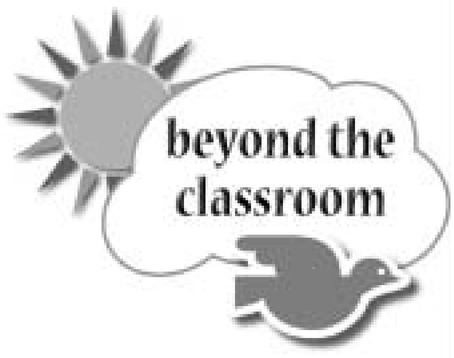
EDITORIAL



'Playing out'

As a child growing up in the Pennines, I spent much of my non-school time 'playing out' with other children from our street. We built dens and made bows and arrows from old bamboo skips in the mill yard, fished the becks for minnows and bullheads, found birds' nests, climbed trees, gorged on blackberries and collected rose-hips (to make 'itchy powder'!). At infant school, teachers took us on regular 'nature walks'; I vividly remember collecting frog and newt spawn in spring, feeding the tadpoles, picking and dissecting wild flowers in summer, gathering conkers and nuts in the autumn, and using all these back in the classroom. Above all, these experiences instilled love and respect for the natural world. I suspect that thousands, if not millions of others would have said the same.

Learning to deal with risk

Sadly, the evidence is that fewer children now 'play out' as freely as we did, wandering miles from home on our own. And probably fewer school visits allow children such uninhibited exploration; instead of simply experiencing amazement at the world around them, too often they have a clipboard and are more likely to ask '*Miss, how do you spell sycamore?*' This situation has at least been recognised, thanks partly to pressure from some of the agencies contributing to this issue; plans to ensure that all children have residential experiences are timely and valuable. The recent tragedy in North Yorkshire should not discourage schools in this; freak accidents will always happen, despite the most meticulous precautions. Bewerley Park, whose staff were involved, have been doing amazing work with children for decades; our pupils from a mining community went there regularly, for a wide range of experiences that blew their minds. The staff are dedicated, skilled teachers. What matters, I suspect they might say, is that in order for children to have such life-changing experiences, we must inculcate in them the habit of anticipating hazards, so they know how to deal with situations that may arise, rather than shielding them from all risk.

Ways of enhancing science learning beyond the classroom

There is more to getting children out of school, though, than simply developing their love of nature; and the lead article in this issue, by **Justin Dillon** and colleagues, sets out evidence that children's science learning can be powerfully enhanced by using real settings beyond the classroom. What teachers need, they suggest, is to be more aware of the range of opportunities available, and to become clearer about how such experiences can contribute to science learning, extending or reinforcing their in-school work. The pieces that follow describe a variety of practical examples to back this up. **Jane Adams** explains the benefits to a small Cornish primary school of working with National Trust wardens as part of the Trust's Guardianship Scheme. This has provided the school with opportunities to explore the cliffs, woods, dunes, pools and seashore around north Cornwall, while at the same time setting up processes that have encouraged the school to develop its own grounds. **Andrew Best** and **Gary Richardson** describe how children's science learning benefited from attending the *Countryside Live!* events organised in different regions; in effect, 'county shows' for urban children, providing many opportunities for first-hand involvement with animals, birds and countryside practices, such as sheep shearing, milking, charcoal burning and wicker construction. I have rarely seen over 1000 children as active, engrossed and well behaved for an entire day as when I attended one of these events.

From the macro- to the micro-level, **Carol Fradley** shows how a simple 'welly-walk' each week with very young children helped them learn about rain, wind, forces and weather. As she points out, some children these days rarely get wet! **Max de Bóo** then sets out a range of science activities at the seaside and their value to children; whilst **Elizabeth Briten** reminds us of the importance of encouraging children to collect and germinate seeds, and to watch their plants grow so that they understand plant life cycles and the significance of flowering plants. Her piece also provides a valuable list of the plants best used in such activities. Then **Jen** and **Steve Smyth** describe a programme in Islington, London, to take children to the university for a day of special science activities and events. The children's and teachers' comments, as often, speak for themselves. Finally, as part of the *PSR Interview* series, I talked with **Sharon Macnab** and **Jillian Boag** in Glasgow about the way Scotland's Science Centres are collaborating, as part of a network, in providing unique learning experiences across the whole country. Their diverse offerings include set-piece installations such as the Planetarium and *Climate Change* shows, as well as unique and sophisticated hands-on activities, workshops, laboratory experiments and a mobile *Science Show* for all ages.

