



**T**his print copy of *Science in School* has a mass of nearly a quarter of a kilogram. But do you know how a kilogram is defined? And did you know that the definition may be about to change, with the help of CERN (page 59)? Does this have anything to do with the Higgs, you might ask? It doesn't, in fact, but we're proud to have CERN's director general, Rolf Heuer, share his excitement about the Higgs boson (page 6).

The discovery of this new boson is certainly a historic moment in physics, perhaps comparable to Galileo Galilei's discovery of Jupiter's moons in the 17<sup>th</sup> century. Now you and your students can follow in his footsteps, re-discovering the motions of these celestial bodies (page 41). If you're a chemistry teacher, however, you may be more interested in how another cornerstone of science, the periodic table, is still under development, with scientists striving to create the next heaviest element (page 18).

And during your stroll through history, you could step all the way back into the Stone Age with your pupils, with an outdoor project for primary school (page 48). As far as we know, people in the Stone Age didn't have soap, but the Babylonians, 5000 years ago, did. Today, scientists are adapting this old invention by making magnetic surfactants (page 22), which could, for example, be used to clean up oil spills before they spread through the ocean, following the currents.

Ocean currents and waves are a complex and exciting topic, although they aren't always addressed outside geography lessons. With the help of some simple activities, however, your students can explore the physics of the ocean for themselves (page 28).

Out on the open seas, fishermen need to pay careful attention to currents as they search for fish. On a microscopic scale, scientists at EMBL are also concerned with fishing – the way that microtubules 'fish' the chromosomes apart during cell division. It turns out that the process is rather inaccurate, which is one cause of infertility (see page 13).

Bringing cutting-edge science such as this into the classroom can be a powerful motivating factor for your students – and of course it's part of the purpose of *Science in School*. To help you do this, we've got some ideas on how to introduce and analyse research papers with your students (page 36). Alternatively, you could use some of our simply written but informative science articles; for example, you could introduce your students to the science involved in orthodontics (page 54) or to the mystery of altruism (online only).

*Science in School*, of course, relies on the altruism of many of its readers, so why not get more involved? You could translate articles so that we can share them with other teachers in your country; review articles to ensure they are up to standard; review websites and other materials; or submit your own articles. And of course, you can spread the word about *Science in School*, for example by 'liking' our Facebook page.

We wish you a cosy wintertime and look forward to seeing you in 2013!

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