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## **PINEWOOD – THE AMERICAN INTERNATIONAL SCHOOL OF THESSALONIKI, GREECE**

**NAME OF COURSE:** Introduction to Physical Science

**GRADE LEVEL:** 8

**SCHOOL YEAR:** 2011 – 2012

### **COURSE DESCRIPTION**

This course is a basic introduction to Physical Science. It is designed to create an atmosphere of discovery in concept development. It is believed that a conceptual scheme provides a framework within which the teacher can provide experiences that will lead students to participate in the processes of Physical Science and understand the workings of the physical world. The aim is for the teacher to provide an interaction between the discipline and the student, and develop critical thinking. There is sufficient subject matter to challenge all levels of students. The spirit of inquiry is promoted through class participation and discussion. This course will provide the fundamental bases for Physics.

### **LEARNING OBJECTIVES**

- To gain an understanding of the importance of measurements in science.
- To understand the laws of motion.
- To understand forces and their relationship to movement.
- To learn about gravitation and energy.
- To understand the atomic structure of matter.
- To gain an understanding of the meaning of work and the operation of simple machines.
- To study the characteristics, properties and behavior of waves.
- To gain an understanding of how waves can be used for communication.

### **SCOPE AND SEQUENCE \***

During the first and second quarter the emphasis is on measurement, motion and matter. Here students are exposed to the process of scientific method, the study of moving objects, the laws of motion, the structure of matter and energy. Work in the third and fourth quarter focuses on work and simple machines as well as wave motion, sound, electricity and magnetism.

#### **QUARTER I**

##### **Chapter 1**

Nature of Science - What is Science – Science in Action - Models-Scientific method .

##### **Chapter 2**

Measurement – Description and Measurement – SI Units – Drawings, Tables, and Graphs

Structure of Matter – Atoms, Elements and the Periodic Table – Compounds and Mixtures

## QUARTER II

### Chapter 6

Motion and Momentum – What is Motion – Acceleration

### Chapter 7

Force and Newton's Laws – Newton's First Law – Newton's Second Law – Newton's Third Law

### Chapter 8

Energy – What is energy – Energy Transformations – Sources of Energy

## QUARTER III

### Chapter 9

Work and Power – Using Machines – Simple Machines

### Chapter 11

Waves – What are Waves – Wave Properties – Wave Behaviour – Wave Speed

### Chapter 13

Electromagnetic Waves – Electromagnetic Spectrum - Using Electromagnetic Waves

## QUARTER IV

### Chapter 15

Electricity – Electric Charge – Electric Current – Electric Circuits

### Chapter 16

Magnetism – What is Magnetism – Electricity and Magnetism

Science Project

*\*Note that the order in scope and sequence is subject to change during the school year.*

## HOMEWORK POLICY

All homework must be handed in on time. Late homework assignments get minus 10% penalty for their grade. No late homework will be accepted beyond four days.

## ASSESSMENT

- Semester exams to test the student's mastery of the semester concepts.
- Chapter tests to test the student's ability to follow the course.
- Quizzes announced and unannounced to test how well the student is keeping up and understands concepts.
- Homework and classwork assignments will be used for reinforcement, review and evaluation.
- Laboratory reports.
- Participation in class discussion.
- Student effort and application.
- Independent project work for the Science Fair.

Quarter grades are calculated as follows:

Tests – 50%

Homework, worksheets, notebook – 20%

Lab work and lab reports – 10%

Quizzes – 10%

## **RESOURCES**

- Text:

Ezrailson, c., Hainen, N., Lillie, D., McCarthy, T., Zike, D. and M.K. Zorn. 2002.  
Introduction to Physical Science. Glencoe/McGraw-Hill, Orion Place.

- Resource books and handouts
- School library
- Overhead projector
- Slides
- Computer
- Board

## **ACADEMIC HONESTY**

Academic honesty is fundamental to the integrity and operation of our school. Acts of academic dishonesty, including plagiarism (the act of presenting others' words and ideas as one's own without crediting the source), stealing in quizzes and tests, copying work from other students or allowing their own work to be copied, or using notes during a test, are considered serious offences. The consequences of academic dishonesty will be a zero grade on the specific test/assignment, and additional disciplinary action. The said student will be ineligible or removed from the National Honor Society.