Chemistry Power Standards by Quarter (6/23/08)

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Goal 1 Inquiry	Collect, organize and analyze data accurately and precisely, using appropriate instruments, equipment and units. Emphasis on: 1. Laboratory skills 2. Collecting and organizing data	Collect, organize and analyze data accurately and precisely, using appropriate instruments, equipment and units. Emphasis on: 1. Laboratory skills 2. Graphing skills	Collect, organize and analyze data accurately and precisely, using appropriate instruments, equipment and units. Emphasis on: 1. Laboratory skills 2. Interpreting and analyzing data	Collect, organize and analyze data accurately and precisely, using appropriate instruments, equipment and units. Emphasis on: 1. Laboratory skills 2. Formulating conclusions
Goal 2 Content	**Matter and Change** 3. Compare and contrast physical and chemical properties and changes of matter. **Scientific Measurement, Problem Solving** 4. Solve problems using conversion factors and dimensional analysis **Atomic Structure** 5. Investigate the atomic an nuclear structure of matter including historical atomic theories. **Electrons in Atoms** 6. Describe the quantum mechanical view of the atom and compare and contrast elements based on their configurations **Chemical Periodicity** 7. Explain the historical development and organization of elements on the periodic table and identify trends.	**Bonding** 3.Compare and contrast ionic and covalent bonds; and describe the shape and polarity of the molecule from an electron dot structure. **Chemical Names and Formulas** 4. Identify names and formulas for chemical compounds. **Chemical Quantities** 5. Convert between units (mass, volume and number of particles) with moles. 6. Use the mole concept to calculate empirical formula and mass percent **Chemical Reactions** 7. Complete and balance chemical reactions	**Stiochiometry** 3. Use balanced equations to solve stoichiometry problems. **States of Matter** 4. Use the kinetic theory to identify phase changes and interpret phase diagrams. **Behavior of Gases** 5. Describe the various gas laws and the relationships between the variables T,P and V. 6. Solve problems and explain practical applications of the gas laws. **Solutions** 7. Analyze how solubility is affected by changes in temperature and pressure.	**Thermochemistry** 3. Explain the terms endo and exothermic, interpret graphical data and solve theromchemistry problems. **Reaction Rates and Equilibrium** 4. Explain factors that affect the rate of reaction and chemical equilibrium, predicting changes that will occur under various conditions. **Acids and Bases** 5. Compare and contrast acids and bases, including the concepts of pH and neutralization. **Electrochemistry** 6. Define the terms oxidation and reduction and identify what is oxidized and reduced in a chemical equation.
Goal 3 Connections	8. Demonstrate lab safety procedures and accepted practices of science.	8. Identify important contributions, both historical and current, that have been made by individuals and groups from various cultures to our understanding of chemistry.	8. Explain how chemistry concepts are used in various occupations.	7. Describe how scientific knowledge and explanations may change with new information over time.