

TEMPERATURE AND ITS MEASUREMENT

Name _____

Temperature (which measures average kinetic energy of the molecules) can be measured using three common scales: Celsius, Kelvin and Fahrenheit. We use the following formulas to convert from one scale to another. Celsius is the scale most desirable for laboratory work. Kelvin represents the absolute scale. Fahrenheit is the old English scale which is never used in lab.

$$\begin{aligned}\text{°C} &= \text{K} - 273 & \text{K} &= \text{°C} + 273 \\ \text{°F} &= \frac{9}{5}\text{°C} + 32 & \text{°C} &= \frac{5}{9}(\text{°F} - 32)\end{aligned}$$

Complete the following chart. All measurements are good to 1° C or better.

	°C	K	°F
1	0° C		
2			212° F
3		450 K	
4			98.6° F
5	-273° C		
6		294 K	
7			77° F
8		225 K	
9	-40° C		

The three scales of temperature are Celsius ($^{\circ}\text{C}$), Fahrenheit ($^{\circ}\text{F}$), and Kelvin (K). It is important to relate to each scale, although they have different purposes. The Kelvin scale is related to Absolute Zero (0K). The Celsius scale is related to the freezing and boiling temperatures of water. Also notice that in the Celsius and Kelvin temperature scales, the increments of 1 degree change are the same.

Complete the chart that relates the three temperature scales. You know Absolute Zero, you know water freezes/melts at 0°C , and that water boils at 212°F .

