CHM 101
Chapter 10 Study Guide / Learning Objectives

Chapter 10 in your textbook deals with the concept of energy. In CHM 101, we only discussed the first five sections in the book (sections 10.1-10.5). We introduced thermodynamics - which is the study of energy transfer – and primarily focused our studies on energy in the form of heat (energy transfer from a region of high temperature to a region of low temperature). These topics are important to us as chemists because heat is often involved in chemical reactions.

After reading sections 10.1-10.5 in your textbook, you should be able to:

[Energy – kinetic energy and potential energy]

- Define **energy**, **kinetic energy**, and **potential energy**.
- List the two common units of energy and how they relate to each other.
- Convert from (kilo)joules to (kilo)calories, or from (kilo)calories to (kilo)joules

[Heat and specific heat]

- Define **heat** and **specific heat**.
- Define thermodynamic terms: **system**, **surroundings**, **endothermic**, **exothermic**
- Describe what happens to the system and surroundings in an endothermic or exothermic process
- Write the relationship between mass, heat, and specific energy.
- Calculate mass, specific heat, or energy given any two.
- Calculate specific heat of a material given appropriate data (as we did in our classroom experiment)

[Conservation of energy]

- Define the **law of conservation of energy**, also called the **First Law of thermodynamics**.

[Practice]

- (p237a-237b) Q&P – 2, 4, 6, 12, 14, 18, 22, 26, 30, 32, 34