

The First Day

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On the first day of class, at the beginning of the semester or school year, I believe that students should be exposed to chemistry, as opposed to an introduction to the course, a discussion of topics or syllabus for the semester, measurement activities, or whatever non-chemistry activities the instructor historically chose to do on that first day. Students should see and experience chemistry. That means chemical demonstrations and activities.

Make that first day of class special. Save that discussion of the course topics or class rules for the second class. Make your class different from that history class, math class, etc. Your students should leave that first class thinking that chemistry is neat, exciting, interesting, and fun.

I have tried to find a starting point, for each new class, that is related to something in the news and/or in the experience of my students. For years, I started off my classes with an historical background of chemistry to about 1800. That allowed me to develop some chemical concepts, introduce many elements (samples passed around the class), demonstrate properties of gases (oxygen, hydrogen, and carbon dioxide), combustion (“burning” of iron, and magnesium) and selected chemical reactions.

More recently, in September, right after summer vacation, it was “How was your summer?” This was followed by “What did you do during the summer?” There is always someone who was at the beach. That allows me to ask, “Did you get a sunburn?”. To which the usual answer is “No, I used sun block.” That reply gets me into a discussion of sunlight and UV light, followed by demonstrations of the electromagnetic spectrum, visible light spectra, emission spectra, ozone depletion, greenhouse effect, and elements, with the finale being I show the class a periodic table containing pictures of the elements.

The space shuttle, the international space station, and the Hubble space telescope gives me another path where I first pass “samples” around the class while I do some necessary tasks such as calling the class roll. I ask the class to tell me what they observed about the “samples”. The reply is that they are rocks, that one is heavier than the other, they are black, and some other similar observations. I then say that “I don’t know where the samples came from.” Then I say that “One of the samples may be older than the earth.” Finally, someone will ask “Are they meteorites?” After establishing their identity, I open an illustrated periodic table and tell the class “We have never found an element, anywhere in the universe, that did not correspond to the elements on the periodic table.” I may have to repeat that statement until someone asks “How can you detect elements

elsewhere in the universe?” That takes me to a series of demonstrations of the electromagnetic spectrum (x-rays, UV, visible light spectra, IR, radio waves), absorption spectra, emission spectra, and light scattering by atmospheric gases and particulates (the Red Sunset Demo).

Another opening class demonstration is the chemical genie produced by the reaction of 30% hydrogen peroxide and manganese dioxide. I ask the class “Did you see a genie?” After some yeses and no’s, I explain that they really saw a fog and that the decomposition of the hydrogen peroxide produced water, oxygen, and heat. This leads me to demonstrate the preparation and properties the common gases oxygen and carbon dioxide, the “burning” of iron and, eventually, a discussion of elements, showing the class the illustrated periodic table and passing around samples of elements from my element collection.

You should use these examples to develop your own first day presentation to get your class interested in your course, to get the students excited, to get them to look through their chemistry book, and, if you have some good web sites to explore, get them to experience chemistry on the internet.