

# SSR

December 2018  
volume 100 number 371

Science and society



ASE schools exhibition

# FSC A level biology fieldwork



[www.field-studies-council.org/alevelbiology](http://www.field-studies-council.org/alevelbiology)

Up to **5** named practicals ticked off\*

All **5** practical endorsement criteria assessed

**3** stats tests taught

**3** different ecosystems studied

**36** hours of teaching

Just **5** days off the school timetable

**FSC**

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## Health & Safety

For all practical procedures described in *SSR*, we have attempted to ensure that:

- all recognised hazards have been identified;
- appropriate precautions are suggested;
- where possible procedures are in accordance with commonly adopted model risk assessments;
- if a special risk assessment is likely to be necessary this is highlighted.

However errors and omissions can be made, and employers may have adopted different standards. Therefore, before any practical activity, teachers should always check their employer’s assessment. Any local rules issued by their employer must be obeyed, whatever is recommended in *SSR*.

Unless the context dictates otherwise it is assumed that:

- practical work is conducted in a properly equipped laboratory;
- any mains-operated and other equipment is properly maintained;
- any fume cupboard operates at least to the standard of CLEAPSS Guide G9;
- care is taken with normal laboratory operations such as heating substances or handling heavy objects;
- good laboratory practice is observed when chemicals or living organisms are handled;
- eye protection is worn whenever there is any recognised risk to the eyes;
- fieldwork takes account of any guidelines issued by the employer;
- pupils are taught safe techniques for such activities as heating chemicals or smelling them, and for handling microorganisms.

Readers requiring further guidance are referred to:

*Hazcards* (CLEAPSS, 2016 and updates)

*Topics in Safety, 3rd edn* (ASE, 2001; updates available at [www.ase.org.uk/resources/topics-in-safety](http://www.ase.org.uk/resources/topics-in-safety))

*Safeguards in the School Laboratory, 11th edn* (ASE, 2006)

*Preparing COSHH Risk Assessments for Project Work in Schools* (SSERC, 1991)

SSERC hazardous chemicals database ([www.sserc.org.uk/health-safety/chemistry-health-safety/hazchem\\_database-2/](http://www.sserc.org.uk/health-safety/chemistry-health-safety/hazchem_database-2/))

*Be Safe! Health and Safety in School Science and Technology for Teachers of 3- to 12-Year-olds*, 4th edn (ASE, 2011)

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# Contributing to SSR

We welcome contributions for all sections of *School Science Review*. For reference, a full page of A4 text in the journal is about 800–850 words; including two small figures on a page would bring that down to about 600 words.

These can be emailed to The Editor, [ssreditor@ase.org.uk](mailto:ssreditor@ase.org.uk), or posted to The Editor, *School Science Review*, ASE, College Lane, Hatfield, Herts AL10 9AA. Detailed advice on the submission of articles and Science notes is available on the ASE website at: [www.ase.org.uk/content/submission-guidelines](http://www.ase.org.uk/content/submission-guidelines).

Themes being considered for the future for which submissions are invited:

- Everyday science
- The periodic table
- Science applied to healthcare

In the previous edition, I mentioned sending my first proposed article to *School Science Review* and how it was a question of waiting to hear whether it would get published. I can understand why it took some time. With the bulk of our content being individually offered, we cannot know how often articles will arrive or how many. It is a random process. Authors and the Editorial Board members and Associates who referee articles are volunteers and have many other commitments that have to take priority. This means that, for some articles, it can be quite a long time from submission to publication.

The opening item in this issue is a letter from Stuart Leadstone. Motivated by the decision to clear his collection of copies of *SSR*, which had been carefully stored for over 50 years, he decided to offer a report about his thoughts during that time span. The initial letter contained much of the same content as my own article written in the September edition to recognise the start of the 100th year of *SSR*. He had other points to make and has revised his submission to produce his own view of significant features of the last 52 years.

There are just two *Science notes* in this issue. Keith Ross, who will be guest editor for the theme in March concerning applications of science at home, has provided a series of ideas on introducing chemistry using effective demonstrations. The other contributor, Steven Weir, describes use of a toy in a mechanics application. Steven has provided several physics articles in a relatively short time, and others are in production.

At the ASE Annual Conference in January 2018, I made time to look in at the schools exhibition. I wanted to see what items in the display could be adapted to provide written accounts to share with the many teachers among our readers who are not able to attend the Annual Conference. Three articles are included here. Richard Spencer describes research into trying to enable grass to grow more quickly than would naturally occur in the winter when the days are short. Artificial lighting is used to encourage photosynthesis and the investigation concerns selecting the most effective colour. Avoiding the use of ineffective colour can be a cost-saving.

Klaus Blachut from Germany has invested in a 3D printer, encouraging his students to design and make

apparatus for use in chemistry. After initial investment, the resulting apparatus can be cheaper to produce. Time will tell if it is also more durable. Catherine Dunn from Scotland has worked with different ‘smart materials’. Colour-sensitive paint has been used to study temperature detection, which can then be used to provide a quick indication of whether liquids poured into glasses are too hot or too cold for immediate drinking. A second project involved use of Electrolycra; this changes resistance in response to changes in force applied. An unusual application is to enable changes in force during a collision to be detected and recorded.

At the start of 2018, Ralph Levinson (of UCL Institute of Education) contacted me to say that he was working with a project in which people involved in education in various parts of Europe were studying environmental aspects of science and social consequences with their students. Ralph has been assisted by Ruth Amos and introduces the ‘Science and society’ theme and the six theme articles on p. 29.

The other major articles that complete this edition illustrate different ways of approaching the process of education. How do we learn? How do we encourage and enable students to learn?

Rebecca Torrance Jenkins provides Part 2 of an article on ‘brain-targeted teaching’, a sequel to the first part published in our December 2017 issue. Finally, we have a dual offering from Naomi Hennah on ‘open badges’. These describe the use of computers to record a student’s progress throughout their education, with the issue of a badge (virtual, but printable if required!) when a particular stage and standard has been reached. A third part will appear in a future edition. Much of the content of these last three articles would be applicable to many subjects, not just the sciences.

Finally, in haste when writing close to a printing deadline, I often forget to mention the review sections. Miriam Chaplin, David Moore and Susan Judge continue to collate reviews of books, websites and apps. Their dedication deserves our thanks!

**Geoff Auty**

Editor, *School Science Review*