



Ephrata High School
Course Syllabus



Foundations of Physical Science
4200

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I. Course Description

Foundations of Physical Science requires the completion of a major independent science fair project or complete an in-depth research project. Both must be approved by the teacher as part of the course requirements. Both will require a commitment of a significant amount of time beyond the school day from September through March. Foundations of Physical Science is designed for the highly motivated and self-directed ninth-grade student and will enhance the student's opportunity for success in other higher level science courses in high school and college. Independent study skills and excellent math and reasoning skills are required.

Physical Science is the study of the classification, structure, patterns, and changes in matter and on the relationship between matter and energy. Emphasis in the Foundations of Physical Science course is placed on the following:

1. Scientific literature research, independent work, and data gathering culmination in an Experimental project with the requirement of entry in the EHS Science Fair.
2. Mathematical relationships and algebraic functions.
3. Theoretical approach to the physical laws.

II. Materials & Equipment

Physical Science Concepts in Action, published by Prentice Hall, copyright 2004.

III. Course Goals & Objectives

Students will:

1. Experience the application of the scientific method in the physical sciences.
2. Develop proficiency in the skills necessary for working in the laboratory.
3. Acquire a body of knowledge regarding physics and chemistry.

IV. Course Topics (Summary Outline)

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| 1. Science Skills | | |
| 2. Motion | | |
| 3. Forces and Motion | | |
| 4. Work and Machines | | |
| 5. Thermal Energy | | |
| 6. Electricity | | |
| 7. Waves and Sound | | |
| 8. Light and Electromagnetic | | |
| | | Spectrum |
| | | 9. States of Matter |
| | | 10. Properties of Matter |
| | | 11. Periodic Table |
| | | 12. Chemical Bonds |
| | | 13. Chemical Reactions |
| | | 14. Solutions, Acids and Bases |
| | | 15. Radioactivity & Nuclear Reactions |

V. Assignments & Grading

A combination of tests, quizzes, laboratory activities, classroom assignments, homework assignments and the independent science fair project will be used to evaluate students. The values of each assignment are listed below.

Approximate weight values:

- Tests will be worth at least 50%.
- Science Fair/Research Paper will be worth 20%.
- Quizzes will be worth 10%.
- Labs, classwork and projects will be worth 10%.
- Homework will be 10%.

Each marking period grade will count 20% for the final grade, totaling 80%. The final 20% will be the cumulative final, which in combination with the four marking periods will be 100%. Students that participate in the North Museum Science and Engineering Fair will be awarded 10% onto the final exam grade. In order for students to participate in the North Museum Science and Engineering Fair students have to receive an Excellent or Outstanding Award at the Ephrata Science Fair.

Approximate Date of Ephrata Science Fair- Last Weekend in January or 1st Weekend in February

Approximate Date of North Museum Science Fair- 3rd Week in March