

Science Worksheet 2-10a Heat Transfer Worksheet $q = mc\Delta T$

1. How many calories of heat are required to raise the temperature of 550 g of water from 12.0 °C to 18.0 °C? (The specific heat of water is 1.00 cal/g x °C)

2. How much heat is lost when a 640.0 g piece of copper cools from 375.0 °C, to 26.0 °C? (The specific heat of copper is 0.0900 cal/g x °C)

3. The specific heat of iron is 0.107 cal/g x °C. How much heat is transferred when a 24.7 kg iron ingot is cooled from 880 °C to 13 °C?

4. How many grams of water would require 22,000.0 cal of heat to raise its temperature from 34.0 °C to 100.0 °C?

5. 2088 cal of heat are applied to a piece of aluminum, causing a 56.0 °C increase in its temperature. The specific heat of aluminum is 0.220 cal/g x °C. What is the mass of the aluminum?

6. Find the mass of a sample of water if its temperature dropped 24.8 °C when it lost 207 cal of heat.

7. How many degrees would the temperature of a 450.0 g ingot of iron increase if 1818 cal of energy are applied to it? (The specific heat of iron is 0.107 cal/g x °C)

8. A 250.0 g sample of water with an initial temperature of 98.8 °C loses 1794 cal of heat. What is the final temperature of the water? (Remember, final temp = initial temp - change in temp)

9. Copper has a specific heat of 0.0900 cal/g x °C. How much change in temperature would the addition of 8373 cal of heat have on a 538.0 gram sample of copper?

10. Determine the specific heat of a certain metal if a 450 gram sample of it loses 8253 cal of heat as its temperature drops by 97 °C.

11. 1145 cal of heat are transferred to a 89.0 gram sample of an unknown material, with an initial temperature of 23.0 °C. What is the specific heat of the material if the final temperature is 89.5 °C?

12. The temperature of a 55 gram sample of a certain metal drops by 113 °C as it loses 837 cal of heat. What is the specific heat of the metal?