

4. A burning match releases 1100 J of energy. Convert the energy released by 20 matches to the following energy units:
- Kilojoules
 - Calories
5. It takes 4184 J of energy to raise the temperature of 1.000 kg of water 1.000 °C.
- How many joules does it take to raise the temperature of 1.50 kg of water 1.00 °C?
 - How many calories does it take to raise the temperature of 1.0 kg of water 15.5 °C?

Specific Heat Calculations

6. Water has a specific heat of 4.184 J/g·°C.
- How much energy must be added to 1450 g of water to raise the temperature from 5.5 °C to 29.0 °C?
 - How much energy is removed from 10.55 kg of water to lower the temperature from 22.5°C to 3.0°C?
 - Adding 550 calories of energy raised the temperature of water from 10.0 °C to 13.25 °C. What was the mass of the water?

7. Iron has a specific heat of $0.45 \text{ J/g}\cdot\text{°C}$.
- How much energy must be added to 376 g of iron to raise the temperature from 25.5 °C to 429.0°C ?
 - Removing 9550 kcal of energy lowered the temperature of iron from 100.0 °C to 73.25 °C . What was the mass of the iron?
 - 19770 J of energy was added to 5.80 kg of iron. If the iron was originally at 25.0°C what was the final temperature of the iron?
8. Steam has a specific heat of $1.90 \text{ J/g}\cdot\text{°C}$.
- How much energy must be added to 125 kg of steam to raise the temperature from 105.5 °C to 129.0°C ?
 - How much energy must be removed from 1520 g of steam to lower the temperature from 202.5°C to 100.0 °C ?
 - 109 kJ of energy was added to 2.50 kg of steam. If the steam was originally at 100.0°C what was the final temperature of the steam?
9. What is the specific heat of a substance if 525 calories of energy increases the temperature of 10.0 g of the substance 5.75°C ?
10. What is the specific heat of a substance if removing 95.0 J of energy decreases the temperature of 5.0 g of the substance from 23.5°C to 18.1°C ?