Heat Energy

Name: _____ Date: _____

Read and answer the following questions. Write your notes carefully and show all of your work.

Read pp. 252-254

1. What is **heat**? Compare the kinetic energies of cold versus hot objects.
2. Describe/explain the **kinetic molecular theory**.
3. Write the definition of **Temperature**. Why is it used instead of the actual about of energy?
4. Describe the difference between **thermal energy** and **temperature**.
5. List the three temperature scales that are commonly used. Also, state whom they are named after. What is the freezing and boiling point of water in each of these scales (list them in an easy to compare manner)?
6. What is **absolute zero**? What temperature is it in the Celsius and Kelvin scales? The conversion from Celsius to Kelvin is: $T_K = T_C + 273$; the units for Kelvin is K.
7. Body temperature is about 37°C, convert this temperature to Kelvin.
8. Oxygen turns into liquid at 90.2 K, convert this to degrees Celsius.

Read p. 255

1. Describe what is meant by heat **conductor** and a heat **insulator**.
2. Describe the three methods of **transferring heat** energy (conduction, convection and radiation).

Read pp. 260-262

1. List the three things that the "*Heat transfer of any substance depends on*."
2. **Specific heat capacity**: Provide the **definition and equation** (state what each variable represents).
3. Write this definition: **Thermal Inertia**: *is the resistance of a substance to changes in its thermal energy.* An object with a high specific heat capacity has a lot of thermal inertia; this means that it will take a long time to heat up or cool down (i.e. water, concrete). An object with a low thermal inertia will heat up and cool down really quickly and will have a small specific heat capacity (i.e. sand, tin foil).

Problems

Do the following problems: **p. 276 #25, 26, 28, 29**