Middle School Course Outline
Subject: Science

Sixth Grade

Introduction:
The sixth grade science course provides the student with experience in using the scientific method in many different areas. Students study a variety of topics important for future growth and development of a strong science background. Lab experiments are used to reinforce key topics and give students a hands-on approach to Science. Each student will conduct an individual science project and present it at the annual Maker's Fair.

Content:

Scientific Method:
Students will learn to develop a hypothesis, organize results, and draw conclusions for a variety of lab experiments. With the experiments' data, the students will write formal lab reports.

Matter:
Through a variety of different activities and labs, the students will explore the four states of matter. The concepts of energy and phase change are also discussed.

Chemistry:
Students will learn about atoms and atomic structure through building and dissecting the periodic table. Chemical equations are balanced and compounds named and explained.

Materials:
Ipad, laboratory equipment, research materials, computers, and demonstration objects comprise the list of materials.

Evaluation:
Students will be evaluated through the use of teacher observation and student tests, quizzes, lab reports, projects, and homework.

Middle School Course Outline
Seventh Grade

Subject: Science

Introduction:
Seventh grade science is an introduction to the complicated living organism, spanning all creatures. Lab experiments are used to reinforce key topics and give students a hands-on approach to Science. Each student will conduct an individual science project and present it at the annual Maker's Fair. In the fall, seventh graders participate in an outdoor environmental studies program at the Pocono Environmental Education Center (PEEC).

Content:

Ecology:
After learning how diverse the living world is, students will learn the importance of each species' role in their environment. Students will recognize how closely they are connected with nature.

Origin of Life:
Students become familiar with the scientific explanation of the origin of life and describe early experiments used to prove these theories. Students learn to describe organic and list organic molecules.

Cell Structure & Function:
Students are introduced to common structures found within the cell. Students learn the specific role that each organelle plays. Students will be able to differentiate plant and animal cells based on cellular structures.

DNA & Cellular Division:
Students learn about DNA and its relationship to RNA, including replication, transcription and translation. Students become familiar with mitosis and its steps.

Fishes & Amphibians:
Students learn about the similarities and differences between the two groups.

Materials:
Ipad, laboratory equipment, research materials, computers, and demonstration objects comprise the list of materials.

Evaluation Process:
Students will be evaluated through the use of teacher observation and student tests, quizzes, lab reports, projects, and homework.

Middle School Course Outline
Eighth Grade

Subject: Science

Introduction:
The Earth is a dynamic system which is governed by a variety of forces. Students learn many of the key forces which were involved with creating and shaping the Earth. Evolution and genetics challenge the students to string concepts covered throughout their middle school science careers, in preparation for high school Science. Lab experiments are used to reinforce key topics and give the students a hands-on approach to Science. Each student will conduct an individual science project and present it at the annual Maker's Fair. In the fall, eighth graders participate in a marine and environmental science program at the Wallops Island Marine Consortium.

Content:

Oceans:
Students study the world's oceans because of the ocean's importance as an incubator of all life on earth. The three day educational experience at Wallops Island enhances the students' understanding of marine ecology, chemistry, and geology.

Plate Tectonics:
Students learn how the earth has been changing its appearance over the last 4.6 billion years. Students understand why the Earth continues to change and move and they project what will happen in the future.

Evolution:
Students discuss the concept of evolution and formulate ideas regarding the human accent.

Genetics:
Students learn the basics of heredity and the transfer of genetic materials. Activities and labs demonstrate concepts, including the raising and monitoring of *Drosophila sp.*

Materials:
Ipad, laboratory equipment, research materials, computers, and demonstration objects comprise the list of materials.

Evaluation:
Students will be evaluated through the use of teacher observation and student tests, quizzes, lab reports, projects, and homework.