TEMPERATURE AND THERMAL EQUILIBRIUM

TEMPERATURE AND HEAT

- Kinetic energy is the energy of motion.
- Temperature is the measure of the average kinetic energy of an object.

TEMPERATURE

- Adding or removing energy usually changes temperature.
- Temperature is proportional to the kinetic energy of atoms and molecules.
- Temperature is meaningful only when it is stable.
  - Thermal equilibrium – when temperature remains unchanged.

SAMPLE QUESTION 1

- If two cups of hot chocolate, one at 50° C and the other at 60° C, are poured together in a large container, will the final temperature of the double batch be
- A) less than 50° C
- B) between 50° C and 60° C
- C) greater than 60° C

SAMPLE QUESTION 2

- A cup of hot tea is poured from a teapot, and a swimming pool is filled with cold water.

- Which one has a higher total internal energy? Which has a higher average kinetic energy?

THERMAL EXPANSION

- Matter expands as its temperature increases.
- Concrete roadway segments of a bridge are separated by gaps several centimeters wide.

THERMOMETER

- A instrument used to measure temperature.
- Thermometers commonly have alcohol (with dye) or mercury.
- Digital thermometers have replaced older ones.

CELSIUS SCALE

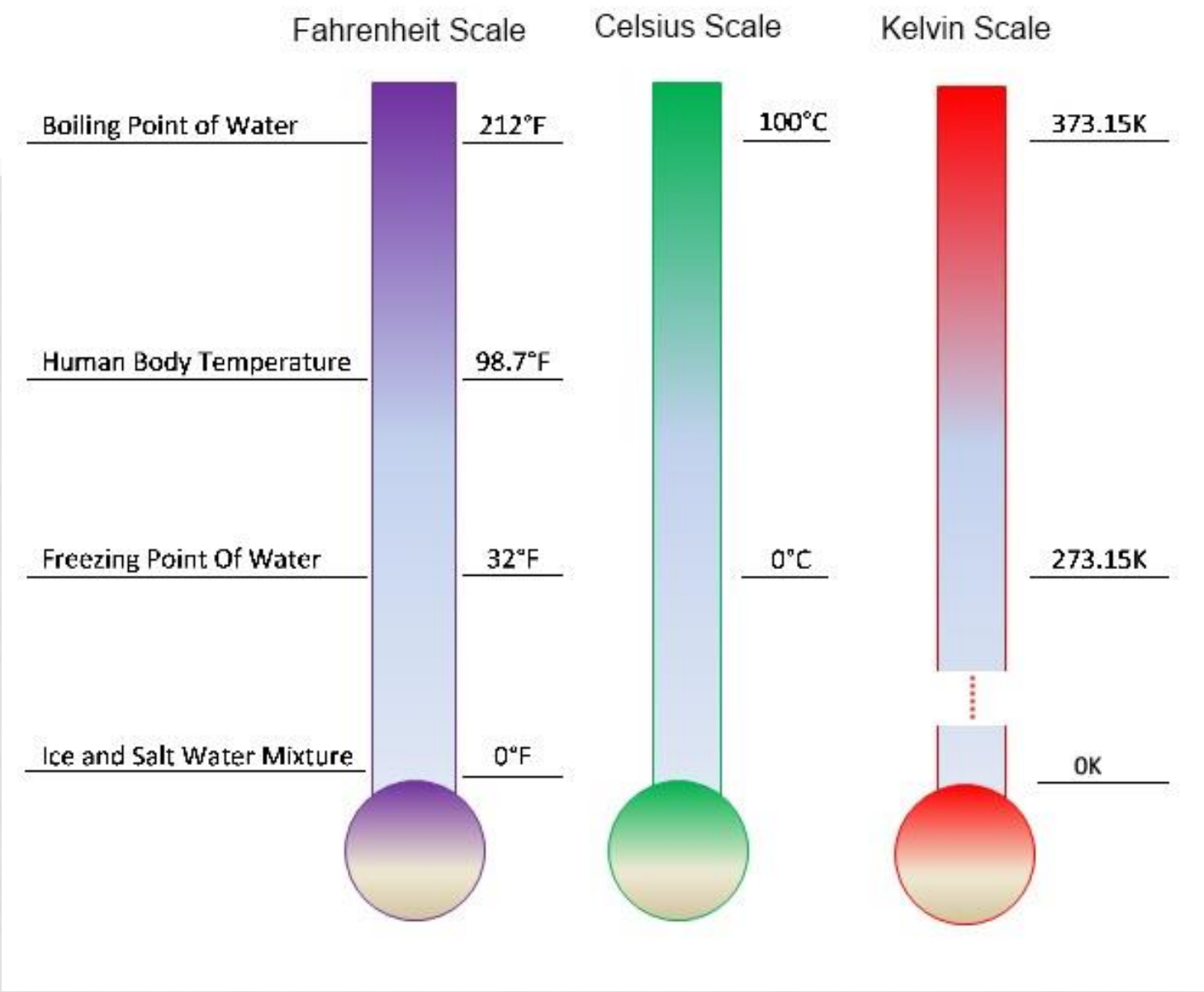
- Celsius is the metric scale for measuring temperature.
- Water freezes at 0° C and boils at 100 ° C.

FAHRENHEIT SCALE

- The Fahrenheit scale is one proposed in 1724 by Daniel Fahrenheit. By the end of the 20th century, most countries used the Celsius scale rather than the Fahrenheit scale.
- Water freezes at 32 degrees and boils at 212 degrees.

KELVIN SCALE

- The Kelvin scale is a metric temperature scale measured in Kelvin units (K).
- This scale is used by scientists who study what happens to things when they become very, very cold.
- Only on the Kelvin temperature scale does absolute zero actually fall at 0 K.


Fahrenheit Scale
Celsius Scale
Kelvin Scale
Boiling Point of Water
212°F
100°C
373.15K
Human Body Temperature
98.7°F
Freezing Point Of Water
32°F
0°C
273.15K
Ice and Salt Water Mixture
0°F
0K