



The Discovery Society Annual Report 2023

Report of the Trustees for the year ending 31st December 2023.

The Discovery Society was registered as a charity (Charitable Incorporated Organisation – CIO) on 21st November 2019. As such its first full year of operation should have been the year ending 31st December 2020. There was however no report for the year 2020, as this was not required by Charities Commission rules, and the majority of the society's activities were severely disrupted by lockdown measures related to the global COVID-19 pandemic. These restrictions commenced just 4 months after the charity's registration date. The first reporting year was therefore 2021, this being the third annual report

Our Aims

The charitable aims were amended by the charity commission on 28th November 2022 following a resolution at the meeting of 25th November 2022. The word 'scientific' was removed from the charitable aim, to broaden the scope and reach of potential charitable activities.

"The charitable object of The Discovery Society is to advance the education of the students at The Bewdley School by providing and assisting in the provision of facilities [not required to be provided by the local education authority] for understanding of and engagement in exploration and research."

Our Research Strategy

The Discovery Society is a Charitable Organisation attached to an 11-18 comprehensive Secondary School with the purpose of encouraging scientific exploration and research. We live in an era where the popular view is that the world is 'discovered' and the only 'new knowledge' is based around technologies that we create. The world for school age children is so technologically oriented that the fundamental principle which has driven the creation of this charity, is that children need to be encouraged to interact with the natural world and to view finding out how it works as a central component of their learning. Without such an impetus, we will always struggle, for example, to understand both the concept of climate change and the impact of human activity on the other species we share the planet with.

Research Interests

Students at the school follow the National Curriculum for Science for year 7 to 11 (age 11-16). In our Sixth Form students study Advanced Levels in Biology, Computer Science, Chemistry, Geology and Physics. The curriculum for all of these subjects is prescribed by the examination bodies under the regulation of the Joint Council for Qualifications (JCQ). The core elements of study are therefore determined beyond the institution:

- Learning materials are determined by these externally driven curriculum arrangements
- Research interests are drawn from these materials and the themes from which they arise

We are also partnered with the University of Birmingham Earth Sciences Department (School of Geography, Earth and Environmental Sciences) who will support us with our research, and many of the research interests will draw from the research areas they are currently focussing on. These will include postgraduate and postdoctoral researchers. In the event that any of our sixth form students become co-authors in research papers, the drafting and publication processes will be carried out by the professional scientists at the University. This also includes the potential for students to engage in research through Operation Wallacea.

Member Benefits

Aside from the benefits offered by involvement in exploration and research, members will potentially have access to the following accreditations:

- Bronze, Silver and Gold Duke of Edinburgh Awards
- Bronze, Silver and Gold Crest Awards
- Involvement biannually in Operation Wallacea which offers PADI registration

It is anticipated that this initial menu will expand as the charity matures and hones its expertise.

Review of Activities

The principal activities planned for 2023 were:

1. Operation Wallacea – planning for 2 staff and 9 students to go to Honduras for a two-week expedition from 3/7/24 to 17/7/24
2. Duke of Edinburgh – planned offer of Bronze, Silver and Gold Awards
 - a. Current numbers enrolled in the various awards – Bronze 92 (55% of Y10), Silver 38 (22% of Y11), Gold 16 (30% of Y13)
3. Royal Society Project – “Tomorrow’s climate scientists: Can aerial mapping and imagery be used to identify the areas of greatest flood risk on our school site?”

Operation Wallacea Plan

Schedule

3/7/24	Fly to Honduras via Miami and stay overnight at Hotel Bambou (dinner & breakfast)
4/7/24	Expedition details to be confirmed, but typically would be:
4 – 9/7/24	Week 1 - Forest Camp & terrestrial cloud forest ecology course
10/7/24	Travel to marine site
11 – 15/7/24	Week 2 - Learn to dive and/or complete Caribbean reef ecology course
16/7/24	Travel back to San Pedro Sula & Ramón Villeda Morales International Airport
17/7/24	Flight back to UK via Miami

Two staff and nine students travelled as above, with fundraising by students and a sponsored 40km swim by the Head Teacher.

Duke of Edinburgh Plans

The Duke of Edinburgh Award is offered to:	Year 10	– Bronze Award
	Year 11	– Silver Award
	Years 12/13	– Gold Award

Supported by a mixture of after school and weekend sessions, with some expeditions taking place during school time. For example, a typical Bronze expedition will mean 2 large groups each having a 2 day expedition on Friday/Saturday and Sunday/Monday.

