

**Subject: Science**

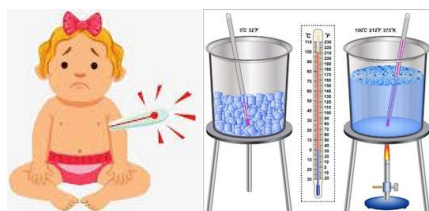
**Level: Standard 3**

**Strand: Form and Function**

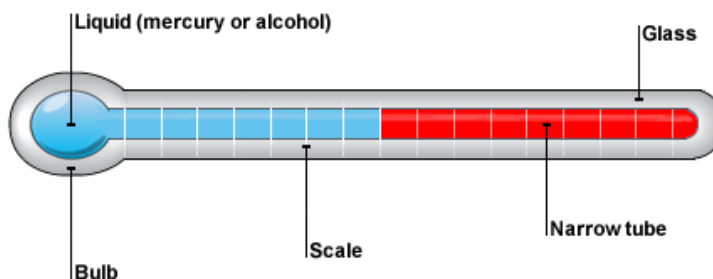
**Topic: How to use a laboratory thermometer**

**Key Points:**

- Thermometers are used to measure the temperature of a substance, that is how hot or cold it is.
- The unit for temperature is degrees Celsius or °C
- There are different types of thermometers. Two examples are:
  - clinical thermometers: used to measure body
  - laboratory thermometers: used to measure the temperature of substances in the Science Laboratory or outdoors



- A laboratory thermometer is used to measure temperatures between  $-10^{\circ}\text{C}$  to  $110^{\circ}\text{C}$ .
- A clinical thermometer measures between  $35^{\circ}\text{C}$  to  $42^{\circ}\text{C}$
- A thermometer has a long stem which is marked to show the temperature.
- It also has a bulb at its base.
- This bulb stores a liquid which increases in volume when heated.
- The heated liquid moves along the stem allowing the temperature to be measured.
- The bulb should be fully immersed in the substance whose temperature is being measured.
- The stem should be held at the top, so the temperature of the user does not affect the reading.

