

Leak-Proof Bag Experiment

This is a surprising science experiment that your child will surely be awestruck by! It involves poking sharpened pencils into a bag filled with water without spilling a drop. Geared toward preschoolers and kindergarteners, kids of all ages will feel like magicians as they poke pencils through the bag with no water leaking out. This Leak-Proof Bag experiment introduces children to the cool chemistry behind polymers—long chains of molecules that are flexible—the reason there are no spills!

What You Need:

- A large sealable bag
- Sharpened pencils
- Water



What You Do:

1. Show your child the baggy. Have them help you fill the bag with water, about "full."
2. Ask your child, "What do you think might happen if you poke a pencil all the way through both sides of the baggy? Could you make a prediction?" Tell them that you are going to try to do this with a sharpened pencil to see if their prediction was right or not.
3. Poke a pencil all the way through the baggy and have your child state out loud what they observed.
4. Help your child poke more pencils through the bag to see what happens. See how many pencils you can get into the bag.
5. Try different sized bags and different types of pencils to see if the leak-proof bag always works. Note: If you pull a pencil out, the bag will leak, so make sure to poke it all the way through and do not remove it until you are ready to have water everywhere.

The science behind this experiment has to do with the type of plastic that the baggy is made of. It is a stretchy type of plastic made up of polymer chains. When the pencil pierces the bag, the molecules in the polymer chain surround the pencil, sealing it up. And that's why you don't get any leaks! Of course, after your experiment, head outside to remove the pencils and have fun watering plants or playing with the water as it leaks through the holes.

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