

# Crushing Can

## Purpose

To illustrate the presence of atmospheric pressure.

## Materials

- Empty pop can (or large metal container with lid)
- Aluminum pie plate
- Hot plate or Bunsen burner
- Wire gauze square held by a support ring and stand
- Beaker tongs
- Water

## Safety

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| <ul style="list-style-type: none"><li>• Wear safety glasses when working with the Bunsen burner.</li></ul> |
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## Procedure

1. Add water to an empty pop can until the bottom is covered to a depth of ~1 cm.
2. Using a hot plate, heat the can to a point that steam is visible from the opening. A Bunsen burner can be used to heat the can but do not heat the can directly with the flame. Place the can on a wire gauze square that is held by a support ring and stand.
3. Continue heating for a minute. Then, using beaker tongs, carefully and quickly invert the can in an aluminum pie plate containing water (or a plastic dish tub half filled with water).

## Results

- When the can is inserted into the liquid, it is crushed.

## Follow-up Teaching Notes

- The generation of steam pushes air out of the can.
- Upon inversion in the cold water, the steam condenses back to liquid water, causing a decrease in pressure relative to its surroundings.
- The atmospheric pressure crushes the can as a result (implosion).

## Connections

- Atmospheric pressure, changes of state.

## Disposal/Clean-up

- The pop can may be recycled.