some important techniques such as; chi squared, spearman's rank, and Mann Whitney-U. Students will apply these new techniques to their own data to test the significance of various trends and correlations that they have observed.

On field days students will visit the fossil beds of Wenlock Edge which date to 420 million years old during the Silurian Period. Whilst collecting marine fossils, students will be taught the fundamental tool of stratigraphy for recording the sequential deposition of geological formations. Field observations will be collated in the classroom to produce a stratigraphic profile of this outcrop. This skill is an important tool for visualising the evolution of organisms across geological time.

Shrewsbury
Summer School

Course Overview

Darwin Geoscience Summer School

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	**Welcome** - The importance of the UK and the development of the discipline of geoscience. **Introduction to geological/geographic principles and terminology** **Preparation for Carding Mill Valley** Bradshaw's model of river profiles. How do rivers chain downstream.	**Rivers Fieldwork Carding Mill - Ashbrooke River** 'River or stream?' is a daily discussion in the valley. Geographers classify it as a river, but when the level is low and trickling along, the temptation to call it a stream is strong. Then a storm passes through and the clear trickle becomes a raging torrent - it's very much back to being a river. The Lightspout waterfall was an early tourist hotspot, marketed as a 'mini-Niagara' by the Victorians. If the river is roaring then Lightspout belies its name. It's also a real spectacle on a cold winter morning, when the waterfall freezes in time and forms large icicles. Above the waterfall, the landscape changes dramatically and the river bubbles and babbles. A short walk brings you to the source of the Ashbrooke. A damp, marshy mire seems a modest way for such an important feature to begin.	**Rivers Fieldwork Data Manipulation** Cross section profiles of rivers. Visualising data using Geo-spatial information systems.	**Trip:** **London** Including Imperial College London, and an Open Bus Tour.	**Introduction to Ice Age Britain - Pistyll Rhaeadr Waterfall** The Berwyn range is an isolated and sparsely populated area of moorland in the northeast of Wales. During the Last Glacial Maximum, this area marked the boundary of the great continental ice sheets that covered the British Isles.	**Introduction to glacial landforms** Glaciation Fieldwork Data Manipulation Visualising data using Geo-spatial information systems. Plotting ice flow. Analysing glacial sediments. Clast analysis. Reconstruction ice dynamics using sedimentary data.	**Leisure activities at School**
12.30 - 1.30	**Lunch**						
Afternoon Session	**Preparation for Carding Mill Valley** Fieldwork design Sampling strategies Field techniques		**Rivers Fieldwork Data Manipulation** Testing hypothesis. Statistics for geoscientists.				
6.00 - 7.00	**Supper**		**Supper**				
7.00 - 9.00	Evening activity		Evening activity				

Course example timetables may be subject to change.

Course Overview

Darwin Geoscience Summer School

Week 2 Example Timetable

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
7.30 - 8.30	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	
Morning Session	**Land of Ice and Fire - Eryri National Park** Note: This session will prepare students for their trip to Eryri National Park. **Orbital forcing and Milankovitch cycles - Quaternary climate change**	**Trip:** **Cwm Idwal** Investigating corries of North Wales.	**Measuring glacial retreat using depositional records** When did the last ice age end and how long did it take for the ice to retreat? Brit Ice **Introduction to coastal landscapes**	**Trip:** **Ynyslas Sand Dunes** Ynyslas is part of the Dyfi National Nature Reserve, situated midway between Aberystwyth and Machynlleth. The superb dunes of Ynyslas are at the southern side of the Dyfi Estuary and are the largest dunes in Ceredigion. The dunes are home to a rich population of orchids, mosses, liverworts, fungi, insects and spiders; many of these species are rare and some are unknown elsewhere in Britain. The estuary has vast areas of internationally important mudflats, sandbanks and saltmarsh that provide feeding and roosting areas for wetland birds.	**Reconstructing sand dune succession** Dune formation and evolution. **Vegetation succession in extreme environments**	Transfers and travel
12.30 - 1.30	Lunch		Lunch		Lunch	
Afternoon Session	**Understanding oxygen isotopes** Reconstructing glacial extent from isotopic records.		**Preparation for fieldwork - Experimental Design**		**Course Plenary**	
6.00 - 7.00	Supper		Supper		Supper	
7.00 - 9.00	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 Charles Darwin and Adam Sedgwick Newton, and discover how they would revolutionise modern environmental science.

They will also explore the unique geographical surroundings of Shrewsbury discovering the power of Earth Science preparing students 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:

- Eryri National Park, Snowdonia
- Glyderau Mountain Range, Snowdonia
- Natural History Museum, London
- Wenlock Edge, Shropshire
- Shrewsbury and Shropshire
- Imperial College London
- Cwm Idwal
- Pistyll Rhaeadr, Waterfall
- Snowdonia Beach

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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Summer School

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.