INSIDE STEM

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STEM in the News

Scientists have recently discovered that when lead is compressed to extreme pressures, it is stronger than high-strength steel. They used a laser compression tool to rapidly squeeze the chunk of lead to about 400 gigapascals, which is about the same pressure found in the Earth's core. While seemingly unimportant, pressure plays a huge role in the form of materials. One example is that when water is brought to an extremely low temperature, it boils. The opposite can be seen happening with hydrogen, when exposed to intense pressures, the gas becomes a metal-like substance.

STEM Career Spotlight

Chemical engineers are very important in the creation of many products we eat and use. These engineers come up with and design many chemical manufacturing processes. They use the principles of chemistry, biology, physics, and math in their jobs every day. Chemical engineers earn an annual median wage of $104,910. Required education: at least a bachelor's degree; a master's degree for a more advanced position

Source:
https://www.bls.gov/ooh/architecture-and-engineering/chemical-engineers.htm

"Science knows no country, because knowledge belongs to humanity, and is the torch which illuminates the world." - Louis Pasteur

STEM in History

People have been studying chemistry as early as 1000 B.C. In 1661, Robert Boyle, a renowned chemist and physicist, made an extraordinary discovery. He learned that the volume of gas decreases with increased pressure and vice versa. In 1908, Ernest Rutherford won the Nobel Prize in chemistry for his discovery of the disintegration of elements and the chemistry of radioactive substances. Their discoveries have undoubtedly made a significant impact on the subject of chemistry.

STEM Across the Curriculum

One way to point out chemistry in art is during the clay firing process. Fill two clear tubs with water, and place a bisque-fired piece in one tub and a greenware piece in the other. The greenware piece will start to dissolve, but the bisque ware piece will not, due to dehydration. It is when the water is part of the molecular structure of the clay, it goes away.

Source:
https://theartofeducation.edu/2018/02/06/8-art-projects-incorporate-science/

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STEM Sports

Delayed-onset muscle soreness, also known as D.O.M.S, is experienced when one starts to feel some degree of muscle injury and when they are going through a period of muscle soreness. D.O.M.S. is common when playing many types of sports such as basketball and football. To avoid this, consume more potassium! Potassium is a chemical element found in the periodic table. Potassium is used during exercise to prevent muscle cramps, regulate fluid balance, ease muscle contractions, and heighten nerve signals. Bananas are a great source of potassium and are essential for consumption in many sports because of these reasons. Stay healthy, and eat more bananas!

"If I have a thousand ideas and only one turns out to be good, I am satisfied." Alfred Nobel

#STEM@ADM Spotlight

Mrs. Barrett is a 7th grade science teacher at Alice Drive Middle School. She teaches subjects ranging from cell compositions to parts of the body. She makes use of chemistry in her class with various activities, for example, a lab for chemical reactions. Mrs. Barrett does a fantastic job of engaging her students in her lessons and giving them background knowledge in chemistry. Thank you, Mrs. Barett, for sharing your passion for STEM with your students!

Famous STEM Person

Ida Noddack was a German chemist and physicist. In 1934, she was the first to propose the idea of nuclear fission. She was nominated 3 times for the Nobel Prize in Chemistry, and also discovered the element Rhenium.

STEM Challenge

Invisible Ink Challenge

Materials: One half of a lemon, one half teaspoon of water, small bowl, spoon, white paper, Q-tips, and a lamp with a lightbulb that puts off a lot of heat (i.e. 100-watt lightbulb)

1.) Squeeze the juice of your lemon half into the bowl.

2.) Add the water and mix with a spoon.

3.) Soak the Q-tip in the lemon juice-and-water solution.

4.) Use the damp Q-tip to write your top-secret message on the piece of paper.

5.) Wait a few minutes for the paper to dry. While you're waiting, you can switch on your lamp to give the lightbulb time to heat up (being careful not to touch the hot bulb itself).

6.) When the paper is dry, hold it up to the hot lamp for a few minutes

Source: https://www.scientificamerican.com/article/bring-science-home-invisible-ink/

STEM Puzzle

Scan this QR code and challenge yourself with a Quizizz game relating to chemistry!

SCAN ME

Editorial Team: 2019-2020 Alice Drive Middle School STEM Ambassadors