

# A STEM in the Park

## Take Home Activity

# STEM

in the **PARK**™

Science, Technology, Engineering, and Mathematics

## No Pressure!

### ***What You Need***

- Plastic bottle with a lid
- Sharp object such as a nail
- Water



### ***What To Do***

1. Using a nail, or other sharp object, have an adult poke a hole in the middle of the bottle.
2. Covering the hole with your finger, fill the bottle with water.
3. Screw the lid back on to the bottle.
4. Remove your finger from the hole.
5. Find an unsuspecting friend or family member and ask them to help you open the bottle.
6. Stand back.

***Continued on back***

## ***The Science***

Air is all around us and is pushing with a force of roughly 15 pounds per square inch. That means, there is a lot of air pressing onto the plastic bottle; however, there is just as much pressure pushing outward. The pressure is equal inside and outside the bottle.

When the pressures are equal, the water just sits where it is, because there is no force acting upon it. Objects require a force to move!

When the cap is loosened, the forces become unbalanced because the weight of the water has a greater force than the air pushing in on the bottle, causing the water to pour out.

**Caution:** Adults only when poking a hole in the bottle.

***This activity is brought to you by the Great Lakes Science Center***

