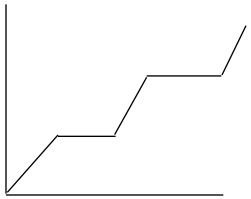
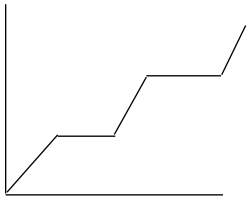
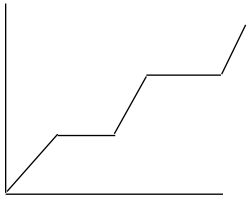
1. What is the energy needed to melt 326 grams of ice and heat it to 100°C?



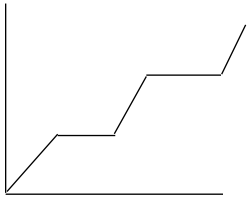
2. Determine the energy required to convert 21.1 grams of ice at -6°C to steam at 100°C



3. What is the heat transfer involved when you convert 51 grams of water 0°C to ice at -20.3°C?



4. What is the energy absorbed when you melt 75 grams of ice at -5°C to water at 90°C?



Q = mCΔT C_{ice} = 2.09 J/g°C	The **SPECIFIC HEAT OF ICE** is the heat used to make the molecules in the ice crystal move faster. They start vibrating more and break loose of the organized structure. This causes the temperature to increase. *What's Happening?* *Speeding up Solid* *Temperature goes up*
Q = mL L_{fusion} = 334 J/g (+) if melting (-)if freezing	The **LATENT HEAT OF FUSION** is the energy used to break the attractions between the ice molecules. This spreads them out. All the energy is going to the molecules being spread out, they do not move faster, therefore, the temperature does not go up. *What's Happening?* *Spreading out molecules* *Phase Change: Solid → Liquid*
Q = mCΔT C_{water} = 4.18 J/g°C	The **SPECIFIC HEAT OF WATER** is the heat used to make the water molecules move faster in liquid form. This causes the temperature to increase. *What's Happening?* *Speeding up Liquid* *Temperature goes up*
Q = mL $L_{vaporization}$ =2260 J/g (+) if vaporizing (-) if condensing	The **LATENT HEAT OF VAPORIZATION** is the energy used to break the attraction between the liquid molecules. This spreads them out. All the energy is going to the molecules being spread out, they do not move faster, therefore, the temperature does not go up. *What's Happening?* *Spreading out molecules* *Phase Change: Liquid → Gas*
Q = mCΔT C_{steam} = 1.87 J/g°C	The **SPECIFIC HEAT OF STEAM** is the heat used to make the steam molecules move faster in the gas form. This causes the temperature to increase. *What's Happening?* *Speeding up gas* *Temperature goes up*