The challenge

What all these varied examples demonstrate is that wherever the school, however small or large, whatever the time of year, there is no excuse for not getting beyond the classroom to let children work on science skills and concepts in real contexts. In doing so, their attitude to science is transformed; it makes sense to children, simply because doing 'real' science is fun. Teacher education is recognising this: several primary science programmes now provide placements for trainees to work with children in the kinds of venues described above, as well as in zoos, industrial museums, botanical gardens, nature reserves and many other settings. Hopefully, this will spread further and help to bring both school and non-school science experiences closer together. The biggest challenge still is providing effective bridges from science beyond the classroom to the formal curriculum, through planning, preparation and follow-up. This has been recognised in many countries, through the integration of science learning into a wider environmental focus for younger children. As often in England, we have something to learn from our neighbours.

Your turn

We are always on the look out for articles that attempt to provide easy access to difficult science ideas; if you have your own ways of 'getting across' tough concepts, then please tell us about them, so that they can be shared with others.

Ted Wragg

Finally, the Board of *PSR* wish to express their shock and regret at the untimely death of Ted Wragg in November. Ted was nothing less than a hero to many teachers; having worked with him for almost 17 years, he was also a personal friend and huge support. When Ted went frequently into primary schools, he always carried his self-made 'science kit' in what looked like a large matchbox; with this tiny resource, he did experiments on forces, magnets, light, materials, and kept any class engrossed. He always prioritised the needs of ordinary, unprivileged children and their teachers; what perplexes so many is that his ideas were not taken on board by those with power to change things. This journal, in its small way, will continue to build on his legacy.

Alan Peacock

Postbag

PPA teachers and AT1

Below a science coordinator expresses concern about how AT1 is to be dealt with. We would like to hear readers' responses on this issue.

It has been proposed, at our school, that all *Scientific enquiry* be taken over by PPA (Planning, Preparation and Assessment) teachers throughout both key stages for the whole year, leaving the knowledge aspects of science to class teachers. As science coordinator, this idea horrifies me for many reasons, and I wondered whether anyone else has tried this? Shouldn't the core subjects remain with the class teacher? I have listed my concerns and will be sharing them with the head teacher shortly. Is there anything else I could or should be doing about this, or are my fears unfounded?

I am concerned that assigning the whole of *Scientific enquiry* throughout the school to PPA teachers would be problematic, for the following reasons:

- I believe that core subjects should remain the responsibility of class teachers. It grieves me that about half of science (a core subject) could be removed from the responsibility of the class teacher.
- The entire teaching staff in both key stages would gradually become de-skilled in this vital area of science. The problem would soon become evident, especially if one of our teachers moved to another school.
- *Scientific enquiry* should not be planned or taught in isolation from class teachers' planning, or in total isolation from science knowledge.
- As the 'knowledge' aspect of science is often broached first at the start of a topic, enquiry skills are introduced alongside this as the term progresses. It would be inappropriate for PPA teachers to investigate something that the children know nothing about.
- Some units lend themselves very much more to enquiry skills than others, e.g. *Materials*. Equally, some units of work are comprised almost solely of knowledge, e.g. *The Earth in Space*.
- *Scientific enquiry* is not an easy area to teach. It poses challenges for the teacher and pupil alike, particularly as it involves HOT skills. As coordinator, I would much rather improve teachers' skills: we are going to have a focus on HOT skills anyway, and they will need the opportunity to use them, not avoid teaching AT1.

For the above reasons, I think that a blanket removal of AT1 from teachers' weekly plans would be unnecessary and inappropriate. What do other readers think?

Primary Science Coordinator, Gloucestershire LEA

Coming up in *PSR*

Each issue of *PSR* focuses on a theme, but also includes other articles on a range of topics, so if you have something to write about that is not on a theme or deals with a theme already covered, don't be deterred. All contributions are very welcome. Forthcoming themes are listed below.

PSR 92 (March/April 2006): *Stories and starters*

Importance of stories to stimulate scientific enquiry, narrative as form of evidence, stories about scientists and scientific discoveries, use of stories as starting points for topics and activities, other valuable starting points, materials.

PSR 93 (May/June 2006): *Light and sound* (copy deadline: 10 Feb. 2006)

Key concepts for F-KS2, common misconceptions and 'wobbly bits', how children encounter light and sound in everyday life, understanding waves, effective teaching strategies, links to art and music.

PSR 94 (Sept/Oct 2006): *Why science?*

Special 20th anniversary issue with invited contributions.

PSR 95 (Nov/Dec 2006): *'Real' science* (copy deadline: 21 July 2006)

Helping children to tackle real problems from everyday life, applying scientific ideas to problem solving, developing and using appropriate technology, the use of data-logging, digital microscopes, etc.

If you are interested in purchasing any back issues of *PSR* please contact Joan Hyslop at ASE on 01707 283000 to check availability. A charge of £3 a copy is made to members.

Contributions of all kinds – articles, letters, news items, views, comment, practical ideas, reflective pieces – are very welcome (see *PSR* **90**, page 29 for guidelines). Please send contributions or suggestions to:

The Editor, Primary Science Review, ASE, College Lane, Hatfield, Herts AL10 9AA
or email: **psreditor@ase.org.uk**