Chapter 4

1. Definitions (mole, Avogadro’s number, molecular weight, physical change, chemical change, chemical reaction, stoichiometry)
2. Developing and using Avogadro’s number in equalities and conversion factors
3. Developing and using “component within” equalities and conversion factors
4. Calculating and using molecular weights as conversion factors
5. Classifying chemical reactions as combination, decomposition, single replacement, double replacement, or combustion
6. Balancing chemical reactions
7. Using coefficients in balanced chemical reactions to create molar conversion factors (stoichiometry)

Chapter 5

1. Definitions (energy, heat, state of matter, solid, liquid, gas, change of state/phase change, melting, freezing/fusion, vaporization/boiling, condensation, sublimation, deposition, specific heat, exothermic, endothermic)
2. Converting between heat units (joule, calorie, Calorie)
3. Converting between degrees Fahrenheit, degrees Celsius, and Kelvin (a review)
4. Boiling and freezing points of water (degrees Fahrenheit, degrees Celsius, Kelvin)
5. Tracking the phase changes and states of matter of a chemical across a range of temperatures
6. Specific heat of water
7. Using the equation $q = mc\Delta T$
8. Using the equations $q = m(\text{heat of fusion})$ or $q = m(\text{heat of vaporization})$
9. Applying the definitions of exothermic and endothermic by predicting whether heat is a reactant or a product in a chemical reaction

Chapter 6

1. Definitions (pressure, STP)
2. Defining the four properties of gases (pressure, volume, temperature, amount), providing their units, and converting between those units
4. Molar and volume relationship at STP