

The Royal Society Partnership Grant: making science work for special needs

■ Phil Grilli-Chantler

It was an incongruous sight. Seven pupils with behavioural, emotional and social difficulties (BESD) standing in awestruck silence, watching a small bird repeatedly rising vertically for several metres above an isolated tree-top, before folding its now still wings into a perfect parachute and gliding back to its perch. I had assured them that during this aerobatic display the tree pipit's song was a little bit like the drawn out 'whizz' of a dropping bomb. As we carefully approached, this simile certainly got the thumbs up.

This was a sunny Tuesday afternoon when the class in question should have been slogging through the National

Curriculum. So how could Portal House School justify this time out from science lessons? The answer is simple: with the aid of the splendidly supportive staff of the Royal Society and a senior management willing to take a risk or two, for the sake of the students' learning experience, we had applied for and been granted a *Partnership Grant*.

The group that were observing the pipit were undertaking a transect through different woodland types at Covert Wood, an actively managed Forestry Commission property. It was part of a study looking at the hypothesis '*Is biodiversity affected by how*

natural woodlands are?' The benefits of a Partnership Grant are many-fold, but the scheme's central premise is to bring together schools and scientists.

Our project has been very ably mentored by Nick Delaney, Senior Ecologist for Dover District Council. To the students involved with this study Nick is 'the man', I'm just another teacher, but *he* is a *scientist*. His feedback on the students' initial proposals ended up with the students, in some cases, having to scrap their initial hard-worked ideas and start again. If I had requested such a scientific evaluation and re-working there would have been a revolt! When we finally set off for the woods the students had designed biodiversity studies that could be split into two groups: those studying quadrants placed in four different types of woodland that converged at a crossroads, and those studying a transect running through the woodland.

From the outset the project has allowed students to hone their skills of scientific enquiry. They have ownership of the project so my questioning has come from a position of strength; 'How can we use our scientific knowledge to test the central hypothesis?', 'How will repeat measurements reduce error?', 'How will they check reliability?' Answers to these questions are suddenly charged with importance; the students want the project to succeed.

The grant allowed us to buy equipment such as binoculars, identification texts, various meters for monitoring environmental variables and a range of butterfly nets and other insect catching paraphernalia. These alone do not make a project but they do help to reinforce and perpetuate the idea that *their* project is important. Ask a student to read pressure and temperature off equipment that has been lying around in the prep room gathering dust and I bet their attention

The Partnership Grant has enabled the students to work in a team to produce real scientific results, boosting their confidence and enthusiasm for work!



to detail will be far lower than if it is brand spanking new and they were involved in the ordering process in the first place.

At this stage it is worth returning to the dreadful designation, BESD. In full it sums up the school's intake; *Behavioural, Emotional and Social Difficulties*. These are students who arrive at Portal House disenchanted with education, often unco-operative and certainly lacking in the team skills that such a project demands. Now they are learning one of science's most fundamental facts and certainly one that is often overlooked from a National Curriculum viewpoint, namely, that scientific endeavour without teamwork is doomed to failure.

Vital skills that as science teachers we often find so hard to teach to such pupils are required constantly when out in the field. Accurate measurements, systematic use of keys for identification and careful recording have become the bread and butter of this project. As Jack said, 'Now when I walk down the street I can tell what species of tree I'm looking at.' This is quite an achievement for a young man and it is so encouraging that in this age of Gameboys and PS2s it is still possible to enthuse our youth with the natural world.

Finding time for this project in a busy timetable has allowed the students to apply the skills and knowledge that they have learnt throughout the year. In the autumn term we looked at the pH of acids and alkalis – now they are using their shiny new meters to test the effect of Corsican pine needles on soil pH. Back in the spring we looked at environmental influences upon the laboratory stick-insects, but oh, how much more rewarding it is to discover that along our transect the wood ant nests are found at greatest density on the south-facing edge of Douglas fir stands.

We still have two more field sessions ahead of us, before the grand finale. I am confident that the report writing process will give the students the opportunity to review the methodology of their project and to present their findings to the local council, Forestry Commission, the county wildlife trust and other interested bodies, and of course ponder on whether they have gathered enough evidence to prove their hypothesis.

So if you are thinking about applying for the Partnership Grant, there are



The boys use pooters to collect insects from each quadrant: they then identify the species diversity in each different type of woodland.

many ways you can sell the idea to senior management. In this day and age of self-evaluation forms (SEFs) such a project ticks all the right boxes with regard to working with the community and curriculum enhancement. For *Every Child Matters* it has allowed us to think about *achieving economic well-being* through contact with, and discussion of the role of, foresters, ecologists, planners and tree-surgeons.

Such projects can hardly fail to stimulate the interest of any students, but as an aid to reach those who have been failed by the system I believe they can transform the way students look at a subject. Most of you will have taught kids like mine at some time, the ones that you pray are off sick, those that often seem more intent in destroying our best laid plans than contributing to their own learning-experience and certainly ambivalent to our personal teaching-experience. Yet give such youngsters a project that they can make their own, that will see them working alongside professional scientists, thrashing out ideas with an expert, and the results can be impressive. This year

the Partnership project has helped make sense of all those long lab sessions; it has been the focal point of my teaching and more importantly of their learning. It has added that extra little spark. As Aiden, the designer of the beetle pitfall study, said '*Looking into the traps is exciting and mysterious.*'

Acknowledgements

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Further Information

For more information about the Royal Society Partnership Grants scheme, see the advertisement on page 34 or call Bonnie Laverock on 020 7451 2561, or e-mail education@royalsoc.ac.uk.

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