Royal Society Project Plans

Project Aim

To embed the school into the local community through active involvement in the community's flood monitoring activity

Objectives

1. To build a new skill set in the school in using drone technology as a 3D mapping tool.
2. To build on our already strong partnership with the University of Birmingham.
3. To create a 3D map of the school grounds which can be used as a basis for our wider understanding of flood risk across the school site.
4. To use the newly acquired skills to support the Abberley and Malvern Hills Geopark Forum in 3D mapping its routes and member sites.
5. To offer students the opportunity to learn beyond the formal curriculum, including from adults who are not their teachers

Student benefit and learning mapped onto project aims

1. Students will learn about drone technology, its uses, and the software that can be used with its imaging technology to create 3D maps.
2. Students will learn about the central importance of University Research in building our understanding of the world around us.
3. Students will learn how to apply their newly acquired skills to map the school grounds in detail, helping them to utilise environment agency data to evaluate flood risk.
4. Students will benefit from their experience of using scientific methods to analyse the world around them, in understanding how real-world knowledge is built and used.
5. Students will benefit from working with adults who are not their teachers, in building their own understanding of how their own strengths and skills sets position them for involvement in wider project work. In addition to our project partner, Dr Carl Stevenson at the University of Birmingham, we are also very grateful for the support and advice of Ian Jones, of the Environment Agency.

Scientific Method

By working with the University of Birmingham and with support and advice from the Environment Agency, the activity and outcome of this project will be firmly rooted in cutting edge academic and scientific methods and real-world applications. Students will use their training to design and implement independent and group projects. Through this the process of identifying a question, framing this as a hypothesis through researching the scientific context, designing a test for this hypothesis that allows falsification and evaluate the results.

In this project we are asking the question, can drone/UAV surveying methods be used effectively in flood monitoring? Our starting point is that the school site is prone to flooding and we want to know which parts are lowest lying and therefore at most risk. Essentially, we will create a 3D topographic model of the school campus. River levels can be modelled to simulate flood risk zones. We then propose to use the same method to survey the river level from safe distances during high flow conditions. These models can be compared to river level and flow data from the EA's Bewdley station and used to evaluate how effective drone/UAV models capture actual river levels. With our data and support and advice from the EA we can examine where variations in the modelled and measured levels are meaningful. Students will also need to understand the link between hydrology and geology of the local river section and the regional weather patterns and climate.

Engagement Levels

Operation Wallacea

Preparation for Operation Wallacea in Honduras for July 2024 is well underway with 1 staff member and 8 out of 9 students undertaking PADI Open Water Diver Training with our local provider.

Duke of Edinburgh

The Duke of Edinburgh Awards were able to proceed in modified format, with engagement levels being very high, with 551 participated in DofE since 21/11/19:

<u>2019-20</u>	<u>2020-21</u>	<u>2021-22</u>	<u>2022-23</u>
Bronze - 66	Bronze - 84	Bronze - 92	Bronze - 70
Silver - 36	Silver - 63	Silver - 38	Silver - 36
Gold – 8	Gold - 30	Gold - 16	Gold - 12

Royal Society Project

There are 8 students involved in the drone training and created a 3D map of the school, with the support of Dr Carl Stevenson.

Our Finances

See our annual return, available online:

<https://register-of-charities.charitycommission.gov.uk/charity-search/-/charity-details/5148105/accounts-and-annual-returns>

The Discovery Society' Accounts Year ending 31.03.23	Prepared by: Date prepared:	P Gillett, Finance Manager, The Bewdley School 22.03.24
Opening balance (01.04.22)	£5,568.04	
Expenditure (01.04.22-31.03.23)	-£5,560.00	Bank charges and £5500 transfer for Dominica trip
Income (01.04.22-31.03.23)	£58.79	Amazon Smile donations
Closing balance (31.03.23)	£66.83	

Policy Framework

As all of our trustees and activities fall within the operating environment of The Bewdley School – A Foundation School, all of our operations work within the policy framework of the school. The statutory policies which apply to our activities can be found at:

<https://www.bewdley.worcs.sch.uk/statutory-policies/>

Our Trustees

We currently have 3 trustees:

Name	Date first held	Term	Term Ends	Relationship to School
David Hadley-Pryce*	21/11/2019	4 years	20/11/2027	Head Teacher
Catherine McDougall	26/02/2020	3 years	25/02/2026	Deputy Head Teacher
Christopher Beech	11/1/2023	3 years	10/1/2026	Head of Science/DofE lead

* Chair of Trustees