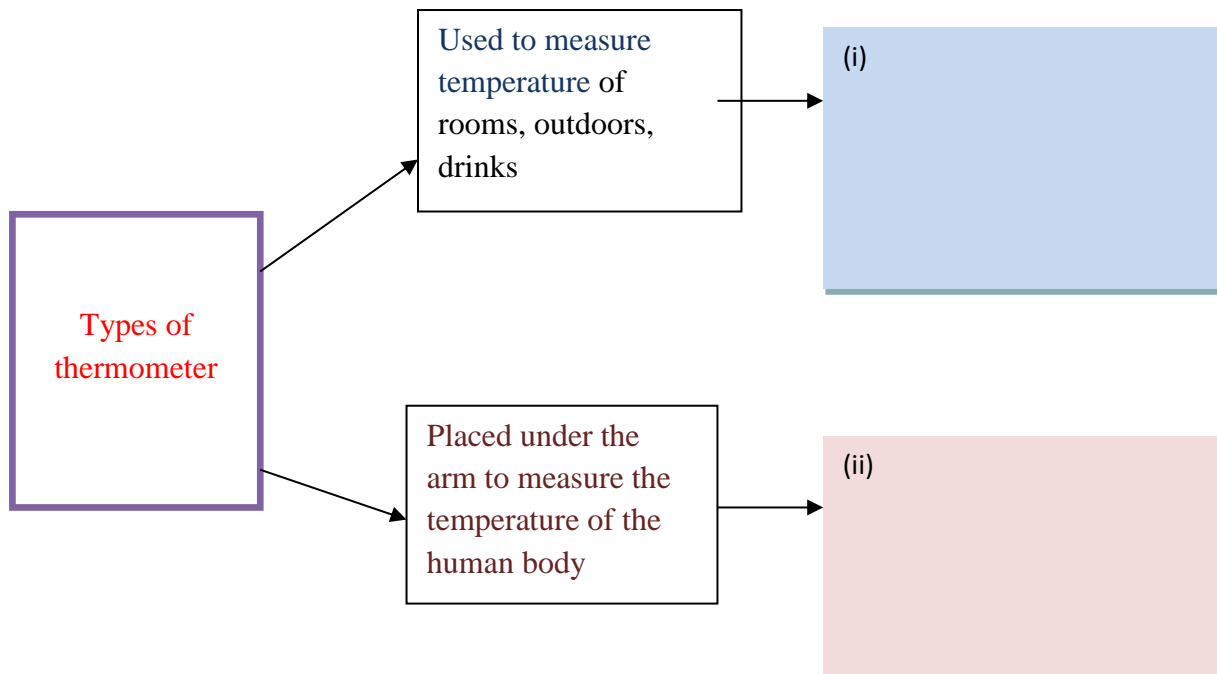


## Activity

### 1. TYPES OF THERMOMETER

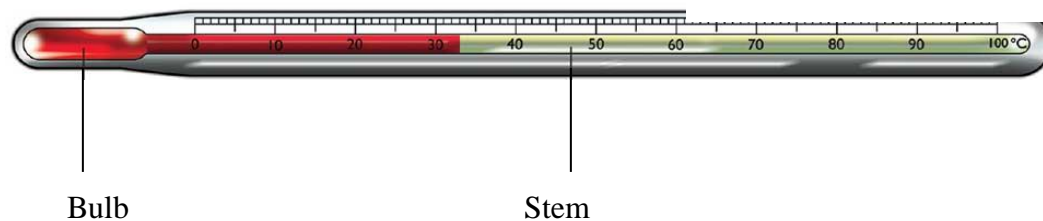
Identify the Clinical and Laboratory thermometers in the Flow Chart below.

Write the name of the thermometer in the appropriate box.



## 2. OBSERVING A LABORATORY THERMOMETER

The picture below shows the parts of a laboratory thermometer.



IGCSE Physics - Unit 2 Thermal physics  
igcsephysics.com (Google images)

(i) If the temperature on water is being measured, what part of the thermometer must be in the water?

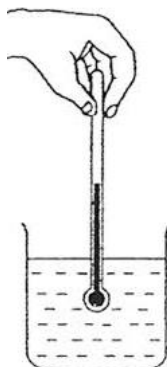
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(ii) What part of the thermometer should be held when measuring temperature?

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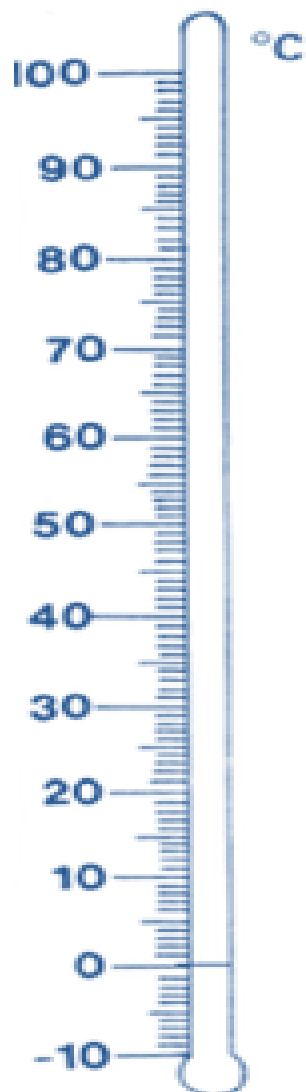
(iii) What unit is used when recording measurements of temperature?

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### 3. READING THE THERMOMETER

(i). Examine the scale on the thermometer below and answer the questions



(a) What is the highest temperature that can be recorded by this thermometer?

\_\_\_\_\_

(b) Is the temperature in (a) considered to be hot or cold?

\_\_\_\_\_

(c) What is the lowest temperature that can be recorded by this thermometer?

\_\_\_\_\_

(d) What is the unit used to record measurements of temperature?

