

Leak-Proof Bag

You will need:

Sharpened pencils, zip-up plastic bag, water

What to do:

1. Fill the bag half full of water.
2. Seal the bag.

What do you think will happen if you try to push a pencil through the bag?
This is your **Hypothesis** – a carefully thought out guess!

3. Push the pencil through the bag.
4. Push another pencil through and keep going.

What happens? Does it agree with your hypothesis?

Take it further:

Try experimenting with different size plastic bags, different shaped pencils or different amounts of water

The Science:

The plastic bag is made from a **polymer**, long chains of molecules that are flexible and give the bag its stretchiness. If you pierce the bag with pencils after it is filled with water it will not leak, because when the polymer (polyethylene) is broken the molecules move closer together. This makes them tighten around the pencils.

