Air pressure

WHAT IS THE AIM OF THIS PRACTICAL?

You will learn that air exerts pressure.

♣ WHAT DO YOU NEED?



A BIT OF THEORY

Before heating, the can is filled with water and air. By boiling the water, the water changes states from a liquid to a gas. This gas is called water vapor. The water vapor pushes the air that was originally inside the can out into the atmosphere. When the can is turned upside down and placed in the water, the mouth of the can forms an airtight seal against the surface of the water in the bowl. In just a split second, all of the water vapor that pushed the air out of the can and filled up the inside of the can turns into only a drop or two of liquid, which takes up much less space. This small amount of condensed water cannot exert much

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pressure on the inside walls of the can, and none of the outside air can get back into the can. The result is the pressure of the air pushing from the outside of the can is great enough to crush it.

The sudden collapsing of an object toward its center is called an implosion. Nature wants things to be in a state of equilibrium or balance. To make the internal pressure of the can balance with the external pressure on the can, the can implodes.

♣ WHAT DO YOU HAVE TO DO?

- 1) Start by rinsing out the soda cans to remove any leftover soda goo.
- 2) Fill the bowl with cold water (the colder the better).
- 3) Add 1 generous tablespoon of water to the empty soda can (just enough to cover the bottom of the can).
- 4) Place the can directly on the burner of the stove while it is in the "OFF" position.
- 5) Turn on the burner to heat the water. Soon you'll hear the bubbling sound of the water boiling and you'll see the water vapor rising out from the can.
- 6) Continue heating the can for one more minute.
- 7) Use the tongs to lift the can off the burner.
- 8) Turn it upside down.
- 9) Plunge the mouth of the can down into the bowl of water.
- 10) Get a good grip on the can near its bottom with the tongs, and hold the tongs so that your hand is in the palm up position.
- 11) Using one swift motion, lift the can off the burner, turn it upside down, and plunge it into the cold water.

♣ FEED-BACK

Evaluate the difficulty of this practical. Circle the number that suits the level of difficulty you found while going through this practical:



Very Easy 1 2 3 4 5 Very Difficult



Did you enjoy going through this practical? Circle the number that suits your choice

Not at all

1

3

5 Very much