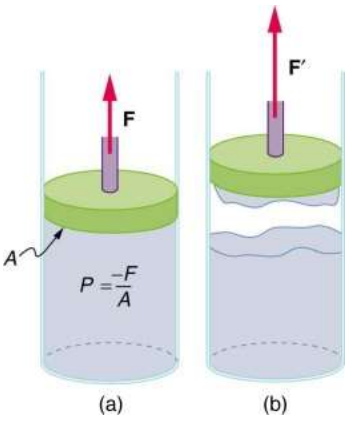

Make Water Rise / Pressure Equalization

Materials

- **Medium sized bowl**
- **2 cups of Water**
- **Small Votive Candle**
- **Clear Glass Cup – Heat resistant**
- **Food Color – (optional)**

Procedure

- **Place into bowl the water and candle – add just enough water so that the candle does not float.**
- **Light the candle and cover with the glass cup**

Why this works / what is happening

Notice carefully as the water rises in the glass. Repeat the experiment a few times, changing the size of the glass and/or volume of water. The candle goes out because it consumes oxygen BUT that's not why the water rises into the glass after the candle goes out.

- **As you lower the glass over the candle, the flame heats the air inside the glass.**
- **The glass contacts the surface of the water, trapping a volume of warm air.**
- **The candle goes out and this warm air cools rapidly.**
- **Air that cools rapidly under a constant pressure does so according to Charles's law, a specific version of the ideal gas law that holds the quantity of gas and the pressure constant. Charles's law holds that the ratio of Volume to Temperature is constant.**
- **Fire heats the air in the glass, so the air volume increases causing positive pressure inside. As fire goes out, and the air cools inside the glass, the volume decreases lowering the pressure (forming a vacuum). Then the outside air pressure pushes the water into the glass until the pressure inside and outside the glass is equal.**

Please use caution when doing any science activity. Be careful not to get any of the solution in your eyes, and wash your hands after handling the solution.

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