

## Specific Heat Worksheet

1. How much heat in kilojoules is released when 25.0 g of water is cooled from 85.0°C to 40.0°C?
2. A metal weighing 50.0 g absorbs 220.0 J of heat when its temperature increases by 120.0°C. What is the specific heat of the metal?
3. Calculate the heat gained by 125.0 g of water when it is put into a calorimeter and its temperature is increased by 90.0°C. The specific heat of water is 4.184 J/(g·°C).
4. When a 50.0-g nugget of pure gold is heated from 35.0°C to 50.0°C, it absorbed 5200.0 J of energy. Find the specific heat of gold.
5. An unknown substance weighing 42.0 g was heated from 36.0°C to 65.0°C. In this process, the substance absorbed 5895 J of energy. What is the specific heat of the substance?
6. How much heat is absorbed by 15.5 g of water when its temperature is increased from 20.0°C to 50.0°C? The specific heat of water is 4.184 J/(g·°C).

7. 2.50 g of hydrogen gas is heated from 17.0°C to 23.0°C. The specific heat capacity of hydrogen is 14.267 J/g°C. How much energy is absorbed?
  
8. A 20.0 g sample of aluminum is cooled 7.5°C. The specific heat capacity of aluminum is 0.900 J/g°C. What is the energy change for this sample?
  
9. 150.0 mL of water absorbs 7.84 kJ of energy. The specific heat capacity of water is 4.184 J/g°C. What is the temperature change?
  
10. The specific heat capacity of diamond is 0.5050 J/g°C. How much energy is required to heat 25.0 g of diamond from 10.5°C to 15.6°C?
  
11. A 26.6 g sample of mercury is heated to 110.0°C and then placed in 125 g of water in a coffee-cup calorimeter. The initial temperature of the water is 23.00°C. The specific heat capacity of water is 4.184 J/g°C, and the specific heat capacity of mercury is 0.139 J/g°C. What is the final temperature of the water and the mercury?