\_\_\_\_\_

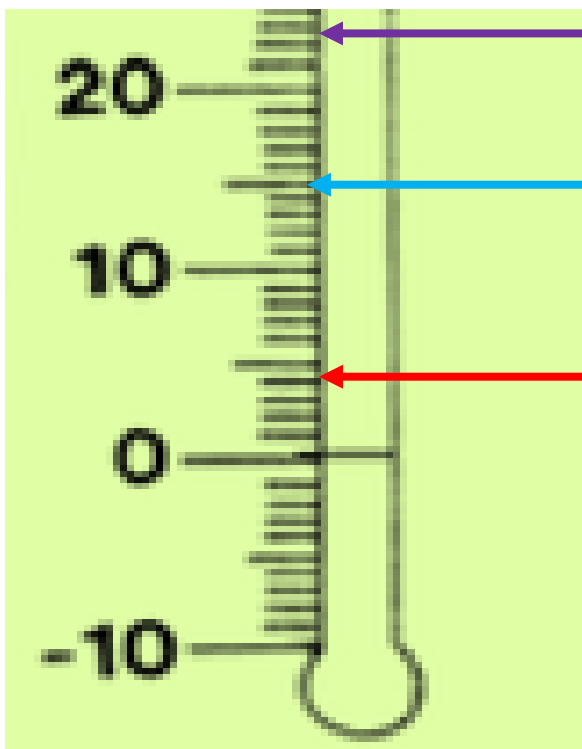
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Temperature & Thermometers | Teaching Resources

tes.com

(ii) Read the temperatures shown by the arrows on the two thermometers below.  
Record the temperature on lines a to g.

a.



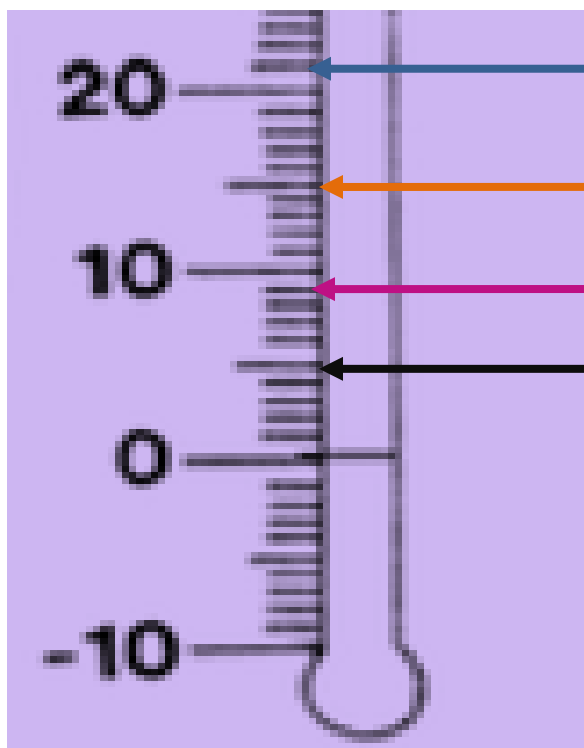
\_\_\_\_\_

b.

\_\_\_\_\_

c.

\_\_\_\_\_



d.

\_\_\_\_\_

e.

\_\_\_\_\_

f.

\_\_\_\_\_

g.

\_\_\_\_\_

**Assessment**

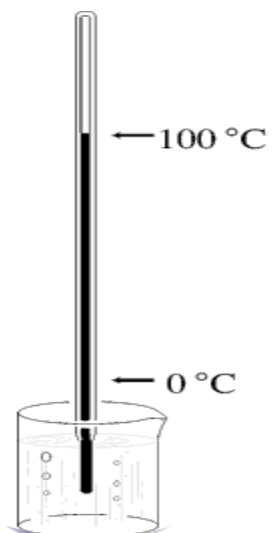
4. Name the thermometers shown in the pictures

(i)



