

## Papers worth reviewing

- What Makes a Good Data Table?
- What makes a Good Graph?
- tiny Lab – Hot Water Mixed with Cold Water
- LAD C1 – Specific Heat Capacity of Metals
- LAD C2 – Heat of Fusion of Water
- NoteSheet C1 – Phase Changes
- NoteSheet C2 – Calorimetry
- Practice C1 – Calorimetry
- Practice C2 – Phase Changes & Temp Changes
- Consider using the class presentation and clicker questions for review as well (available on the unit C document page at the top)
- Consider reviewing your openers

## Objectives

1. Recognize that energy must come or go for temperature changes to occur.
  - Understand that temperature changes are kinetic energy changes.
2. Recognize that energy must come or go for phase changes to occur.
  - Understand that phase changes are potential energy changes and occur at a constant temperature.
3. Understand that temperature and heat are not the same thing.
4. Understand that the Joule is our energy unit. (We will not use calorie, Calorie, or BTU)
5. Recognize that heat lost has to go somewhere, since energy is conserved
  - Thus we will perform calculations assuming heat lost = heat gained  $-q_{Lost} = q_{Gained}$
  - Recognize that this assumption is not perfect and be aware of methods to minimize any loss of energy.
  - Be able to identify error sources and track the resulting effect of error on measurements and calculations.
6. Explain what is occurring nanoscopically when a substance increases or decreases temperature.
7. State the meaning of specific heat capacity,  $c$ . Know what units are on the value.
  - Know when to use specific heat capacity for heat calculations with  $q = m \times c \times \Delta T$
8. Explain what is occurring nanoscopically when a substance changes phase.
9. State the meaning of  $\Delta H_{fusion}$  and  $\Delta H_{vaporization}$ 
  - Know when to use  $\Delta H$  values for heat calculations with  $q = \Delta H \times m$
10. Use a heating or cooling curve for a substance
  - Identify various parts of the curve, what processes are happening, how to calculate energy for those segments.
  - Understand how slope of the sloping portions is related to magnitude of specific heat capacity
  - Understand why melting/freezing plateaus are always shorter than boiling/condensing plateaus

## Unit C – Energy & States of Matter

### Vocabulary List

- phase changes
  - melting / freezing
    - $\Delta H_{\text{fusion}}$
  - boiling / condensing
    - $\Delta H_{\text{vaporization}}$
- endothermic
- exothermic
- joules, kilojoules
- heating and cooling graphs (curves)
- calorimeter
- specific heat capacity
- temperature change
  - $\Delta T$
  - $T_{\text{final}} - T_{\text{initial}}$
- temperature organizer

*This vocabulary list is meant to complement your study. Knowing this list alone, without the concepts on the front would not prepare you for the test.*