

CARTESIAN DIVER

PURPOSE: Children will observe the effects of air pressure on an object.

MATERIALS:

Book Topic: air pressure, air, pressure

1 clear liter size soda bottle

1 tall glass

1 medicine dropper that fits into the bottle.

**PROCEDURE:**

1. Fill the large bottle to the top with water.
2. Put a medicine dropper into a glass of water and adjust the water level inside the dropper until it barely floats.
3. Transfer the dropper carefully to the bottle.
4. Fill the bottle to the very top with water, making sure there are no bubbles inside the bottle.
5. Screw on the top of the bottle.
6. Have the family/friend predict what will happen when you squeeze the bottle.
7. Squeeze the bottle. Observe what happens to the dropper.
8. Release the pressure on the bottle. Observe what happens.

HOW IT WORKS: When you exert pressure on the side of the bottle, the volume of air inside the dropper decreases and the water level inside the dropper increases. This makes the dropper system denser than the surrounding water, so the dropper falls. When the pressure is released, water leaves the dropper as the air inside the dropper expands. The dropper is now as buoyant as when you started, so the dropper rises.

**WRITING PROMPT**

You have learned that pressure exerts a force on an object.

Think about what happened to the diver in the bottle when you squeezed the bottle.

Now write about an invention based on what you've learned about pressure.

Parent Signature: _____

**FAMILY SCIENCE PROJECT**

Date: _____

Name: _____

Teacher: _____

Hypothesis (What do you think will happen?)

Date/Observation:

Conclusion: (What you learned or discovered):

*(*You may continue your observation on another sheet. You may want to create a graph to record your data.)*

For the reading portion of Family Science, you may choose to read a book or an article, OR you may use the Internet in order to find some background information concerning this Family Science Project. If you read a book or an article, please include the complete title and author. If instead you looked up the information on the Internet, please include the complete website.

We read the following book, **OR** researched the information on the Internet:

Book Title: _____ Author: _____

Internet-Complete Website _____

Writing Prompt (minimum 5 sentences)
