Honors Chemistry I **Name: _____**
Lincoln High School
Mrs. Cameron **Period____**

Chapter 1 – Chemistry and Measurement

Next Generation Science Standards:

HS-PS1-1. Use the periodic table as a model to predict the relative properties of elements.
HS-PS1-7. Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.

LHS Academic Student Expectations: "Students will be creative and practical problem solvers."

Objectives:
Chapter 1.1-1.4: *Upon completion of this unit the student will relate the nature of scientific inquiry and method to the study of chemistry and matter by:*

1. Explain why knowledge of chemistry is central to many human endeavors.

2. Be able to compare and contrast inductive and deductive reasoning and give several examples of each.

3. Identify the purpose of science and distinguish between scientific analysis and philosophy.

4. List the steps of the scientific method and demonstrate its application in scientific analysis.

5. Explain and describe scientific models, how those models are created, and make predictions based on the scientific models.

6. Explain the basic safety rules for working in a chemistry laboratory.

7. Differentiate between scientific observations, inferences and conclusions.

8. Explain and give examples of the use of indirect evidence in scientific analysis.

9. Define matter, mass, volume

10. Describe the solid, liquid and gaseous states of matter and give an example of each.

11. Define extensive, intensive, chemical and physical properties of matter and classify various properties of matter using these terms.

12. Describe the differences between physical and chemical change and classify changes of matter using these designations.

13. Describe the indications that a chemical change has occurred.

14. Explain the laws of conservation of mass and matter.

15. Categorize substances as elements, compounds, pure substances, heterogeneous mixtures, and/or homogeneous mixtures.

16. Describe at least two methods of separating heterogeneous mixtures.

17. List and describe four techniques used to separate homogenous mixtures.

Chapter 1.5-1.6: *Upon completion of the unit the student will differentiate between and explain the roles of quantitative and qualitative observation and analysis in chemistry by:*

18. Identify the metric units of measurement used in chemistry

19. Explain what causes uncertainty in measurement and identify sources of error in measurements.

20. Compare and contrast accuracy and precision.

21. Demonstrate and apply the rules of significant figures in solving calculations.

22. Solve dimensional analysis problems.

23. Assess lab data and calculations using objectives 19, 20 & 21.

24. Distinguish between heat and temperature.

25. Compare and contrast the Fahrenheit, Celsius and Kelvin temperature scales.

26. Explain what is meant by absolute zero.

27. Define and use the key terms on page 26 of the text book.

Vocabulary in addition to the Key terms on page 26:

Inductive reasoning
Deductive reasoning
Intensive Property
Extensive Property
Inference
Indirect Evidence
Solvent
Solute
Interstitial spaces
Steric hindrances
Colloid
Suspension
Independent variable
Dependent variable
Theory
Model
Technology
Qualitative
Quantitative
Certainty
Unit Conversion
Derived Unit