Envision
Developing next generation leaders in environmental science

Diversifying Environmental Sciences Through Outreach: a Guide for Innovators

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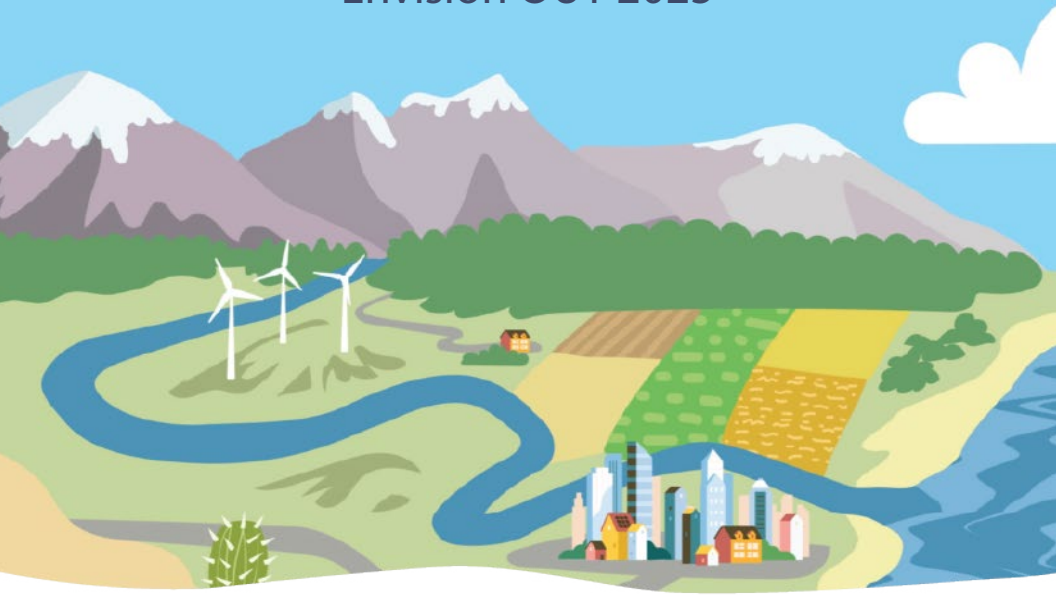


Lancaster University
UKRI NERC Environmental Data Service
BGS British Geological Survey
ROTHAMSTED RESEARCH
PRIFYSGOL BANGOR UNIVERSITY
UK Centre for Ecology & Hydrology
The University of Nottingham

ENVISION OUT

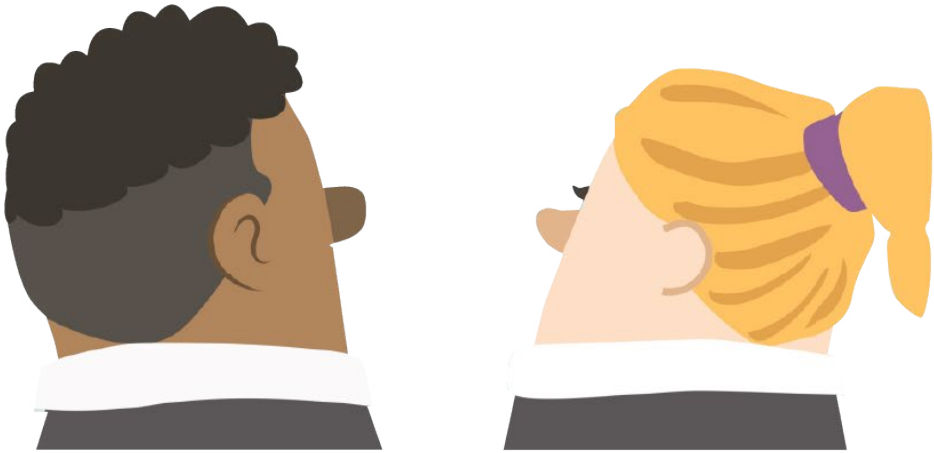
The Envision Outreach Programme for Underrepresented Talent (Envision OUT) was a UKRI/NERC-funded project of the Envision Doctoral Training Partnership (DTP) that aimed to widen participation in environmental sciences amongst underrepresented and disadvantaged young people.
The focus was to ignite school children's excitement and understanding of the natural world through indoor and outdoor environmental science activities with PhD students and university staff.

