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Chemistry beyond the chemicals

Most middle students have a very narrow definition of chemistry. They think of chemistry as the study of artificial compounds created in a lab that have long, complicated names, and indecipherable formulas. Students believe that “real” chemicals must have funny names, come from bottles on the science stock room shelf, and have a special sheet of precautions attached to them. They think that chemical reactions only take place in beakers, test tubes, or strangely shaped glassware—and only in laboratories, never inside plants, animals, or the human body. Things have to bubble, fizz, change color, suddenly explode, or be dangerous in order to be chemical reactions. Most do not associate chemicals and chemistry with everyday events such as digestion, photosynthesis, respiration, rusting, rotting, food preservation, changes of phase, or with the many compounds and processes that we need for daily living.

Middle level teachers need to show students that chemistry is not just about blowing things up or memorizing the periodic table of elements. We should help them see that chemistry involves living organisms as well as nonliving objects and is much more than a school subject or the industrial production of materials. We must lead students to realize that since all matter is made of elements, the components of the human body, the foods we eat, the things we touch, smell and see around us could all be classified as “chemicals” as easily as anything listed on a product label or created in a laboratory.

This issue of *Science Scope* contains a collection of articles to help you capitalize on your students’ curiosity to teach them the essential “everything, everywhere” nature of chemistry.

May you find the right “chemistry” with all your classes!

Inez Liftig
Editor, *Science Scope*

New column: *Science Scope* is proud to launch another new column in this issue. “Everyday Engineering” will be written by two nationally recognized science educators, Richard Moyer and Susan Everett, both from the School of Education at the University of Michigan-Dearborn. Their column will feature the history of the design and development of ordinary devices such as toothbrushes, squirt guns, soap dispensers, zippers, clothespins, and turkey basters. They will introduce you to hands-on, standards-based activities that integrate engineering with science. Their contributions will help strengthen STEM initiatives by introducing middle school students to the marvels of engineering through devices that are familiar to them. We are very happy to welcome Susan and Richard to the *Science Scope* team.



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