Chemistry CP
Energy Calculation Worksheet #4

Name:_____

You may need the following information to answer the questions:

Specific heat of water= 4.184 J/g°C **Specific heat of steam= 1.84 J/g°C**

Specific heat of ice= 2.09 J/g°C

Heat of fusion of water= 6.02 kJ/18 grams **Heat of vaporization of water= 40.6 kJ/18 grams**

1. A 345 gram sample of water at -35°C is heated until it becomes steam with a temperature of 100.0°C. How many joules of energy were used?

2. A 405 gram sample of ice at -8°C is heated until the temperature reaches 29°C. How many joules of energy were needed to make this change?

3. A 12 oz can of soda weighs 450 grams. Soda is mostly water. How many joules of energy are released when a can of soda is cooled from 25°C (room temperature) to- 4°C (freezer temp)?

4. How many kilojoules of energy are required to heat 25 grams of water from 0.0°C to 100.0°C?

5. How many joules of energy are required to melt 270. grams of ice?

6. How many kilojoules of energy are required to boil 1150 grams of water into steam?

7. A 125 gram sample of ice at -40.0°C is heated until it changes to steam at 105°C. How much total energy (in joules) has been added to the system?

8. How many joules of energy are given off when 130. grams of water are cooled from 75°C to -5°C ?

9. How many kilojoules of energy are given off when 340 grams of water are cooled from 100°C to -35°C?

10. How many joules of energy are required to heat 360 grams of frozen juice (mostly water) from -15°C to 100°C?