

## Mineral Spotlight: Pyrite

You're not a fool if you get tricked by this week's Mineral of the Week, pyrite! Though this sulfide looks golden from afar, its chemical formula,  $\text{FeS}_2$ , is distinctly lacking any of the precious metal (Au), giving it the common nickname "fool's gold". If your goal is to find gold, though, not all hope is lost. The formation of pyrite can sometimes indicate the presence of gold as they can form under similar conditions. Because of this, pyrite can also contain extremely trace amounts of actual gold. The mineral's name gives us great insight into its ancient uses. "Pyrite" comes from the Greek "pyrites lithos" meaning "stone which strikes fire". Pyrite was one of many stones used in ancient times to start fires -- Pliny the Elder, an ancient Roman naturalist, wrote that when struck with a steel blade, pyrite produces sparks. Later in history, pyrite was used in early firearms because of this same property. Today, pyrite is essential to energy. It is used extensively in the production of batteries and solar panels and is a common sulfur ore.

Pyrite can come in many forms, but is most well known in its cubic crystalline form (slide 3). It is the most common sulfide mineral and forms in all major categories of rocks (igneous, metamorphic, and sedimentary).

Pyrite is essential to the study of geology because it has a deadly disease -- "pyrite disease" is the informal term for the way pyrite weathers when exposed to humid air. It reacts with oxygen and water and creates rust, sulfuric acid, and sulfur dioxide gas. This causes the pyrite to crack, crumble, and eventually disintegrate. Pyrite disease is useful to geologists because if a sedimentary rock has pyrite sediments in it that show no signs of pyrite disease, it can be assumed it formed in an environment without oxygen.

We have many samples of pyrite in the museum, but favorites include the calcite on botryoidal (round!) pyrite (slide 1) and the pyrite "dollar" (slide 4). Stop in to see them and get your Mineral of the Week sticker!

This feature was posted on Dice Museum social media by Museum curator Jillian Herlinger on 6/1/2022.

