Physical Science Power Standards by Quarter (Draft 6/29/07)

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Goal 1 Inquiry	Interpret, display, analyze and draw conclusions from the results of a scientific investigation. Emphasis on: 1. Laboratory skills 2. Formulating hypotheses and identifying variables 3. Collecting and organizing data 4. Demonstrating graphing skills	Interpret, display, analyze and draw conclusions from the results of a scientific investigation. Emphasis on: 1. Interpreting data 2. Formulating conclusions	Interpret, display, analyze and draw conclusions from the results of a scientific investigation. 1. Identify a design problem and establish criteria for determining the success of the solution. 2. Propose a design solution to an electricity-related problem and test the prototype.	Interpret, display, analyze and draw conclusions from the results of a scientific investigation. Emphasis on: 1. Writing a formal lab report 2. Design, test and evaluate a prototype for a magnetism related problem based on given criteria.
Goal 2 Content	**Unit 3 Matter and Energy** 5. Distinguish between atoms, molecules, elements, compounds and mixtures. 6. Compare and contrast physical and chemical properties of various substances 7. Explain the relationship between pressure, volume and temperature of gases and solve gas law problems 8. Describe the structure of atoms, forces that hold them together and important terms that describe them (i.e. atomic number, atomic mass, isotope) 9. Explain the structure of the periodic table and how it is used to obtain information about the characteristics of an atom.	**Unit 4 Energy and Change** 3. Describe different forms of energy and diagram how energy flows in a system 4. Summarize the laws of thermodynamics and explain real world applications. 5. Compare and contrast covalent and ionic bonds and describe how energy is stored in bonds. 6. Compare and contrast types of nuclear reactions and how they differ from chemical reactions. 7. Explain half life and radioactive decay and give examples of applications in nature and technology.	**Unit 5 Electricity** 3. Explain how electrical energy is supplied to devices within a circuit and interpret circuit diagrams. 4. Explain the terms current, resistance and voltage and solve Ohm's Law problems. 5. Distinguish between conductors, insulators and semiconductors and give examples of everyday applications. 6. Apply background information on electricity to explain concepts related to everyday use (i.e. AC/DC current, short circuits, circuit breakers, fuses, electricity use in the home, distribution of electricity to buildings). 7. Describe the properties of positively and negatively charged and neutral objects and name the sources of these charges.	**Unit 6 Electricity and Magnetism** 3. Describe the polar nature of magnets, their interactions and diagram the magnetic field around a permanent magnet. 4. Build a simple electromagnet and explain how it works. 5. Describe the magnetic field and the forces generated by an electric current. 6. Describe how a generator works. 7. Explain how a transformer works and applications in everyday experience and solve related problems.
Goal 3 Connections	10. Demonstrate lab safety procedures and accepted practices of science.	8. Recognize the importance of accurately reporting data to reach an honest and unbiased conclusion	8. Identify important contributions, both historical and current, that have been made by individuals and groups from various cultures to our understanding of physics.	8. Explain how physical science concepts are used in various occupations