

<b>Course Title: PHYSICAL SCIENCE IIB</b>	<b>Course Description</b>
<p><b>Course No.</b> 3306                      <b>Grade level:</b> 8-12</p> <p><b>Text and Resources:</b>  A. <i>AGS Physical Science</i>, Part II; AGS  B. <i>Concepts and Challenges in Physical Science</i>, Part II; Globe Fearon</p>	<p><b>Course Value:</b> *One Semester</p> <p><b>Credit Value:</b> 1 – 5 credits</p>
<p><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> The motion of objects can be observed and measured (2-1a-g), 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), tools and machines are used to apply forces to make things move (2-1d).</li> <li><b>Energy:</b> Electricity and magnetism are related effects that have many useful applications in everyday life (4-1a-g), 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), sound is made by vibrating objects and can be described by its pitch and volume (2-1g), movements of thermal energy (6-3a-d), heat flow and work are two forms of energy transfer between systems (Physics: 9/12-3a), first law of thermodynamics (Physics: 9/12-3b).</li> <li><b>Chemistry:</b> Energy and matter have multiple forms and can be changed from one form to another (3-1a-i), elements have distinct properties and atomic structure and all matter is comprised of one or more of over 100 elements (8-3a-f), elements and their combinations account for all the varied types of matter in the world (5-1a-i).</li> </ol> <p><b>4. <u>Investigation and Experimentation</u></b></p> <p>Students will ask meaningful questions and conduct careful investigations addressing the content of the above Physical Science standards.</p>	<p>In addition to some of the Grade 9-12 standards, this course will include the foundational standards from which the 9-12 physical science and chemistry standards are based. This course, along with Physical Science IIA, can serve as one component of the Alternative Education’s science credit requirement for graduation. Note that some exploratory activities are used, but the lack of facilities that conform to state safety guidelines for laboratories precludes many laboratory activities.</p> <p>*Open entry/open exit</p>
<p><b>Methods of Study</b></p>	<p><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> </ol>

**PHYSICAL SCIENCE IIB**  
**Course Outline: 3306**

**I. Textbook Assignment Options:**

- A. *AGS Physical Science, Part II (5.0 credits)*
- Read: Chapters 7-12.
  - Complete: all “Self-Check” or “Lesson Review” exercises
  - Complete: “Chapter Review” exercises.
  - Complete one of the Extension Activities listed below.
- B. *Concepts and Challenges in Physical Science, Part II (5.0 Credits)*
- Read: Units 12 to 21.
  - Complete: all “Check” and “Apply” questions.
  - Complete: all “TechTerms”, “Techterm Challenges”, “Content Challenges”, and “Understanding Features” questions at the end of each unit.
  - Complete one of the Extension Activities listed below.

**II. Extension Activity Options:**

1. Use the Internet to research how the laws of physics have played into the sport of skateboarding. You can use the following website to locate the science of skateboarding: [www.exploratorium.edu](http://www.exploratorium.edu). Discover three ways in which the science of physics has been used to improve the sport of skateboarding. Summarize your findings into a 3-paragraph essay. Use Writing Rubric SII.
2. *AGS Physical Science Textbook*: Complete one of the “Investigation” activities from Chapters 7-12.
3. *AGS Physical Science Textbook*: Complete the “Science In Your Life” activity from Chapter 11.
4. Using the term: “amusement park physics-roller coaster”, conduct an Internet search on how physics relates to roller coasters and design your own roller coaster from that website. Read through the roller coaster design information and find the link that directs you to “design a roller coaster”. This link allows you to create a series of hills and loops and then, when completed, will give you feedback on how your roller coaster design will work. Write a 3-paragraph essay based upon your design discussing how your roller coaster creation will function.
5. 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.