

## Thermal Expansion of Gases

Name: \_\_\_\_\_

**Aim:** To observe the thermal expansion of gases.

**Equipment:** conical flask, balloon, hot plate or Bunsen burner.

### Method (Part A):

1. Place a balloon over a conical flask.
2. Heat the conical flask (and the air inside it) on a hot plate for about 5 minutes.
3. After 5 minutes remove the conical flask from the hot plate and continue to make observations as the air cools down.



**SAFETY WARNING:** A hot hot plate looks the same as a cold hot plate, so please be careful!

### Questions:

1. Describe what happened when the air was heated and what happened when it cooled down.

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2. How does thermal expansion of air compare to thermal expansion of water and metals?

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### Method (Part B):

6. Pour 100 mL (millilitres) of water into a conical flask.
7. Place a balloon over the conical flask's neck (as you did in Part A).
8. Heat the water on a hot plate until the water is boiling.
9. Switch off the hot plate and allow the water to cool down.

### Questions:

3. Describe what happened when the water was heated and what happened when it cooled down.

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4. Explain the difference in the movement and arrangement of water molecules when they are in a liquid state and when they are in a gas state.

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