

UK Earth Sciences Recruitment / Outreach Strategies Survey 2008

Mini Case Studies

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As the 2008 Survey illustrated, different universities have different missions and, hence, adopt different recruitment and outreach strategies. However, there are some similarities between institutions and it is always useful to share ideas and practices. For the Earth Sciences in the UK, there may also be considerable benefit in pooling resources and seeking ways in which to enhance interest in the subject area in order to increase the overall number of students seeking to study it in higher education.

This supplement to the survey report provides mini case studies from six institutions, outlining specific approaches to outreach and recruitment:

Local Science Festivals: University of Aberdeen, Department of Geology & Petroleum Geology

Taster Days for Schools: University of Derby, Geographical, Earth & Environmental Sciences

Students in Schools: University of Glamorgan, Division of Earth, Space & Environment

BGS Schools Seismology Project: Imperial College London, Department of Earth Sciences

University 'Experience Days': University of Keele, Department of Earth Sciences & Geography

Training for Secondary Science Teachers: Lancaster University, Lancaster Environment Centre

University 'Experience Days'

University of Keele, Department of Earth Sciences & Geography

Brief Description of the Activity

There are two geology based activities that are run. One is "Earthquakes don't kill people!" illustrating how and where earthquakes happen, contrasting the effects of three similar sized earthquakes in Iran, Morocco and California and showing how it is often bad building design/construction that causes the fatalities. The session is PowerPoint presentation interspersed with demonstrations (brick on an elastic band to simulate earthquakes, a simple seismometer, shake table to demonstrate resonance etc.). The session ends with the students divided into teams of ~4/5 and given 16 jelly babies and a handful of spaghetti and they have to make a three-storey building that can withstand the shake-table.

The second session is "Tsunami!" which looks at how tsunamis are caused and studies the 2004 Indonesian Tsunami in detail. It has a similar format of PowerPoint presentation interspersed with small demonstrations. Halfway through the students (in small groups) are given a laminated plate tectonic map of the world including motion vectors and a marker pen. Using their new knowledge of what tectonic conditions can generate tsunamis, they are asked to circle areas where tsunamis will occur and the results are then discussed in relation to the Indonesian and other tsunamis. At the end of the session they are given a series of earthquake scenarios and have to vote on issuing a tsunami warning.

The sessions are typically an hour duration (plus 30 minutes for the spaghetti tower building) and are either combined together with a tour of our campus to make an "Earth Sciences Experience Day" or one of these (typically the tsunami session) is combined with two other subject sessions and a campus tour to make a "University Experience Day". We also have two / three day events which include other parts of the university experience such as sports, union disco, staying in halls of residence etc. Experience days are run in November, March and June with the longer events run in June and September.

How were the initial contacts made with the school pupils?

Contacts are made with schools via Keele's Widening Participation and Life Long Learning Division's outreach work programme for schools and colleges - Keelelink (www.keele.ac.uk/depts/aa/widening/keelelink.html). Keelelink draw up a series of experience days and longer events and offer them to schools, who then select the events and times that suit them. Keelelink do all the logistics for me. They welcome the students to the university and provide student mentors to guide the students between sessions and around campus. They book the rooms and also run the feedback evaluation allowing me just to concentrate on the session content and delivery.

What works well?

Pretty much everything works well. The students tend to like tales of death and destruction, and the teachers seem happy that some good basic science is being taught as well. The sessions work best as small workshops of 20-30 pupils where you have time to go round and chat to the students whilst they are doing some of the activities. I have done the tsunami session as a large lecture but keeping 120 school children entertained for an hour can be a major challenge!

What could be improved?

The sessions have been repeated tens of times over several years now, so most of the activities have been refined by experience into popular sessions.

The only thing is that some of the examples are getting just a bit old. I need some new destructive earthquakes to refresh things a bit and keep the examples recent.

Any tips or advice for colleagues interested in setting up a similar activity?

1. Break things up into small sections, intersperse talking with demonstrations, practical activities etc.
2. Make things interactive and fun.
3. Make it relevant to what they are studying in the national curriculum.
4. Try to use small groups for practicals / voting as it gets students discussing the issues between themselves.
5. Prepare to be flexible. Schools often turn up late, other sessions overrun, pupils often want to ask questions. I can condense the tsunami session to 30 minutes or expand it to an hour and a half as necessary. I've done the session for 10 pupils and 120 pupils. I have a version where all my materials will fit in a laptop bag for taking out to schools if necessary.

Local Science Festivals

University of Aberdeen, Department of Geology & Petroleum Geology

Brief Description of the Activity

Lectures at Orkney Science Festival (Summer 2007) in Kirkwall (& videoed live to Shetland), and Highland Science Festival (Spring 2008) in Inverness. Lectures/practical demonstration to TechFest, Aberdeen (September every year).

How were the initial contacts made with the local science festivals?

TechFest have strong links into University. Orkney and Highland Science Festivals arranged through personal contacts.

What works well?

Lectures to science festivals with rocks to pass around. Accompanying write-up in local press. TechFest includes hands-on demonstration based on beach sediments; attractive to children.

What could be improved?

Could enhance demonstration with smarter permanent presentation, but reluctant to develop something that requires precious storage space!

Any tips or advice for colleagues interested in setting up a similar activity?

Interest always much greater if based on rocks known to local audience (Orkney flagstones, Aberdeen granite in our case).

