

# Thermal Expansion of Gases

## Apparatus

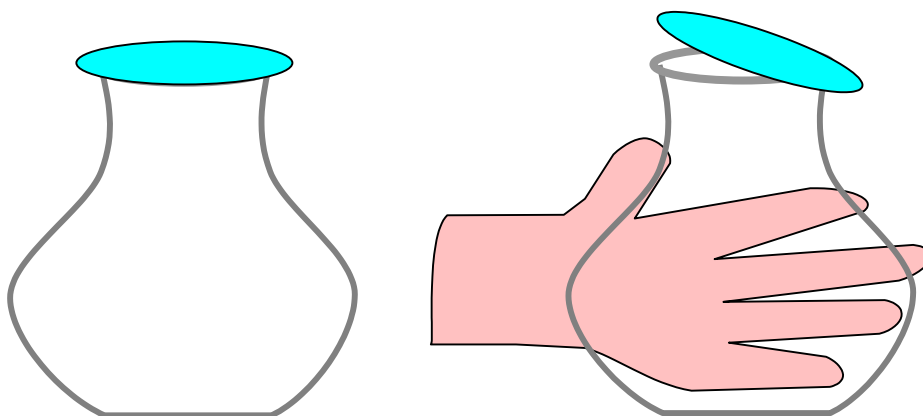
a small flask with an open top slightly smaller than a 20 cent coin, 20 cent coin, some water and ice for cooling

## Action

The flask is cooled and the coin placed over the top and sealed with a little water. The students then place their hands around the flask. This causes the coin to jump up slightly as gas escapes.

## The Physics

The heat from the student's hands causes the gas inside the bottle to expand, increasing the pressure inside the bottle. When the force due to the pressure of the gas is greater than the weight of the coin it pops up, allowing some gas to escape and equalizing the pressure.



## Accompanying sheet

### Thermal Expansion of Gases

Cool the bottle using the ice, then take it out.  
Wet the coin and place it on top of the bottle.

Now cup your hands around the bottle and observe what happens.

Explain your observations.