Over the duration of the project, Envision OUT successfully facilitated a range of events in partnership with schools across Lancashire, Lancaster City Council, Lancaster University's Students' Union (LUSU) Green, the JBA Trust and the Yorkshire Dales National Park Education Team. Over 300 school students participated in these days.

THIS GUIDE

By presenting environmental sciences in a fun, proactive setting, you are encouraging young people to question and interact with the world around them. Hopefully some of these individuals will go one step further and study environmental science at university – contributing their unique experiences and perspectives to the scientific community.

This guide outlines how to prepare for and facilitate outreach yourself. This is not an exhaustive guide and should be used as a guideline. The Equality, Diversity, Inclusivity, and Accessibility (EDIA) issues pursued here are contextual.



This guide will discuss the following aspects of outreach in environmental sciences:

1. Diversity in environmental sciences
2. Outreach presumptions
3. Factors to consider
4. Training
5. Safeguarding
6. Schools
7. Partners
8. Attendees
9. The main event
10. Take a pat on the back

1 DIVERSITY IN ENVIRONMENTAL SCIENCES

It is well established that people from diverse backgrounds are underrepresented in environmental sciences. There are many barriers standing in the way of young people accessing environmental sciences. These include socioeconomic status, ethnicity and culture, and the nature of science communication itself.

One way to deconstruct these barriers is to provide equal opportunities through outreach to students who may not otherwise get the chance.

2 OUTREACH PRESUMPTIONS

Before organising an event, take some time to challenge any assumptions or biases that you may have about outreach.

People come from a wide range of backgrounds and experiences, and sometimes this means that different opportunities present themselves. As an organiser, your job is to identify groups who may not typically have access to environmental sciences and consider the most effective and inclusive ways to introduce the subject.

3 FACTORS TO CONSIDER

It is important to consider the experiences and expectations of your audience. To do this, you could ask yourself the following questions:

Who are you delivering your outreach to?

- Are they school students, mature students, or community members and families?
- Collaborating with local groups (e.g. schools) helps to build trust and may increase interest if you offer recurring opportunities.

How are you selecting your target audience?

- Are you choosing your audience according to education level, age, socioeconomic status, geographical location, ethnicity, gender, disability, or a combination of these?

Costs?

- What is your budget? Do the schools need to arrange their own transport, or can you provide a coach? Do the attendees need to arrange their own lunch, or can you provide catering/vouchers?

Consider intersectional issues.

- For example, a young person from a low-income background in a rural area may face more barriers than a peer in an urban setting that has access to more resources. Can you factor in overlapping issues?

Can these individuals access your outreach activity another way?

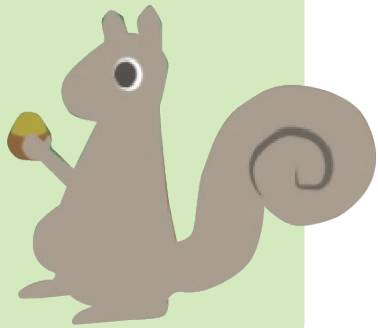
- Are they likely to be presented with similar content through the school curriculum or online resources?

What is the best format to present your outreach?

- Could your outreach be a talk, a workshop, an outdoor visit, a school visit, a demonstration, or a virtual session?
- Consider accessibility. Does your audience need to travel to attend? Or can you deliver your outreach in a different format e.g. online or by you going to them?
- Weigh up time constraints and logistics; does it have to be an outdoor field excursion, or can it be workshop based?

Are you making assumptions about the ability of your audience?

- Avoid assuming prior knowledge, physical ability, or the interests of your audience, and always be ready to adapt your delivery!
- Be mindful of people's fitness, experience with terrain, access to appropriate clothing or equipment, travel time, and the lengths of sessions.
- Consider neurodiversity, sensory sensitivities and language comprehension. For example, the attention span of the average 15-year-old is 30–40 minutes, but for a 15-year-old with ADHD this decreases to about 10–20 minutes.



4 TRAINING

If you are planning on working alongside other people to deliver your outreach, or even if not, training and workshopping the materials you will deliver prior to the event is essential for a smooth delivery.

Make sure that everyone in your team is comfortable presenting and talking with different audiences.

Everyone needs to have a good understanding of terminology and protected characteristics including disability, neurodiversity, gender, religion or belief, age, ethnicity, sexual orientation, and parental status.

