A-Day: Due Mon., Jan 10 (Assigned: 1/8)
B-Day: Due Tues., Jan 11 (Assigned: 1/9)

Heat 2

1) From the lab:
   A. Which beaker cooled faster: the one that was stirred or the one that was not stirred?
   B. Why?

   C. The stirring showed what kind of heat transfer?
   D. When we put smoke into one of the stove pipes, what did it do and why?

   E. Explain the graph you got when you boiled the ice water. (You should probably draw it and label it; and, yes, you may use a different piece of paper, if you need to.)

2) Which do you use: Heat of fusion (L_f) or Heat of vaporization (L_v)?

A) _____From a liquid to a gas?	D) _____During melting?	G) _____ From a solid to a liquid?
B) _____From a liquid to a solid?	E) _____Turning to steam?	H) _____ During freezing?
C) _____From a gas to a liquid?	F) _____During condensation?	I) _____ During a temp change?

3) If it were 35ºC in Paris, would that be hot or cold. (Hint: figure out what temperature it is in F).

4) 6 kg of ice is at 0ºC.
   A) How much heat is necessary to melt the ice into water? ($L_f = 3.33 \times 10^5$)

   B) How much heat is necessary to raise the water from 0ºC to 30ºC? (C_p of water = 4186)

   C) SOOO, how much heat is necessary to take the 6 kg of ice to water at 30ºC? (The whole process.)

5) Using the same process: how much heat is necessary to take 80ºC water up to boiling and then turn it to steam? (You know the C_p of water; $L_v = 2.26 \times 10^6$)

6) Conduction (1), Convection (2), or Radiation (3)?

   A) ____Why the upstairs of your house is hotter.
   B) ____Wearing a coat stops this.
   C) ____Why the silver dish on the space heater I brought in allows it to direct the heat.

More on back

Heat 2

7) If the grid at the right was over a large amount of land and the sun was shining very brightly over just square "J", "J" would heat up. (Let's say all the other squares are covered with clouds.)
   A) What kind of thermodynamic transfer heats "J"?
   B) Which direction would "J's" air move? (Think in 3 dimensions)

   C) Using arrows, draw the direction of the winds in the adjacent squares. (squares next to "J").

A	E	I	M
B	F	J	N
C	G	K	O
D	H	L	P

(This is how "winds" are created and how weather reporters can predict wind directions.)

8) A 5 kg piece of iron (c_p = 448) at 20ºC is put into a 2 kg hot cup of water (C_p of water = 4186) at 75ºC.
   A) Which direction does the heat go (iron to water or water to iron)?
   B) Why?
   C) Which substance loses heat?
   D) Which one gains heat?
   E) The amount of heat transferred is _____.
   F) Find the temperature at which the two substance will come to thermal equilibrium.
   (Even though we didn't finish this in class, you have notes and the website—get it done—no excuses!)