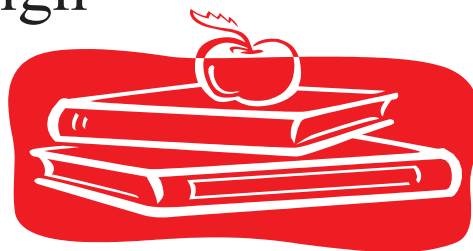


# Mackay Junior/Senior High School



**COURSE:** Physical Science

Date: 2011-2012

Teacher with contact information: Mr. McClure

michmcl@mackayschools.org

## COURSE DESCRIPTION

Physical Science for 9<sup>th</sup> grade includes a semester of Chemistry and a semester of Physics, at an introductory level. It is a required class, and there are no prerequisites

The Chemistry portion covers topics including classification of matter, physical and chemical properties and changes, the periodic table, types of chemical reactions, and nuclear chemistry. The Physics portion includes topics on forces and motion, fluid dynamics, simple machines and work, sound, light, and electricity. Both portions have a moderate math component. Students develop laboratory skills in measurement and use of standard laboratory equipment with experiments in every chapter. Learning safe laboratory practices is an important part of the 1a experience.

## COMMON CORE / STATE CONTENT STANDARDS/VOCABULARY OBJECTIVES

- 8-9.PS.1.1.1 Explain the scientific meaning of system, order, and organization. (648.01a)
- 8-9.PS.1.1.2 Apply the concepts of order and organization to a given system. (648.01a)
- 8-9.PS.1.2.1 Use observations and data as evidence on which to base scientific explanations. (648.02a)
- 8-9.PS.1.2.2 Develop models to explain concepts or systems. (648.02b)
- 8-9.PS.1.2.3 Develop scientific explanations based on knowledge, logic, and analysis. (648.02c)
- 8-9.PS.1.3.1 Measure changes that can occur in and among systems. (648.03b)
- 8-9.PS.1.3.2 Analyze changes that can occur in and among systems. (648.03b)
- 8-9.PS.1.3.3 Measure and calculate using the metric system. (648.03c)
- 8-9.PS.1.6.1 Identify questions and concepts that guide scientific investigations. (649.01a)
- 8-9.PS.1.6.2 Utilize the components of scientific problem solving to design, conduct, and communicate results of investigations. (649.01b)
- 8-9.PS.1.6.3 Use appropriate technology and mathematics to make investigations. (649.01c)
- 8-9.PS.1.6.4 Formulate scientific explanations and models using logic and evidence. (649.01d)
- 8-9.PS.1.6.5 Analyze alternative explanations and models. (649.01e)
- 8-9.PS.1.6.6 Communicate and defend a scientific argument. (649.01f)
- 8-9.PS.1.6.7 Explain the differences among observations, hypotheses, and theories. (649.01g)
- 8-9.PS.1.8.1 Analyze technical writing, graphs, charts, and diagrams. (658.02a)
- 8-9.PS.2.2.1 Explain motion using Newton's Laws of Motion. (650.04b)
- 8-9.PS.2.3.1 Explain that energy can be transformed but cannot be created nor destroyed. (650.05a)
- 8-9.PS.2.3.2 Classify energy as potential and/or kinetic and as energy contained in a field. (650.05b)
- 8-9.PS.2.4.1 Describe the properties, function, and location of protons, neutrons, and electrons. (650.01a)
- 8-9.PS.2.4.2 Explain the processes of fission and fusion. (650.01b)
- 8-9.PS.2.4.3 Describe the characteristics of isotopes. (650.01c)

8-9.PS.2.4.4 State the basic electrical properties of matter. (650.01d)

8-9.PS.2.4.5 Describe the relationships between magnetism and electricity.

8-9.PS.2.5.1 Explain how chemical reactions may release or consume energy while the quantity of matter remains constant. (650.03a)

8-9.PS.5.2.1 Explain how science advances technology. (655.01a)

8-9.PS.5.2.2 Explain how technology advances science. (655.01a)

8-9.PS.5.2.3 Explain how science and technology are pursued for different purposes. (656.01b)

## INSTRUCTIONAL MATERIALS

Prentice Hall's *Physical Science Concepts in Action*. Pearson, 2006.

### UNITS WITH INSTRUCTIONAL DATES

| Week       | Lesson                             | Description                                                  |
|------------|------------------------------------|--------------------------------------------------------------|
| 1          | 1.1-1.2                            | What is science?                                             |
| 2          | 1.3-1.4 Ch. 1 review and test      | Measurement, presenting data                                 |
| 3 (3 days) | 2.1-2.3, Lab                       | Classifying matter, physical properties, chemical properties |
| 4          | Ch. 2 review and test, 3.1-3.3     | States of matter, gas laws, phase changes                    |
| 5          | Ch.3 review and test, 4.1-4.3, Lab | Atoms and atomic theory                                      |
| 6          | Ch. 4 review and test, 5.1-5.2     | Periodic table                                               |
| 7          | 5.3, Ch.5 review and test, Lab     | Groups within the table                                      |
| 8          | 6.1-6.4                            | Bonding, nomenclature, chemical formulas, metals             |
| 9          | Ch. 6 review and test. Lab         |                                                              |
| 10         | 7.1-7.3                            | Chemical reactions and energy changes                        |
| 11         | 7.4-7.5, Lab                       | Reaction rates, equilibrium                                  |
| 12         | Ch. 7 review and test, 8.1-8.2     | Solutions, solubility, concentration                         |
| 13         | 8.3-8.4, Lab                       | Acids and Bases                                              |
| 14         | Ch. 8 review and test              |                                                              |
| 15         | 9.1-9.3                            | Carbon compounds, polymers. re                               |

|    |                                 |                                                                   |
|----|---------------------------------|-------------------------------------------------------------------|
| 16 | 9.4, Ch. 9 review and test, Lab | Reactions in cells                                                |
| 17 | 10.1-10.4, Ch. 10               | Radioactivity, nuclear decay<br>Transmutation, fission and fusion |
| 18 | Ch. 10 review and test          |                                                                   |

### ASSESSMENTS / TESTS

The mastery model is employed in Physical Science, in which students who complete all the daily work on time, but who want to improve their test score, may retake tests, which are of equal difficulty to the original version of the test. Tests are multiple choice with a significant problem solving section.

### GRADING PROCEDURES

50% tests, 50% homework and labs. Homework

### CLASS RULES

Readiness, Respect, Responsibility. Safety first.

### MISCELLANEOUS

Safety first. All students are made aware of chemical spill procedures, and locations of eyewash station, shower and fire extinguisher.

### CLASS RULES