

Science Unit
Pressure, Density and Buoyancy

Objectives:

Students will describe Pressure as it relates to air molecules on the surface of an object.

Students will describe the effects of changing Pressure on an objects Density.

Students will describe the relationship between Density and Buoyancy.

Problem:

Why does the Cartesian diver in the bottle sink when you squeeze the sides of the bottle?

Discussion Topics:

- Processes that cause increased and decreased air pressure.
- The effect of pressure on the movement of fluids.
- The effect of pressure on the Density of and object
- The relationship between the Density and Buoyancy of an object.

Materials:

2 litter bottle with cap
1 eye dropper
water

Assembly:

1. Fill bottle full of water
2. Fill Eyedropper about 2/3 full of water
3. Put dropper in bottle and put on cap
4. Squeeze and release sides of bottle
5. Record observations

Questions:

1. Why does the diver sink only when you squeeze the bottle?
2. How does the pressure change inside the bottle? Diver?
3. What happens to the density of the diver as the pressure increases inside the bottle? Why?
4. Why does the diver sink when there is increased pressure inside the bottle?
5. How does the change in volume of water inside the diver affect its ability to sink or float?