EDITORIAL

BACK TO SCHOOL FOR MICROBIOLOGISTS

Microbiology must be fully integrated into school curricula to promote this exciting discipline. Emphasis needs to be placed now on strategies to pique childrens' interest in microbial life.

Technological progress is rapidly advancing microbiology, and not only impacts on the newer sub-disciplines of genomics, cellular microbiology and systems biology, but also allows researchers to tackle older questions in areas such as microbial physiology with renewed interest and rigour. Technological advances can also help in the important, but much less vaunted and newsworthy aim, of exciting youngsters about microbiology.

Topical research, such as using microorganisms to mop up toxic spills, often makes headlines, as do incidences of emerging disease or bioterror threats. These news stories are the tip of the iceberg, and, even though it is rewarding to see microbiology hitting the news-stands, it is important that all facets of the topic are communicated to the public. How then can we ensure that we interest the life-blood of any discipline — young students — in microbiology?

A fascinating report, 'Microbiology in the 21st century: where are we and where are we going?' was published in July of this year by the American Society for Microbiology. The report summarized discussions that began at a colloquium held in 2003 and were later debated at the ASM general meeting in 2004. One of the main recommendations was that building a better understanding of microbiology in schools would foster public interest in our favourite subject. The ASM is not alone in tackling the future of microbiology and in 2003 the Federation of European Microbiological Societies published a 'European declaration for microbiology'. Enhancing public awareness and integrating microbiology into scientific and social educational systems were two of the highlighted areas in this document.

How can technology help to achieve these aims? First, web-based resources can reach children worldwide and help to form a widespread network of enthusiastic 'micro-savvy' kids. Quizzes, interactive learning formats, like the Microbe zoo, videos, as exemplified by those on the Cells alive! web site, and even computer games are just some of the innovative formats that can involve children in microbiology activities.

The ASM has pioneered several strategies to educate the public, such as MicrobeWorld radio, which discusses microbiological topics using everyday language and which carers and children can enjoy together. MicrobeWorld activities (free to download) can be enjoyed in the classroom — or even at home! — and are a cheap and fun way to interest kids in microbiology. Topics tackled include microbial contributions to food production, such as how microorganisms help to make sauerkraut and how microorganisms help peanuts to degrade. Along similar lines, the Society for General Microbiology (UK) runs courses that update teachers on new ways of teaching microbiology and has a useful resource, Microbiology online, that teachers can dip into. Visual appeal is always an advantage, and, if microscopes are not available, a superb collection of images, many of marine microorganisms, is available for use in the classroom at the Marine Biology Institute's (Woods Hole) microscope site.

One effort pioneered by scientists at the University of Delaware enables students to 'virtually' participate in a research cruise. The next expedition, 'Extreme 2004', is launching soon, and will involve children (45,000 children from 675 schools mainly from the United States but also from six other countries) in the cruise, and is even accompanied by a German translation for the first time. This year the focus of the programme is environmental genomics. Extreme 2004 encourages students, with their teachers, to devise experiments for the cruise scientists to carry out, has a daily diary from a crew member and will field questions from children, a memorable way to communicate the daily life of a marine microbiologist.

Ultimately, only changes in government policy will filter through to curricula, and to influence policy, leaders from the world's microbiological societies will need to campaign hard. Until then, endeavours to reach out to school children worldwide should be publicized, encouraged and appreciated by the microbiology community. After all, new microbiologists are the future for us all.