5 SAFEGUARDING

Safeguarding training teaches you how to identify and respond to signs of neglect or abuse to vulnerable people.

Free online training courses are provided by some local councils and organisations.

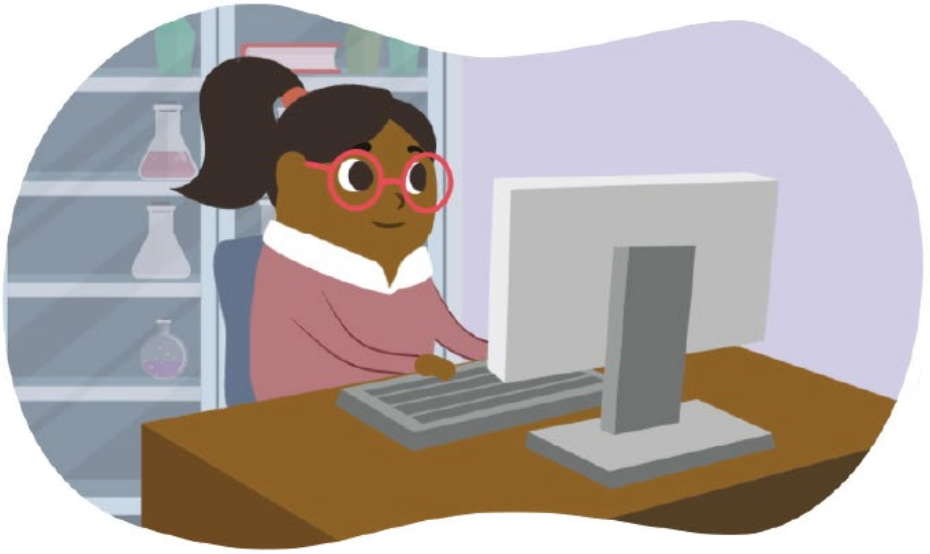
DBS checks should also be considered if there is a possibility that members of the team are working unsupervised with young people.

6 SCHOOLS

Schools are a great way to reach out to underrepresented young people. Plus, schools are required to participate in at least one 'careers-themed' event per academic year.

Envision OUT used the GOV.UK 'Compare school and college performance in England' website. From this, secondary schools local to Lancaster University with the lowest attainment of grade 5 or above in Maths and English GCSEs were contacted.

Every school has a 'careers lead' who will oversee arranging careers themed events for students. Finding contact details for these individuals can be complicated, but most schools will have a careers section on their website in which these staff members' contact details are likely to be found.



7 PARTNERS

Having external partners participate in outreach adds valuable opportunities for school children to learn about different career pathways within environmental sciences.

8 ATTENDEES

Envision OUT hosted various events with the number of attendees ranging between 25-65. Depending on the activity and whether smaller sub-groups could be formed, a maximum of 30 students per activity was found to provide the best engagement amongst young people.

9 THE MAIN EVENT

Here is a checklist of items to arrange before an event:

Staff itinerary – include locations, times, materials, activities, facilitator roles, contact numbers

Attendee itinerary – basic list of activities and times. A timetable available to visitors ahead of time can help to alleviate anxiety

Attendee list with additional needs detailed. Be aware that not everyone will disclose this information.

Risk assessments

Materials/learning resources

Room/space bookings

Minibus/coach bookings

Arrange parking on-site

First-aid qualified member of staff availability

External partner availability

School availability

Staff sign-in sheets

Safeguarding training completed by staff

Name badges/ID

Send out your organisation's safeguarding policy to schools

Send out photo consent forms to schools

Send out kit lists to schools

Send out site maps to schools

Arrange catering (take into consideration different dietary requirements) / or remind schools to bring free school meals or individual packed lunches

Feedback/evaluation forms

Goody bags (pens, bags, etc.)

Review the event by talking to those involved and collecting feedback. Create a list of improvements for future events.

10 TAKE A PAT ON THE BACK

Delivering outreach activities and events in environmental sciences is a rewarding but demanding job. There are multiple factors to take care of, including learning outcomes, budget constraints, and maintaining effective communication across a range of participants.

By reaching out to individuals who have had less access to opportunities in environmental sciences, and by embedding principles of Equality, Diversity, Inclusivity, and Accessibility (EDIA) into your work, you are helping to build a more representative scientific community.

Visit www.envision-dtp.org for more information on Envision OUT and learning resources.

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ACKNOWLEDGEMENTS

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