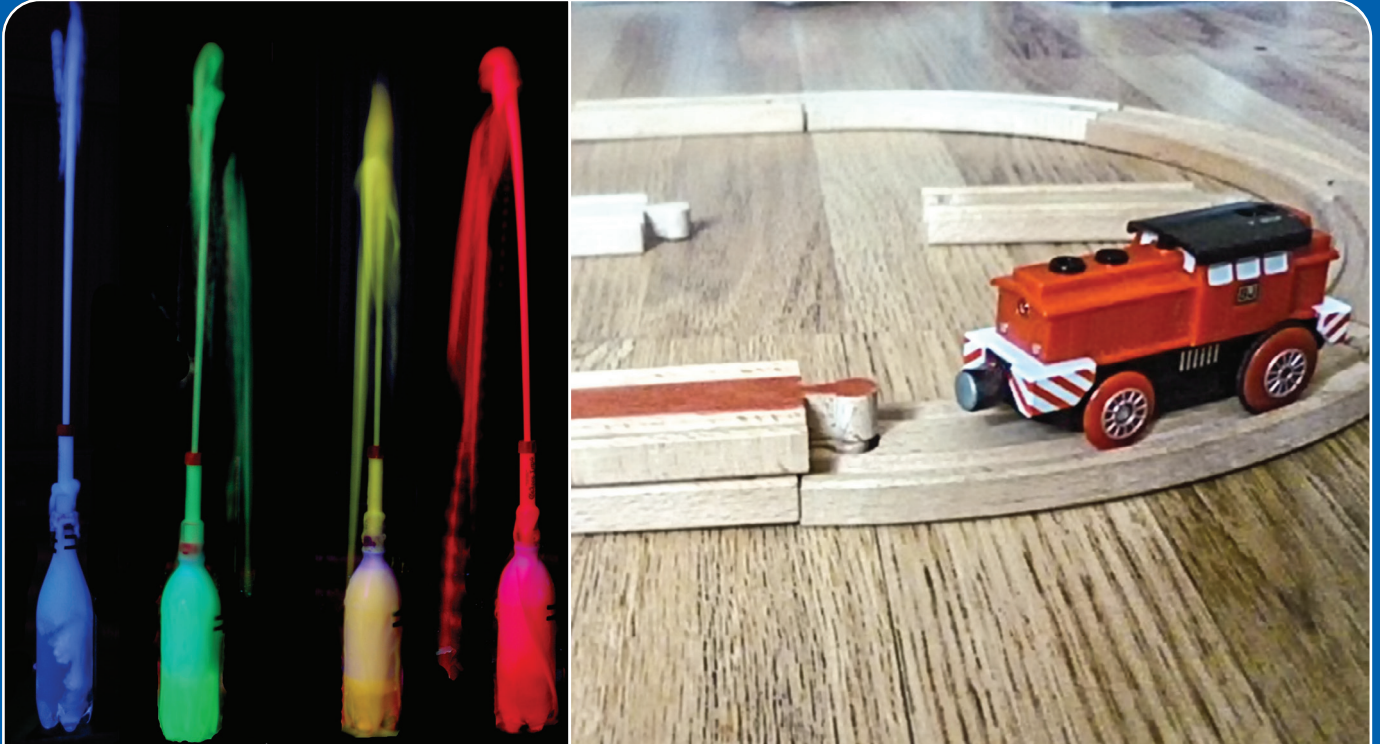


SSR

March 2022
volume 103 number 384



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School Science Review

The ASE's journal for science education 11–19

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School Science Review is published in March, June, September and December as a benefit of 11–19 membership of the Association for Science Education. It is also available on subscription from the ASE.

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ISSN 0036–6811

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Printing	Holbrooks Printers Ltd, Portsmouth, England

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Health & Safety

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

- the requirements of UK health & safety law are observed;
- 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 and technicians should always check their employer's risk 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:

Safeguards in the School Laboratory, 12th edn, ASE, 2020.

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

Topics in Safety, ASE, latest version on the ASE website: www.ase.org.uk/resources/topics-in-safety (login required).

Hazcards, CLEAPSS, latest version, and other relevant publications, on the CLEAPSS website: www.cleapss.org.uk (almost all schools, colleges and teacher training establishments in the UK outside Scotland are members, as are many overseas).

