Physical Science

Course Overview and Syllabus

Course Subject Code: 5160

Grade level: 9-12

Prerequisite Courses: None

Credits: 1.0

Course Description

This full-year course focuses on basic concepts in chemistry and physics and encourages exploration of new discoveries in the field of physical science. The course includes an overview of scientific principles and procedures and has students examine the chemical building blocks of our physical world and the composition of matter. Additionally, students explore the properties that affect motion, forces, and energy on Earth. Building on these concepts, the course covers the properties of electricity and magnetism and the effects of these phenomena. As students refine and expand their understanding of physical science, they will apply their knowledge to complete interactive virtual labs that require them to ask questions and create hypotheses. Hands-on wet lab options are also available.

Course Objectives

Throughout the course, you will meet the following goals:

- Conduct investigations and evaluate experimental designs.
- Explain the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, knowledge of the patterns of chemical properties, and formation of compounds.
- Analyze the relationships between speed, velocity, and acceleration, as well as the role they play in Newton's Laws of Motion.
- Evaluate questions about the advantages and disadvantages of using a digital transmission and storage of information.

The course objectives are implemented throughout specific lessons, which include examples of scientific and scholarly texts as well as virtual labs and wet labs which allow for a real-world, hands on experience. The objectives focus on investigating, evaluating, and exploring the scientific principles which guide further research and understanding.

The lesson objectives are assessed through assignments, quizzes, unit tests, virtual and wet labs and cumulative exams.

Student Expectations

This course requires the same level of commitment from you as a traditional classroom course. Students are expected to spend approximately five to seven hours per week online on:

- Interactive lessons that include a mixture of instructional videos and tasks
- Assignments in which you apply and extend learning in each lesson
- Assessments, including quizzes, tests, and cumulative exams

Communication

Your teacher will communicate with you regularly through discussions, e-mail, chat, and system announcements, and will provide you with hours of availability, contact policies, and any synchronous attendance requirements. You will also communicate with classmates, either via online tools or face to face, as you collaborate on projects, ask and answer questions in your peer group, and develop your speaking and listening skills.

Grading Policy

You will be graded on the work you do online and the work you submit electronically to your teacher. The weighting for each category of graded activity is listed below.

Grading Category	Weight
Assignments	10%
Labs	15%
Lesson Quizzes	20%
Unit Tests	30%
Cumulative Exams	20%
Projects	5%

Scope and Sequence

When you log into Edgenuity, you can view the entire course map—an interactive scope and sequence of all topics you will study. The units of study are summarized below:

Unit 1: Atomic Properties and the Periodic Table: Properties of Matter
Unit 2: Atomic Properties and the Periodic Table: Elements and Compounds
Unit 3: Properties of Chemical Reactions and Conservation of Energy
Unit 4: Acceleration and Things That Cause Acceleration: Motion and Acceleration
Unit 5: Momentum
Unit 6: Defining and Calculating Energy
Unit 7: The Use of Energy, Its Conservation, and Equilibrium

Unit 8: The Use of Electromagnetism and Its Effect on the Biosphere: Mechanical Wave

Unit 9: The Use of Electromagnetism and Its Effect on the Biosphere: Electromagnetic Waves

Unit 10: Acceleration and Things that Cause Acceleration: Electricity and Magnetism

Standards Alignment

The course was designed to meet the requirements of the 2014 Oklahoma Academic Standards for science. The standards aligned to each lesson are available in the student portal in the lesson information panel.

Materials and Technology Requirements

All course materials are provided through the student portal. You will become familiar with them through an orientation video and the student handbook. These resources are available within the Student Organizer, where you can also check the status of your operating system, processor speed, plug-ins and connection speed.

Accessibility

The course is designed for accessibility to all students. The system provides features and accommodations to meet the needs of ELL and students with IEP's, 504 plans, and Section 508. These accommodations include addressing multiple learning styles, accommodations for assessments, video caption/transcripts, read-aloud and translation tools, and many other features/accommodations.