

<b>Course Title: HIGH SCHOOL PHYSICAL SCIENCE A</b>	<b>Course Description</b>
<p><b>Course No.</b> 4305                      <b>Grade level:</b> 9-12</p> <p><b>Text and Resource Options:</b>  A. <i>Glencoe Physical Science</i>, Part I; Glencoe McGraw-Hill  B. <i>Science Spectrum: Physical Science</i>, Part I; Holt</p>	<p><b>Course Value:</b> *One Semester</p> <p><b>Credit Value:</b> 1 – 5 credits</p>
<p align="center"><b>Course Content: Key Content Standards and Course Objectives</b></p>	
<p>This course is based on a combination of the following physics, chemistry and physical science standards:</p> <ol style="list-style-type: none"> <li><b>Forces and Motion:</b> Newton’s laws predict the motion of most objects (Physics: 9/12-1e,f), the velocity of an object is the rate of change of its position (8-1a-f), unbalanced forces cause changes in velocity (8-2a-g).</li> <li><b>Energy:</b> Electric and magnetic phenomena are related and have many practical applications (Physics: 9/12-5), the laws of conservation of energy and momentum provide a way to predict and describe the movement of objects (Physics: 9/12-2), radiation and convection currents (6-4a-e), energy and matter have multiple forms and can be changed from one form to another (3-1a-i), visible light is a small band within a very broad electromagnetic spectrum (7-6a-g), light has a source and travels in a direction (3-2), how to identify the characteristic properties of waves (9/12-4f).</li> <li><b>Chemistry:</b> Structure of matter: elements (8-3, 8-7), the periodic table displays the elements in increasing atomic number (Chemistry: 9/12-1a-d), elements and their combinations account for all the varied types of matter in the world (5-1a-i), chemical reactions are processes in which atoms are rearranged into different combinations of molecules (8-5a-e), density and buoyancy (8-8a-d).</li> <li><b>Investigation and Experimentation</b>  Students will ask meaningful questions and conduct careful investigations addressing the content of the above Physical Science standards.</li> </ol>	<p>This course will focus on the science strands that closely parallel the Grade 9-12 Chemistry and Physics standards.</p> <p>This course, along with Physical Science IB, can fulfill the Alternative Education’s physical science requirement for the high school diploma. Note that some exploratory activities are used, but lack of facilities that conform to state safety guidelines for laboratories precludes many laboratory activities.</p> <p>*Open entry/open exit</p>
<p align="center"><b>Methods of Study</b></p>	<p align="center"><b>Evaluation of Performance Standards</b></p>
<ol style="list-style-type: none"> <li>Students will complete all activities assigned.</li> <li>Students will participate in discussion with other class members and/or teacher.</li> </ol>	<ol style="list-style-type: none"> <li>Students will complete all assignments with a minimum of 70% accuracy.</li> <li>The supervising teacher will be satisfied with the quality of the student’s work.</li> <li>The student must receive a minimum score of 70% on a teacher assigned final evaluation.</li> <li>Letter grades are optional and require a higher level of performance.</li> </ol>

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Course Outline: 4305

**I. Textbook Assignment Options:**

A. *Glencoe Physical Science, Part I (5.0 credits)*

- Read: Chapters 1-11.
- Complete: “Section Review” questions 1 and 2.
- Complete the following Chapter “Review” exercises:
  - a. “Reviewing Vocabulary”
  - b. “Checking Concepts”
  - c. “Understanding Concepts”
  - d. “Thinking Critically”
- Complete one Extension Activity listed below.

B. *Science Spectrum: Physical Science, Holt, Part 1 (5.0 credits)*

- Read Chapters 1 – 11.
- Complete all the Math Skills Practices when they appear in the chapters
- Complete Section Reviews
- Complete the following sections of the Chapter Reviews
  - Understanding Key Concepts
  - Using Vocabulary
- Complete the Chapter “Standards Assessment” for each chapter
- Complete one Extension Activity listed below for *Science Spectrum*.

**II. Extension Activity Options:**

1. Using the scientific method, design an experiment to test any concept discussed in this course. Use at least 10 slides to create a power point presentation that will outline each of the steps in your experiment.
2. Write a 1-page essay about either nuclear, chemical, electromagnetic or heat energy. Use at least two resources in your research. Discuss how the energy is created, how it is used, and the pro’s and con’s of that energy form. Use Writing Rubric Exp. H.S.
3. Teacher generated activity, approved by the site administrator.

***Science Spectrum extensions***

1. Draw a computer graphics picture of how five separate pairs of elements bond with each other when they meet. Show at least two kinds of bonds. Include a caption telling what the new chemical is that each pair makes.
2. Use the Internet to research endothermic and exothermic reactions. Write a 1-page essay based upon your research. Using a search engine such as Yahoo.com, and the search terms of “endothermic and exothermic,” you will find a supply of information. Use Writing Rubric listed below.

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3. Create a Power Point presentation that includes at least ten slides that depict what happens during three different chemical reactions.
4. Teacher generated activity, approved by the site administrator.

### **III. Evaluation**

- See your teacher for a unit test.
- All Writing assignments must meet the proficient level of the rubric provided by the teacher.
- All textbook work must meet 70% accuracy level for a “C” grade.