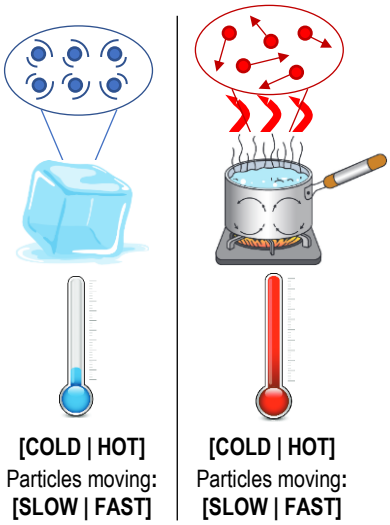
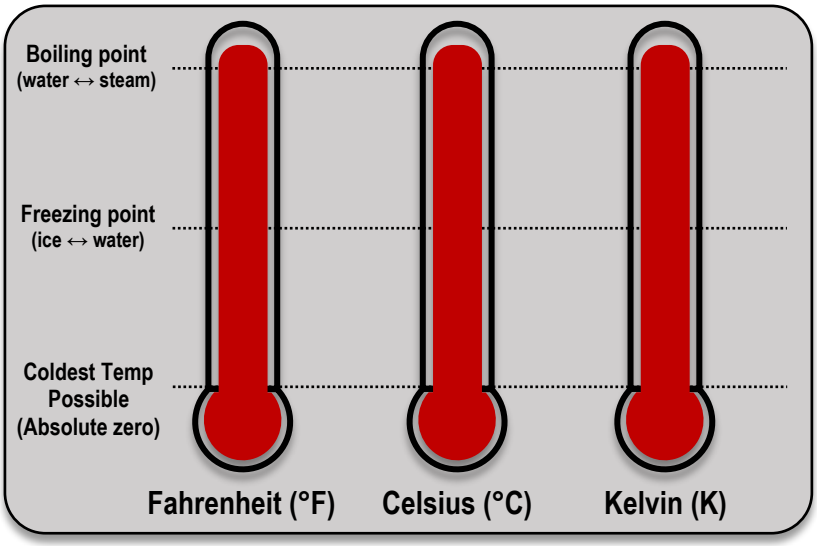
CONCEPT: INTRODUCTION TO TEMPERATURE SCALES

- A basic definition of Temperature is it measures how _____ or _____ something is.
  - It is related to the Average _____ of the particles in an object.



- There are 3 temperature scales or units, which are all based on arbitrary reference points:



  - Kelvin scale is an ABSOLUTE temp. scale because it starts at _____, the coldest temperature possible.
  - In *most* equations, we'll plug in temperature in Kelvin.

CONCEPT: CONVERTING BETWEEN TEMPERATURE UNITS

- Often times in problems, you'll have to convert between different temperature scales.

		GIVEN		
		FAHRENHEIT (°F)	**CELSIUS (°C)**	**KELVIN (K)**
ASKED FOR	**FAHRENHEIT**		T_F = _____	T_F = _____
	CELSIUS	T_C = _____		T_C = _____
	KELVIN	T_K = _____	T_K = _____	

EXAMPLE**:** Liquid nitrogen evaporates at a temperature of –196°C**. a)** What is this temperature in K? **b)** What is this in °F?

PROBLEM: The tungsten filaments inside of most incandescent lightbulbs reach temperatures of about 4580°F when the lightbulbs are lit. What is this temperature in **a)** Celsius and **b)** Kelvin?

A) a) 2512°C ; b) 2785 K
B) a) 8276°C ; b) 8549 K
C) a) 2527°C ; b) 2800 K
D) a) 4853°C ; b) 2728 K

		GIVEN		
		F	C	K
ASKED FOR	F		$T_F = \frac{9}{5}T_C + 32$	$T_F = \frac{9}{5}(T_K - 273.15) + 32$
	C	$T_C = \frac{5}{9}(T_F - 32)$		$T_C = T_K - 273.15$
	K	$T_K = \frac{5}{9}(T_F - 32) + 273.15$	$T_K = T_C + 273.15$	

PROBLEM: Calculate the one temperature where the Celsius and Fahrenheit scales are equal.

		GIVEN		
		F	C	K
ASKED FOR	F		$T_F = \frac{9}{5}T_C + 32$	$T_F = \frac{9}{5}(T_K - 273.15) + 32$
	C	$T_C = \frac{5}{9}(T_F - 32)$		$T_C = T_K - 273.15$
	K	$T_K = \frac{5}{9}(T_F - 32) + 273.15$	$T_K = T_C + 273.15$	