

Bottled pressure

Objectives

By the end of this lesson the student will:

-have graphically seen the force of air around us.

Background

The bottle is filled with steam. Once it is sealed and cooled, a lot of the steam condenses, turning back into liquid water. The pressure of the air inside the bottle is now much less than the pressure exerted by the atmosphere. So the air pressure outside the bottle crushes it.

Resources and action

Teachers will need to ensure that care is taken when handling hot water.

Print off the student's worksheet and photocopy one for each student:
http://www.bom.gov.au/lam/Students_Teachers/Worksheet11.shtml

Ask students to carry out the activity from the worksheet then go over their results at the end of the class.

Questions and solutions

1. What do you see when the bottle is covered with ice and cold water?

Condensation inside the bottle.

Bottle being crushed.

2. Try to explain your observations.

The pressure of the air inside the bottle is now much less than the pressure exerted by the atmosphere. So the air pressure outside the bottle crushes it.

Time

60 minutes

Assessment task

Q1