



## Curiosity Guide #410

### Matter

Accompanies Curious Crew, Season 4, Episode 10 (#410)

### Leakproof Polymer

Investigation #2

#### Description

You can poke holes in this one!

#### Materials

- Ziplock baggie
- 4 or 5 round pencils
- Pencil sharpener
- Water
- Paper towels

#### Procedure

1. Sharpen the round pencils so that each one has a fine point; then set aside.
2. Fill the Ziplock baggie half-full of water.
3. Lift and hold the seal of the baggie in one hand while quickly piercing the tip of a pencil through the side of the bag and into the water.
4. Press the tip of the pencil through the other side of the bag so that the pencil sticks out.
5. Repeat with additional pencils.
6. Did the bag leak? Why or why not?
7. Would this action work with other baggies and different pencils?

## My Results

### Explanation

Most resealable plastic baggies are made from low-density polyethylene, or LDPE, plastic. Some of the advantages of the low-density polyethylene include its moisture resistance and flexibility. This durable polymer is a solid; however, it has long molecular strands that are very flexible. When you pierce the bag with the tip of the pencil, the point enters between the molecular strands, which immediately curve around the round pencil and create a watertight seal. Round pencils are easier to seal around than pencils with flat sides.

**Think about this:** Matter is anything that takes up space and has mass. Matter includes the couch you're sitting on right now, and the television that you're watching. Even people are made of matter. We usually describe three forms of matter with which we are most familiar, as solids, liquids, and gases. Solids, like a chair, an apple, or a pencil, keep their shape; while liquids like water can flow and fill the shape of the container they are in. Gas, like the air around us, will also fill in available space, even if we can't see it! So, the next time someone asks you what's the matter, you can say, "Anything that takes up space and has mass!"

**Parents and Educators: use #CuriousCrew #CuriosityGuide to share what your Curious Crew learned!**



*Curious Crew is a production of Michigan State University.*

*Learn more at [WKAR.org](http://WKAR.org).*

*© MSU Board of Trustees. All rights reserved.*