

Teaching ideas – complete

Education in Chemistry

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rsc.li/EiC517-know-your-poison

This experiment accompanies the above article ‘Know your poison’.

In your class

This article discusses many topics covered in intermediate and advanced level chemistry courses including chemical and spectroscopic analysis. It provides one interesting context to these topics and highlights ethical issues scientists can face. Pupils preparing for interviews for medicine, pharmacy or other areas where confident discussion of the ethical considerations of scientific thought and action is desired may find this useful. The narrative could be handy for form time, PSHE or even assemblies.

Download the text of this article, and all the related teaching resources, worksheets and experiments from the Education in Chemistry website: rsc.li/EiC517-know-your-poison

Detective work

(Chemical analysis experiments, ages 11–14 and 14–16)

Guy set up a website offering simple chemical tests that can identify drugs by producing a colour change. Simple test tube analysis lends itself to practical work, but can often feel like a series of facts to learn. Questions in this area are becoming increasingly sophisticated, using contexts to ask pupils to plan an analysis that distinguishes between different samples.

The accompanying resources get students doing pupils doing detective work with chemical tests. They provide scaffolding and support for lower achieving or younger students and a challenge for those who have significant prior knowledge and need to practice the skill of planning. As some foodstuffs are included in the mixtures, food tests are included to provide a cross-curricular resource that may be particularly useful for double science classes.

Download the student handouts and teacher notes from the Education in Chemistry website: <http://rsc.li/EiC517-know-your-poison>

Matching molecular fingerprints

(Spectroscopy activity or homework, age 16–18)

Advanced chemistry courses cover all the spectroscopy techniques mentioned in this article. Ian Blagbrough’s team at the University of Bath have found unexpected substances mixed with drugs including painkillers. The Bath team can identify what’s in the mixtures from the spectra they produce. This activity asks pupils to match the peaks in infrared, ^1H NMR, ^{13}C NMR and mass spectra for paracetamol, ibuprofen and aspirin with the functional groups present in these molecules.

There is also a wealth of resources to support spectroscopy teaching on the Learn Chemistry site. Most of these are within [SpectraSchool](#).

Pupils can get hands on experience of spectroscopy with the Royal Society of Chemistry’s spectroscopy in a suitcase scheme (SIAS). Find out how to book at rsc.li/sias

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Determining dosage

(Mass loss test science club activity, ages 11–14, 14–16)

Another method of analysis described in the article is a simple mass loss test. This would make an interesting investigation for a science club. The article makes good pre-reading and the pupils can carry out their own mass loss tests using tablets they are familiar with.

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Reading for understanding

(DART comprehension exercise, age 16–18)

Literacy is important for success in all examinations and for wider success in school and the workplace. Reading scientific articles can be challenging for pupils and it is useful to scaffold their reading with questions to help their comprehension. This exercise uses focused questioning to help students develop understanding of the key ideas in the article.

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Will you use this article and resources with your students? What would make it more useful to you in the classroom? Let us know: eic@rsc.org
