



#FontanaTogether

Leak-Proof Bag

Simple science experiment showing the flexible and durable nature of polymers, are found on the typical every day zip lock bag.

Materials:

- Plastic zip lock bag
- Sharpened color pencils
- Water

Instructions:

1. Fill and seal your plastic Zip lock bags with water.
2. Head outside or over a sink or bath.
3. Have the children gently stab each pencil through the bag until it pierces sides
4. Watch, surprise, surprise and no water leaks out!

Why does this work:

The zipper-lock plastic bag you used was most likely made out of a **polymer** called low-density polyethylene (LDPE). It's one of the most widely used packaging materials in the world. LDPE is low in cost, lightweight, durable, a barrier to moisture, and very flexible.

Think of the polymer molecules as long strands of freshly cooked spaghetti. The tip of 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. When the pencil is removed, the hole in the plastic bag remains because the polymer molecules were pushed aside permanently and the water leaks out.