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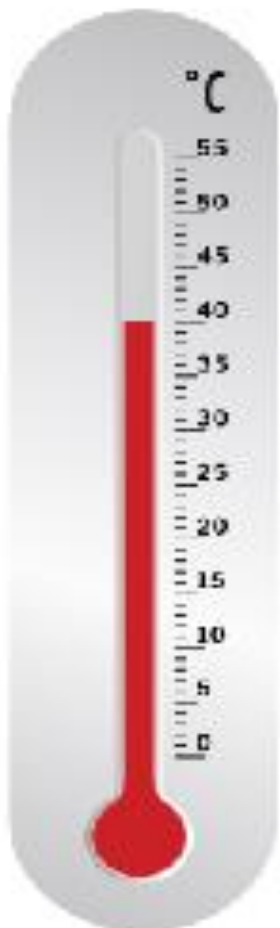
(ii)



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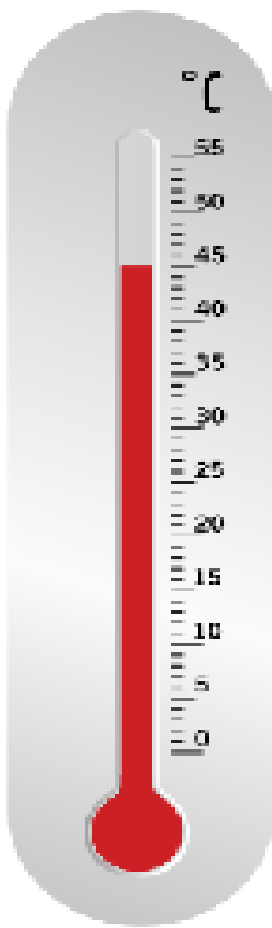
Cropped from (Google Images)  
PPLATO | FLAP | PHYS 7.2: Temperature, pressure and the ideal gas  
lawsmet.reading.ac.uk

5. Read the temperatures on the thermometers below and record the temperature on the lines.



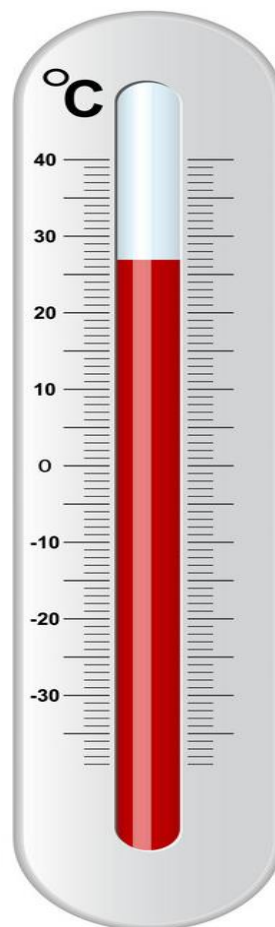
(i)

\_\_\_\_\_



(ii)

\_\_\_\_\_



(iii)

\_\_\_\_\_

**Answer Key**

1. Types of thermometer:

(i) Laboratory thermometer

(ii) Clinical thermometer

2. (i) The bulb

(ii) The stem

(iii) °C

3 (i) a. 100°C

b. hot

c. - 10 °C

d. °C

3 (ii) a. 20 °C                          d. 21°C

b. 10 °C e. 15°C

c. 0 °C                          f. 9°C

g. 5°C

4. (i) Clinical thermometer

(ii) Laboratory thermometer

5. (i) 40°C

(ii) 45°C

(iii) 27°C



## References:

1. Use of thermometer: <https://www.shutterstock.com/search/water+thermometer>  
<https://www.clipart.email/clipart/body-temperature-clipart-63532.html>
2. Diagram of basic thermometer: <http://www.bbc.co.uk/staticarchive/0dc80d3e630bfc3b4d1cf4d413fbcbe1f089b019.gif>
3. Parts of laboratory thermometer: [https://www.igcsephysics.com/cambridge/sample/thermal\\_physics/page98.html](https://www.igcsephysics.com/cambridge/sample/thermal_physics/page98.html)
4. Reading thermometer scale: <https://www.commoncoresheets.com/Temperature.php>
5. Clinical thermometer: <https://www.indiamart.com/proddetail/mercury-laboratory-thermometer-9503278588.html>
6. Holding thermometer: <https://www.sarthaks.com/24510/four-arrangements-measure-temperature-ice-beaker-with-laboratory-thermometer-are-shown>