

## Supporting good citizenship?

**With dialogue between science and society all the rage, it would seem sensible to start young. A scheme for school education means well, but will fizzle out without the required commitment from government.**

**O**n the face of it, the new move to include science in the teaching of citizenship in English schools from September this year appears promising. What better way to address the issues of the impact of science on society, and the ability of society to engage better in 'scientific' debate, than to catch your citizens young?

But this approach has its weaknesses (see page 3), which threaten its chances of hitting the target. First, and probably crucially, the new focus on citizenship — into which science seems to have been squeezed as an afterthought — comes with no additional resources of time or money for teachers. Educational researchers, head teachers and pupils will draw their own conclusions about the real importance of citizenship education in the government's eyes.

Second, there are questions over how well specialist teachers of science will be able to initiate and manage classroom discussion with little or no formal training in these skills. Good teachers already introduce discussion into their lessons — but it will strike many science teachers in England as ironic that, a decade or so into the restrictive autocracy of the national curriculum, they are now expected to be more flexible and free-thinking.

Many students are drawn to science by its logic and the sense that a definitive approach can be found to complicated questions. But schoolchildren also relish an argument. Indeed, they are notorious activists on

some issues — the environment was discussed in classrooms long before mainstream politicians and oil companies discovered it. We should not underestimate the eagerness and ability of pupils to address seemingly remote and complex social issues while learning the hard scientific facts about cloning, food production and genetic testing.

Much of the citizenship agenda seems intended to address a growing reluctance among young people in Britain to participate in politics. Politicians like to label this as apathy, but many non-voters argue that they are making a deliberate choice not to take part in what they see as a remote process with little bearing on their everyday lives. Including the ethics of science in formal attempts to redress this could risk alienation by association. One science teacher with 20 years' experience said: "I've been including discussions like this in lessons for years, but I'd never tell the kids it was citizenship."

Those behind the new initiative stress its "light touch" and its "flexibility", meaning that it can be jemmied into existing lessons when teachers find the opportunity or time. Inevitably, some will try harder than others. But a way of introducing lively and relevant discussion into all science lessons already exists — and not as an afterthought. Science teachers should be given the training and the time to include it as a matter of course. Educationalists should listen to teachers and loosen the shackles of the national curriculum. ■

## How to encourage the right behaviour

**The sharing of published data and research materials is a requirement of many journals. Can we ensure that it happens?**

**“**When I started on this I thought it would be boring. Having seen such distinguished people work hard at it for a day, I see it isn't." So said Tom Cech, president of the Howard Hughes Medical Institute, at a gathering last week of academics, industrialists, administrators and editors at the US National Academy of Sciences seeking a consensus on the role of journals in the availability of published data and research materials. Cech's degree of interest is relevant because he heads an academy panel that is due to report on the issues of availability within a few months.

Virtually the only consensus to be found was of the motherhood-and-apple-pie variety. The stand-off persists between those seeking free access to all published data and those, not only in the database industry, who want journals to allow published data to be deposited in subscriber-only databases. As somebody remarked, not only the Devil but God is in the details: if you want to set out principles of access, you have to get into the context — a simple statement of principle cannot do justice to the varied state of the experimental arts in different fields and the differing expectations of the various research communities.

Equally important is the largely hidden problem of non-compliance with journals' guidelines on data sharing. Many refusals to share materials probably don't get reported, and where there are complaints, they go variously to funding agencies, authors' employers and journals, so that the full extent of non-compliance is unknown. Should there be a standard set of procedures for complainants to follow?

This journal's experience matches that of several editors at the meeting: a letter from the journal to an author is generally enough to overcome a reluctance to share, except where there are genuine obstacles to availability of certain types of material. A journal's editor is thus a sensible first stop for a researcher facing an author's stubborn refusal to share according to the journal's guidelines.

But there can be cases where a quiet word from the editor is inadequate. Whom do you complain to then? How does a dissatisfied researcher or editor take the case further? A threat from a funding agency (usually identified in the paper) probably carries the greatest clout. But can universities or other employers of recalcitrant researchers, eager to protect their laboratory's competitiveness, be relied on to follow the rules?

Cech also pointed out, quite rightly, that although many journals issue strong statements of principle about sharing, they give little or no guidance about how to put pressure on authors who refuse to comply. Point taken. We have now added to our website the simple instruction that anybody who fails to obtain data or materials in accordance with our Guide to Authors should contact the Editor at nature@nature.com, who will ensure that action is taken. That, at least, is a start. But for these and more serious cases of misconduct, funding agencies and employers should be more transparent about whom people should contact in cases of persistent or extreme bad behaviour, and their commitment to act on complaints. ■