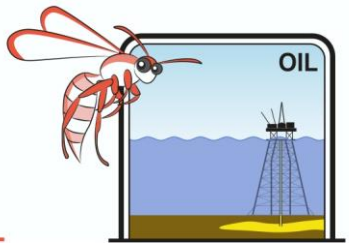
Pressure Lift -Teacher Notes



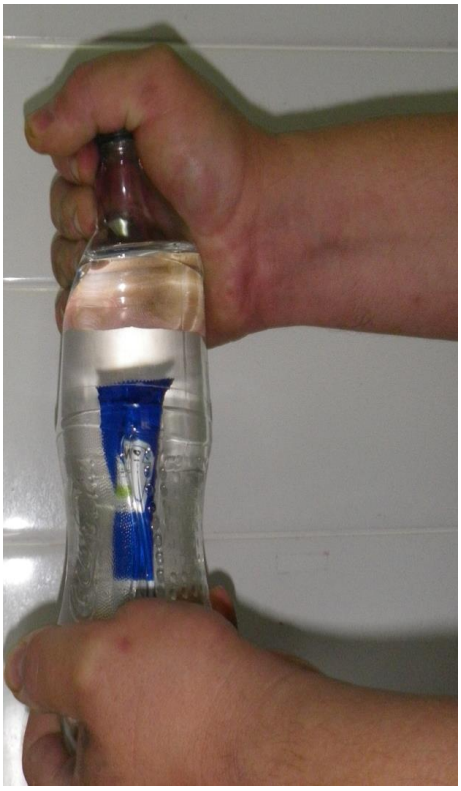
When a hydrocarbon reservoir is drilled, oil and gas are released to the surface. In time, pressure within the confining rock decreases and the flow rate of hydrocarbons slows down. Pumping water and gas into the reservoir rock can increase reservoir pressure and cause the hydrocarbon flow to return to economic levels.

Materials per student or group

- An empty, clear plastic bottle (e.g. remove the label from a soft drink bottle)
- A condiment sachet (e.g. tomato sauce, soy sauce, etc.)
- Water

Method

1. Fill the bottle almost to the top with water, drop the condiment sachet into the bottle, and firmly screw the lid on.
2. Record your observations by drawing a sketch of the bottle and condiment sachet.
3. Squeeze the bottle lightly with one hand and observe what happens. Record your observations with a new sketch.
4. Try squeezing harder and observe what happens. Record your observations with a new sketch.



Liquids do not compress with pressure; gases, however, will compress with pressure. Gas trapped in the condiment sachet compresses and the packet become denser than water and sinks. When the pressure is released the gas molecules expand, the sachet becomes less dense and it rises to the top of the liquid. Very observant students will notice the sachet becomes thinner when compressed.