Training for Secondary Science Teachers

Lancaster University, Lancaster Environment Centre

Brief Description of the Activity

Secondary science teachers took up an invitation from SETpoint Cumbria to attend a day of demonstrations and CPD focused around global warming/environmental change. A series of sessions around the Lancaster Environment Centre (LEC) looked at various aspects of these topics. Sessions ranged from short lectures on breaking news in ecology, to demonstrations of research-grade equipment and hands-on experimental sessions.

How were the initial contacts made with the teachers?

Contact with teachers was coordinated by the SETpoint team. Many of the teachers had hosted visits from LEC staff, who tried to help with school projects on environmental change.

What works well?

Giving teachers something that they can use seems to be what works well. This can be delivered in a talk, but is much more likely to stimulate discussion of possibilities in a hands-on situation. When setting up lab demos and hands-on sessions, it is important to itemise all the equipment, including suppliers and guide price. COSHH issues should be flagged. It is always useful to show how the material is used in teaching.

Having a sufficiently relaxed timetable that allows everyone to have fun with their sessions is probably the most important thing!

What could be improved?

Information overload needs to be avoided. Keeping a focus on the big picture, without patronising, is vital,

Any tips or advice for colleagues interested in setting up a similar activity?

Try to establish a dialogue with the teachers ahead of the visit, and be prepared to modify planned activities to take account of the needs and wants of the visitors.

BGS Schools Seismology Project

Imperial College London, Department of Earth Sciences

Brief Description of the Activity

Schools seismology project: schools that we have a link with; invite teachers for a training day in the department; issue the teachers (either physics or geography but physics normally preferred) with a seismometer and keep in periodic contact afterwards. Raise funds for seismometers through established links in industry. Teachers have a tour of the College during their visit, and some geophysics undergraduates meet over lunch. Two training days per year: March and July.

How were the initial contacts made with the schools?

All schools that we have a link with either through a member of staff or other links through Imperial College were contacted by email.

What works well?

Raising the visibility of geosciences, and geophysics in particular among the science staff in schools.

What could be improved?

More time to have follow-up but it is early in the programme and we plan more follow-up activities later in this academic term.

Any tips or advice for colleagues interested in setting up a similar activity?

Raise some money before starting up the project; seismometers are very popular in schools and we have not yet had a school that we have contacted refuse to have one.

For more information see the BGS website at <http://www.bgs.ac.uk/schoolseismology/>

Taster Days for Schools

Geographical, Earth & Environmental Sciences, University of Derby

Brief Description of the Activity

We work with the University of Derby schools liaison team in running taster days for local schools – lower school and sixth form. The schools liaison team and our marketing team arrange for the schools to visit and we offer interactive sessions in areas of relevant geographical and geological activities. This week we (two colleagues) played a ‘wide game’ using GPS. The best performers won Waterstones vouchers. Next month we have a ‘seismic exploration exercise’ and a ‘sustainability exercise’.

We are also trialling the schools seismology project through the Aim Higher program, working with schools where student are not typical University applicants. We have a science festival planned in March. We are also looking at other forms of community engagement (with adult learners) and we plan to hook into a local walking festival in the Peak District and do geowalks, given our magnificent satellite site in Buxton – the ‘dome’.

How were the initial contacts made with the schools?

Through the University Marketing dept, schools liaison, Aim Higher and their links into local city and county networks.

What works well?

Taster days.

What could be improved?

A better data base of schools within our region.

Any tips or advice for colleagues interested in setting up a similar activity:

Derby sees widening participation as a significant part of its mission, hence the type of school links we make and the ‘non-standard’ entrants that we obtain.

Students in Schools

University of Glamorgan, Division of Earth, Space & Environment

Brief Description of the Activity

When our first year students go on field work during the last week of the Christmas term, second and third years are invited to visit their old schools with a presentation staff have prepared. It is believed that students are likely to go home early, so visiting the school before it is closed for the festive season is a useful marketing technique. Students are paid for their time (upon receipt of a signed and stamped letter confirming their delivery of the presentation). We expect students to leave brochures, and talk to students about their experiences on geography courses. Take up of this initiative is usually approximately 35%.

Every Applicant Day, during which prospective students visit the university, Student Ambassadors accompany them on tours of the campus, spend lunchtime with them talking about their Student Experience, and also discuss their studies with parents (when they are cleaved from their charges). Students are trained by Marketing Student Recruitment, but then operate independently and unsupervised. Take up of this initiative is approximately 20%.

This year, students will be invited to take part in the RGS Geography Ambassadors scheme for the first time.

How were the initial contacts made with the schools?

- Students are invited to contact their old school.
- Student Services Careers Office is happy to act on Geography's behalf and contact schools if necessary.
- Marketing Student Recruitment maintain contact with COMPACT schools enabling us to contact them easily.
- The Faculty has a Schools' Liaison Officer who administers contacts with schools on behalf of Geography
- The Geography Division annually runs a series of 6th Form Open Days to which schools are invited, regularly attend and reaffirm contact.
- Individual staff members have initiated contacts (for example through GEES projects, graduates of courses, and even picking up the phone)

What works well?

All of the above are effective, but it is decentralised. Perhaps we should focus on centralising the contacts list to establish just how broad a range and number of contacts we now actually have!

What could be improved?

See above!

Any tips or advice for colleagues interested in setting up a similar activity?

Geography at schools is under considerable pressure from History and Psychology. I am sure offers of help would be gladly received, and it is simply a case of getting a package together and offering it out there.