

**Project FOCUS  
Best Lessons  
FIRST GRADE**

**Title of Lesson:** The Collapsing Can

**Theme:** Earth/Space Science

**Unit Number:** 1      **Unit Title:** Weather and the Seasons

**Performance Standard(s) Covered (enter code):**

S1CS1

**Enduring Standards (objectives of activity):**

**Habits of Mind**

- Asks questions
- Uses numbers to quantify
- Works in a group
- Uses tools to measure and view
- Looks at how parts of things are needed
- Describes and compares using physical attributes
- Observes using senses
- Draws and describes observations

**Content (key terms and topics covered):**

Air pressure, temperature

**Learning Activity (Description in Steps)**

**Abstract(limit 100 characters):** This lesson helps students to understand air pressure.

**Details:** A can is crushed when the pressure outside is greater than the pressure inside, and the pressure difference is greater than the can is able to withstand. You can crush an open aluminum can with your hand. When you squeeze on the can, the pressure outside becomes greater than the pressure inside. If you squeeze hard enough the can collapses. Usually, the air pressure inside an open can is the same as the pressure outside. However, in this experiment, the air was driven out of the can and replaced by water vapor. When the water vapor condensed, the pressure inside the can became much less than the air pressure outside. Then the air outside crushed the can.

- Fill the saucepan with cold water.
- Put 1 tablespoon of water into the empty soft-drink can.
- Heat the can on the portable hot plate to boil the water.
- When the water boils, a cloud of condensed vapor will escape from the opening in the can.
- Allow the water to boil for about 30 seconds.
- Using the tongs, grasp the can and quickly invert it and dip it into the water in the

pan.

· The can will collapse almost instantaneously.

**Materials Needed (Type and Quantity):**

One empty aluminum soft drink can

One 2- or 3-liter saucepan

One pair of kitchen tongs

Single burner

**Notes and Tips (suggested changes, alternative methods, cautions):**

Do not heat the can over high heat or heat the can when it is empty. This may cause the ink on the can to burn or the aluminum to melt.

**Sources/References:**

- 1)
- 2)
- 3)