

Name: _____
Date Started: _____ Date Completed: _____ Score: _____



Learning Activity Sheet Heat and Temperature at the Molecular Level

Directions: Read each item carefully. Circle the letter of the correct answer.

- Which of the following pairs are mismatched?
A. heat: joule
B. electric charge: calorie
C. temperature: Kelvin
D. resistance: ohm
- Two thermometers, calibrated in the Celsius and Fahrenheit scales, are used to measure the same temperature. How will you describe the value of the Fahrenheit thermometer?
A. It is less than that of the Celsius thermometer.
B. It is greater than that of the Celsius thermometer.
C. It is proportional to that of the Celsius thermometer.
D. It may be greater or less than that of the Celsius thermometer.
- A school nurse records a student's body temperature as 311.5 K. Does the student have a fever?
A. Yes, because the student's body temperature is 38.50°C.
B. No, because the student's body temperature is 37.00°C.
C. No, because the student's body temperature is 37.50°C.
D. Yes, because the student's body temperature is 38.00°C.
- Aerosol cans have warning labels indicating the maximum temperature that they can tolerate. The label in an aerosol can shows a temperature of 130°F. What is the value of this temperature in °C?
A. 54°C
B. 72°C
C. 90°C
D. 100°C
- Which of the following is NOT a unit for temperature?
A. cal
B. °C
C. °F
D. K
- The specific heat of water is 1.00 cal/g°C. Which of the following is true about this?
A. A gram of water needs 1.00 calorie of heat.
B. To have 1.00 calorie, a gram of water needs to increase its temperature.
C. To raise its temperature by 1°C, a gram of water needs 1 calorie of heat.
D. To raise its temperature by 10°C, a gram of water needs 1 calorie of heat.
- Which of the following is TRUE about the absolute scale?
A. An absolute scale cannot have a negative temperature.
B. When an object reaches 0 K, its molecules will stop moving.
C. On the absolute scale, the lowest possible temperature is 0 K.
D. All of the statements are correct.
- What is the normal body temperature (37°C) in °F?
A. 2.78°F
B. 52.56°F
C. 98.6°F
D. 310.15°F
- The weather forecaster reported that the daily average temperature is 40°C. What is this temperature in Kelvin?
A. 233 K
B. 253 K
C. 303 K
D. 313 K
- The coefficient of linear expansion of iron is $11 \times 10^{-6}/^{\circ}\text{C}$. What is the change in length of a 7.50-meter rod if it was heated from 25°C to 90°C?
A. 2.2×10^{-2} m
B. 4.0×10^{-3} m
C. 5.4×10^{-3} m
D. 8.8×10^{-4} m