$$Q = mC\Delta T \quad \text{or} \quad Q = mC(T_f - T_i)$$

Material	Specific Heat $\left(\dfrac{J}{kg\,°C}\right)$
water	4,184
Ice	2060
oil	1900
wood	1800
aluminum	900
concrete	880
glass	800
steel	470
silver	235
gold	129

[4 points per problem]

1. I have a mass of 2 kg of aluminum at a temperature of 20°C. I add 23,400 Joules of heat energy. What is the final temperature of my aluminum?

2. I have a mass of 5 kg of water at a temperature of 10°C. If I add 10,000 Joules of heat energy, what will be the final temperature of my water?

3. I have a 0.2 kg piece of super-cold ice with a temperature of $-80°C$. If I add 8000 Joules of heat energy, what is the final temperature of my ice?

4. I have a mass of 6 kg of steel. I add 40,000 Joules of heat energy in order to heat my steel to 60 degrees Celsius. What was the *initial temperature* of the steel?

5. I have a mass of 6 kg of very cold glass. I add 336,000 Joules of heat energy to heat the glass to a temperature of temperature of $20°C$. What temperature was the glass originally?