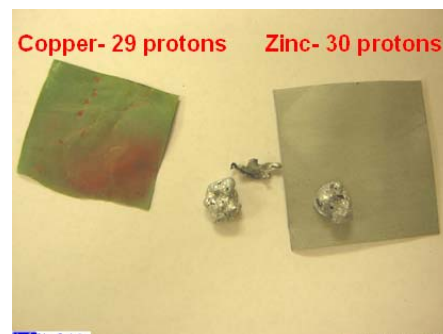


## Difference 1 Proton Makes

This short demonstration reinforces what protons are, where they are, and just how important they are by illustrating what happens when 1 little bitty proton is added or removed.



In this activity you'll compare examples of things that are different by just one proton. But the point here really isn't the difference. You're doing all this to get their interest so you can remind them over and over that protons are in the nucleus, and the number of protons in the nucleus determines the atomic number. And those are the 2 most important things students should know when learning chemistry.

Have a periodic table close by. This demonstration will give you a reason to make good use of it.

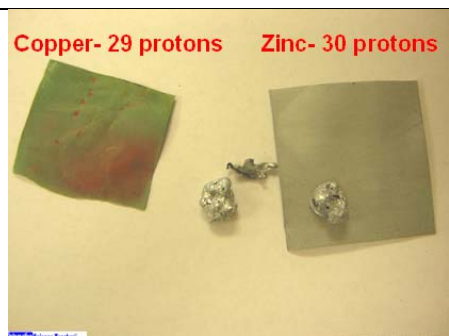
1. Get a small piece of magnesium (if you have it) and some aluminum foil. Hold up the magnesium- it looks dull, gray, and rough. Aluminum is gray, but is shiny. Hold them up side by side while you make your point- the only difference between them is one little proton in the nucleus. That's it!



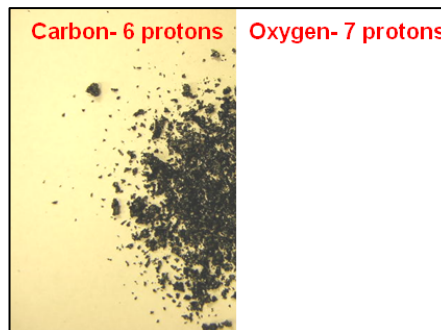
Put another way- hold up the aluminum- see how shiny it is? Ask you students what will happen if just one little proton was removed from the nucleus, taking you down to 12.

This is available as a PowerPoint- see last page.

2. Another set of common things that are just 1 proton apart is copper and zinc. They're not the same color. But, as shown, both have about the same texture and can be hammered into sheets (are malleable).



3. Our last comparison is the most impressive. Carbon, which is in just about everything around us, has 6 protons in its nucleus and, by itself, is black. After our first two examples students won't be expecting a huge difference when a proton is added. But ask  $6 + 1$  is 7. Have students find it on the periodic table- nitrogen. How similar is it to carbon?



Depending on how well stocked your chemicals cabinet is, you may have other elements you can continue this with.

Come back and visit [InteractiveScienceTeacher.com](http://InteractiveScienceTeacher.com) to upgrade this lesson with:

**PowerPoint-** lead your students through the quiz click-by-click

