

## **Station 1: Collapsing pop can**

### **Materials**

- Aluminum pop can
- Bunsen burner or small propane torch and striker
- Claw holder
- Bucket of cold water
- Oven mitt (or equivalent) and safety glasses
- Metric ruler
- Chart of Barometric Pressure vs. Altitude

### **Procedure**

1. Measure the height and diameter of the can. Make a note of this information on the activity sheet.
2. Put a small amount of water in the bottom of the can. Just enough to cover the bottom.
3. Wearing goggles and an oven mitt, hold the can in the claw over the heat source. Do so until there is a good chimney of steam coming out the opening in the can. This might take a couple of minutes.
4. Quickly invert the can into the bucket of cold water and watch the results.
5. Complete the questions on the activity sheet.

## **Station 2: Balloon in a Bell Jar**

### **Materials**

- Bell jar
- Vacuum pump
- 2 Small balloons, partially inflated to the same size.
- Masking tape

### **Procedure**

1. Tape one of the balloons to the top inside of the bell jar. Leave the other on the outside for comparison. (This step won't be necessary for subsequent groups.)
2. Connect the vacuum pump and evacuate some air out of the bell jar.
3. Complete questions on activity sheet.
4. Release the vacuum so that the apparatus is ready for the next group.

## **Station 3: Ruler and Newspaper**

### **Materials**

- Sheet of newspaper
- Wooden ruler or flat piece of wood

### **Procedure**

#### Part A

1. Place the ruler on a bench top with about a quarter of its length hanging over the edge.
2. Make sure the area around you is clear of people, then give the overhanging piece a quick "karate chop" with your hand.
3. Retrieve the ruler and replace it in the same position on the bench.

#### Part B

4. Lay one full sheet of newspaper over the part of the ruler that is on the bench.
5. Repeat your chop to the overhanging part of the ruler.
6. Record your observations and answer the questions on the activity sheet.

## **Station 4: Egg in a Bottle**

### **Materials**

- Hard boiled egg (with shell removed)
- A bottle or flask with an opening that is just small to prevent the egg from entering the bottle.
- Matches

### **Procedure**

#### Part A

1. Drop a burning match into the bottom of the bottle.
2. After a few seconds, place the egg onto the mouth of the bottle.
3. Complete the relevant areas on the activity sheet.

#### Part B

4. Now that the egg is in the bottle, turn the bottle upside down so that the egg is resting in the neck of the bottle.
5. Tip back your head and blow vigorously into the inverted bottle.
6. Quickly remove your lips from the bottle hold it over the bench.
7. Complete this section of the activity sheet.

## Station 5: Soda Bottle and Ping Pong Ball

### Materials

- Soda bottle
- 1 Ping pong ball
- Graduated cylinder
- Metric ruler
- Beaker to collect water
- A barometer

### Procedure

1. Obtain a reading of atmospheric pressure from the barometer at the station. Record this on the activity sheet.
2. Fill the bottle all the way to the top with water.
3. Push the ping pong ball onto the top to squeeze out a small amount of water.
4. Now, pour off about one third of the water in the bottle into the graduated cylinder and record this amount as  $V_0$  on the activity sheet.
5. Hold the ping pong ball on top of the bottle and invert it over the beaker. Hold the ball loosely against the opening so that some water is allowed to leak out into the beaker. Don't jiggle or rotate the ball during this process or you may allow too much water to escape and introduce an error into your data.
6. Eventually, enough water will leak out that the pressure on both sides of the ball will be the same and you can take your hand away and the ball will stay. Add the water that leaked out to the graduated cylinder and record this total amount as  $V_1$  on the activity sheet.
7. Measure the distance from the mouth of the bottle to the top of the water it encloses and record this distance as  $D$  on the activity sheet.
8. Complete the calculations called for on your activity sheet to determine the atmospheric pressure in your classroom. Compare your calculated value to the reading you took off the barometer and answer the questions on the activity sheet.

## Station 6: News Article Review

### Materials

- [Why the Earth's air is really an ocean](#)
- [Flatter oceans may have caused 1920s sea rise](#)
- [Caught in whirl of cyclone labels](#)
- [Forecasters Mark 15th Anniversary Of Hurricane Andrew](#)
- [Study Eyes Stratosphere, Weather](#)

### Procedure

1. Everyone in the group should pick an article to read. Everyone should take a different one unless there are more group members than articles.
2. Spend the first few minutes reading your article and then write a paragraph summary of what the main points of the article were and what you learned from it.
3. When everyone is finished, each person should spend 1 minute telling the rest of the group about the article and fielding any questions their group-mates might have about the material.
4. Keep an eye on the time so that everyone gets a chance to share what they learned!
5. In your own words, write a couple of sentences based on the summary that your group-mates give of their articles.