



Challenger's Morning Science Segment:

September 19, 2016

Topic: Chemistry of Polymers

Build: Pencil through a Plastic Bag

Materials Needed:

Plastic sealing sandwich bag / water / sharpened pencil(s)

How to pierce a plastic bag with a pencil so that it doesn't leak: First fill a plastic sealing sandwich bag half full with water and then seal the bag closed. Next sharpen a pencil(s) so that it has a VERY sharp tip. [Note- A pencil with a round shaft works much better than one with straight edges.] While holding the closed bag in one hand, take the pencil in your dominant hand and pierce one side of the water-filled bag. Continue to push the pencil through the water and out the other side of the bag. The magic of science! The pencil is suspended in the water-filled bag, and no water is leaking.

The science [credit: <https://www.stevespanglerscience.com/lab/experiments/leak-proof-bag/>]:

This trick isn't a trick at all! It is a demonstration of the chemistry of polymers. Most bags are made of low-density polyethylene (LDPE). This material is very flexible. The sharpened pencil "can easily slip between and push apart the flexible strands of spaghetti, but the strands' flexible property helps to form a temporary seal against the edge of the pencil." Next, see how many pencils you can pierce through your water-filled bag!

This activity ties into the Challenger Learning Center of Maine, where students experience a newfound excitement for science, technology, engineering and math.

What's up next? Afterschool LEGO Club for grades 2-5! Two sessions in October and November. Limited space remains - use the website to register. FMI- www.astronaut.org