ODM EDUCATIONAL GROUP
Changing your Tomorrow

PHYSICAL QUANTITIES AND MEASUREMENT

SUBJECT-PHYSICS

CHAPTER NO- 2

Measurement of temperature

PERIOD-6

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LEARNING OBJECTIVE

Students will be

- familiarized with the concept of temperature
- Sensitized about the units of temperature
- familiarized with the devices used for measuring temperature of an object
- familiarized with the process of measuring temperature using a laboratory thermometer
- Familiarized with the process of measuring temperature of a patient's body using a clinical thermometer.

WARM UP QUESTIONS

Recapitulation of previous topic by asking certain questions

- How can you define time?
- what do you mean by mean solar day
- How can you measure short time interval? Explain
- What is the basic unit of time?
- How many seconds are there in an hour?

Measurement of temperature-

Temperature is how hot or how cold an object is.

What the thermometer reads is the temperature.

Temperature can, therefore, be defined as the reading on a thermometer.

There are a variety of thermometers about which we will learn in this chapter and also about approximation.

Scales of Temperature:

- The different units to measure temperature are represented by different scales of temperature.
- A temperature scale is defined by choosing two reference temperatures and dividing the difference between these two temperatures into a certain number of divisions.
- Each division is called one degree.
- The reference temperatures usually used are the melting point of pure ice, called the lower fixed point, and the boiling point of water called the upper fixed point.
- The two commonly used temperature scales are the Celsius and the Fahrenheit scales. In scientific calculations, Kelvin scale is used.

Celsius scale and Fahrenheit scale:

- **In Celsius scale**, the melting point of ice is taken as 0 °C and the boiling point of water as 100 °C. The difference between the two points is divided into 100 degrees.
- **In Fahrenheit scale**, the lower fixed point or the melting point of ice is 32 °F and the upper fixed point or the boiling point of water is 212 °F. The difference between these two points is divided into 180 degrees.
- **In Kelvin scale**, 0 °C corresponds to 273 K and 100 °C corresponds to 373 K.

Conversion between Celsius and Fahrenheit Temperatures

- The Celsius and Fahrenheit scales are related as follows, where C and F are the temperatures measured in Celsius and Fahrenheit scales, respectively.
- If K is the Kelvin temperature, then K = C + 273.

Devices for measuring temperature

There are different types of thermometers for measuring the temperatures of different things like air, our bodies, food, and many other things.

There **are clinical thermometers, laboratory thermometers, Galileo thermometers, maximum-minimum thermometers and digital remote thermometers.**

Among these, the commonly used thermometers are clinical thermometers and laboratory thermometers.

Description of a laboratory thermometer

https://youtu.be/QB_n3xpFcUM

- Description of a clinical thermometer
- https://youtu.be/O-h6fi4_vQU

HOME ASSIGNMENT

Exercise- B 19,20,21

Define temperature

Explain the units of temperature.

Q. What do you mean by ice point and steam point?

Q. One degree on Celsius scale is equal to ----------degree on Fahrenheit scale.

Q. Differentiate between laboratory thermometer and clinical thermometer.

THANKING YOU

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