

## Physics Chpt 12 rev 2

### Thermal Energy

1. How much TE is given off when 65.0 g of water goes from  $87.5^{\circ}\text{C}$  to  $15.6^{\circ}\text{C}$ ?
2. A 125 g block of metal absorbs 1212 J of TE when its temperature changes from  $25.0^{\circ}\text{C}$  to  $50.0^{\circ}\text{C}$ . What is the specific heat of the metal?
3. A 25.0 W electric heater is used to control the temperature of 45.0 liter glass fish tank. How much time does it take the heater to change the temperature of the tank and water from  $17.0^{\circ}\text{C}$  to  $25.0^{\circ}\text{C}$  if the tank has a mass of 14.5 kg? (1 liter of water has a mass of 1 kg)
4. How much heat is added to 50.0 g of ice at  $-15.0^{\circ}\text{C}$  to make steam at  $150.0^{\circ}\text{C}$
5. 60.0 g of ice at  $0.0^{\circ}\text{C}$  are placed in a 225 g aluminum cup containing 300 g of water at  $75.0^{\circ}\text{C}$ . What is the final temperature of the mixture?
6. How high would you have to drop water from to change its temperature  $2.0^{\circ}\text{C}$ ?
7. A 95.6 kg bike (including mass of rider) traveling at 5.65 m/s brakes to a stop using 55.0 g iron brake pads. What is the increase in temperature of the brake pads?
8. What is the final temperature if 225 g of a metal (steel) at  $120^{\circ}\text{C}$  is placed in a 125 g aluminum cup containing 135 g of water at  $22^{\circ}\text{C}$ ?
9. What is the initial temperature of 1800 g of water if 100 g of ice at  $-10^{\circ}\text{C}$  is mixed with it and the final temperature ends up at  $60^{\circ}\text{C}$ ?