

The Great Cartesian Diver

<u>The Action</u>	Observes the effects of pressure on water and air as the diver travels down and back up.
<u>Grade Level</u>	Grade 9 – Fluids and Pressure
<u>Materials</u>	2L Plastic Pop Bottle filled completely full of water Eye dropper filled $\frac{3}{4}$ full of water
<u>Instructions</u>	Place the eyedropper into the bottle full of water and place the cap back on the bottle. The eyedropper is the diver! Squeeze the sides of the bottle and the diver should sink, when the pressure is released the diver should rise to the top again.
<u>Safety</u>	There is not real safety concerns for this experiment. Some help may be required for younger students to build their own Cartesian divers.
<u>Hints</u>	If the eyedropper stays at the bottom, remove the lid and it should rise back to the top. If it does not then you likely have a faulty eyedropper or there is a hole in the bulb. Just remove the eyedropper and try a new one.
<u>Science Principle</u>	When the pop bottle is squeezed water is forced into the hole in the bottom of the eyedropper. The water that moves in causes the air in the bulb to become compressed and causes the eyedropper to become heavier. Because it is heavier it causes the eyedropper to sink. When the pressure is released the compressed air forces the extra water out of the eyedropper. The eyedropper is now returned to its original weight and it floats back up to the top.