Hazardous chemicals database, SSERC, latest version on the SSERC website: www.sserc.org.uk/health-safety/chemistry-health-safety/hazchem_database-2/ (schools, colleges and teacher training establishments in Scotland).

Preparing Risk Assessments for Chemistry Project Work in Schools & Colleges, SSERC, 2020.

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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. Articles should be no longer than 4000 words in total.

These can be emailed to The Editor, 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/submission-guidelines.

The amount of recycling to reduce waste has been increasing for many years. As teachers, we are likely to reuse the same teaching techniques for the same topics as we did the previous year. The new batch of students will not have seen them before. At the start of the COVID-19 pandemic in early 2020, teachers had to be creative in developing ways to manage teaching at home. Practical science was perhaps the most challenging, but we were able to report on several initiatives by teachers. After two years of lockdowns, getting back to 'normal' is now being tried, but not all students will have made the same progress during that time. The consequence for us is that we received very few proposals for new articles.

Hence, we have decided to look through some previous issues. Andy Markwick has selected six *Science note* items from about 10 years ago. Teachers who have joined the profession during this period are very unlikely to have seen them before, and older members might have forgotten them.

In November 2019, a one-day Yorkshire conference was held at Sheffield Hallam University. A team of young trainees came from a pharmaceutical company to illustrate the work they did on medical devices, focusing on artificial joints. I asked for a write-up to be included in our issue that focused on Science in Healthcare, but only a few weeks later, there was news of a mystery virus. Although work had started, involving a team of about 20 graduate trainees, lockdown stopped group meetings, working from home was introduced and, of course, new priorities emerged. Producing this article was well down their list of priorities, and coordination was passed to different people as the months went by. Eventually, the write-up was completed by Zoe Pagett and Robert Morris.

Another article on health comes from long-standing contributor Frank Harris, who makes the point that body mass index is not accurate for large or small people. Jack Mussard with Michael Reiss (the current ASE president and a long-standing supporter of this journal) study and explain difficulties involved in learning about genetics.

The structure of the 'noble gases' makes them inert and students are initially taught that they do not form compounds. However, Christopher Talbot in Singapore, a very frequent contributor over the years, explains that there are exceptions. A substantial article comes from a team led by Hal Sosabowski at the University of Brighton. They conclude the overview of natural products begun in previous issues.

Keith Gibbs has been a frequent presenter of activities in practical physics at ASE conferences. At the start of COVID-19 lockdown, he decided to video his demonstrations at home and put them on *YouTube*. In

this issue, he shows ideas for some investigations that can be done at home. These were developed for use in China where he has contacts.

Christopher Talbot offers a second article with support from Jacky Wong Teck Tian and Norman Billingham, which demonstrates that temperature changes as a result of using energy to stretch and release rubber bands can be easily detected.

Amanda Clegg and Karen Collins share with us a study of embedding open-ended investigative practical work into the curriculum, and the effect of this on understanding for ages 16 and over. This is surely a more effective approach than just following recipes without the need to think.

The concerns about climate change continue to feature in the national news, and the last two articles provide a small sequel to our December issue. Leigh Hoath and Heena Dave explain why this topic should feature in the school curriculum at all levels, while Maria Rossini discusses ideas for teaching children about climate change and sustainability.

Finally, at the end of this issue we have our regular *Reviews* section, the editing of which has now passed to Maria Kettle, a long-standing member of our Editorial Board, who takes over from Miriam Chaplin. And Sarah Sephton has returned to the role of *Science websearch* editor, after a break to focus on increased school responsibilities, taking over from David Moore who very efficiently covered this role in the meantime. Thanks to Miriam for her many years of service as *Reviews* editor and to David for keeping us up to date with websites.

Further changes are about to occur. *School Science Review* started over 100 years ago to enable teachers to share new ideas as science evolved. However, this will be the last *School Science Review* in the current format. While the disruptions due to the pandemic have had an effect, it seems that there are other reasons why we have been receiving fewer articles from teachers. Catching up on essential material for examinations has to be their priority. With fewer initiatives coming from schools over a much longer period, probably due to the tight focus on examination demands, more has come from educational research – often in the form of themes collated by teacher-training departments in the universities. For these reasons, *SSR* will be published in two parts, three times a year, so presenting readers with six publications over the year, with each issue comprising a practitioner-based component (paper and online) and an in-depth online journal, to be published simultaneously. More details will appear in the May issue of *Education in Science*.

Geoff Auty

Editor, *School Science Review*