

Student Folio: Discover pumped hydro

Name: _____ Date: _____

1. Watch the **TedEd video** on perpetual motion machines and answer the following questions.

a. What is energy?

b. What is a perpetual motion machine?

2. **Creating Boyle's self-flowing flask (bottle).**

Read through the method below and make the following predictions before you do the experiment.

a. What do you think will happen when you pour the water through the bottle? Why?

b. What do you think will happen when you pour the soda through the bottle? Why?

Materials

You will need the following materials for each group.

1	Empty plastic soft drink bottle
1	Pair of scissors
1	Length of tube or clear plastic pipe
1	Container of water
1	Container of soda water
1	Tray

Method

(Note: a diagram of Boyle's self-flowing flask is provided that illustrates all the steps).

1. Cut the empty bottle in half (seek teacher assistance if this is difficult)
2. Take the lid off the bottle.
3. Take the tubing and push it inside the hole in the lid. Create a seal using the hot glue gun.
4. Screw the lid back on the half-bottle.
5. One partner holds the 'flask' (bottle) with the tube pointing back into the open end of the bottle.
6. While carefully holding it over the tray, the other partner pours the water into the bottle.
7. Make observations and record them below.
8. Pour out the water in the sink or bucket provided.
9. Repeat steps five and six with the soda water.
10. Pour the soda water into the sink or bucket.

Reflection

1. What did you observe when you poured the water through the bottle?

2. What did you observe when you poured the soda water through the bottle?

3. What conclusions were you able to make through this experiment? Did your perpetual motion machine work? Why or why not?
