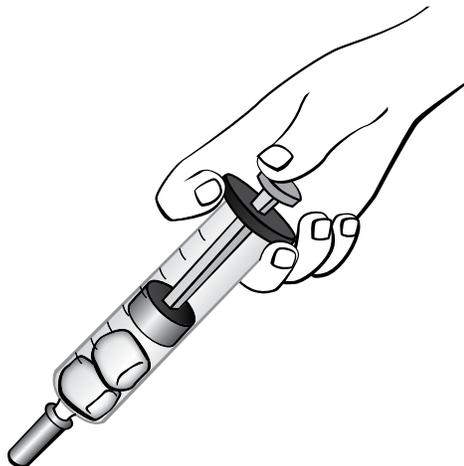


# ACTIVITY 44: BOYLE'S LAW LAB



## QUESTION ?

How do different items react to changes in pressure?

## SAFETY

Do not eat or drink any materials. Wear goggles in case the plunger flies out of the syringe. Clean up spills immediately.

## MATERIALS

Syringe, water, marshmallows, soda

## PROCEDURE

In this lab, you will investigate how different substances react when compressed or expanded in a syringe. You will put air, water, marshmallows, and soda in the syringe and make observations.

1. **Air:** Put the cap on the syringe with the plunger at the halfway point, put your finger over the end, or put on a cap (if available) and press down on the plunger.  
Q1: How far were you able to squeeze the air?  
With the tip still covered, pull the syringe out as far as you can.  
Q2: How far were you able to expand the air?

2. Water: Fill the syringe with water, trying not to allow any air bubbles. Put the cap on the syringe, or put your finger over the end and press down on the plunger.
  - Q3: How far were you able to squeeze the water?
  - Q4: Which is more compressible, gases or liquids?
3. Marshmallow: Put the small marshmallow in the syringe. Put the cap on the syringe or put your finger over the end.
  - Q5: What happens to the marshmallow when you pull out the plunger?
  - Q6: What happens to the marshmallow when you push down on the plunger?
  - Q7: Explain your observations about the marshmallow.
4. Soda: Put some soda in the syringe and put the cap on it (be sure that the soda isn't flat before you begin).
  - Q8: What happens to the soda bubbles when you push down on the plunger?
  - Q9: What happens to the soda bubbles when you pull the plunger out?
  - Q10: Explain your observations about the soda.