

Pop Can Crushing

The Action

A regular aluminum pop can is crushed in a fraction of a second.

Grade Level

Grade 9 - The Atmosphere

Grade 10 - Physical Science

Grade 7 - Temperature and Heat

Materials

- Empty aluminum can
- Beaker tongs (to hold the can during heating)
- 4 Litre plastic pail of water
- A burner or electric heat source

Instructions

- Pour a small amount of water into the aluminum can (~10 mL)
- Holding the can with the beaker tongs, hold the can over the heat source until the water inside it boils and steam is coming out.
- Quickly invert the can inside the plastic pail of water. The opening of the can must be well submerged in the water.
- The can collapses with a resounding pop.

Safety

Be careful using the burner or heater. The can is very hot when the water is boiling.

Hints

For best results the water in the can should be boiling rapidly so steam is coming out and the water in the bucket should be fairly cool. Immersion in the water should be done in one very rapid motion.

Science Principle

The steam forces all the air out of the can. When the can is inverted into the water the steam cools very rapidly and condenses back to water. The pressure in the can falls rapidly and the atmospheric pressure crushes the can. The collapse is so rapid that a "pop" sound is heard.