ESPS Syllabus 2012 - 2013

Earth Space Physical Science

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August

Scientific Inquiry and Process Skills

Students will formulate testable hypotheses and demonstrate the logical connections between the scientific concepts guiding a hypothesis and the design of an experiment.

Week One and Two

The Nature of Science: Introduce the main branches of natural science.

Scientific Theories and Laws

Role of “Models”

Presenting Scientific Data

Week Three and Four

Application and Connections

Students will use equipment, techniques, technology, and mathematics to improve scientific design, investigations, and communications.

Science Skills

Writing Numbers in Scientific Notation

Units of Measurement

Using significant Figures

September

Motion and Forces

Students will investigate forces and the effects of forces on the motions of objects.

Week Five and Six and Seven

Observe Motion

Speed and Velocity

Calculating Speed

Graphing Motion

Acceleration and Motion

October

Week Eight and Nine and Ten

Students will investigate forces and the effects of forces on the motions of objects.

Acceleration and Motion

Calculating Acceleration

Graphing Acceleration

Fundamental Forces

Balanced and Unbalanced Forces

The Force of Friction

Friction and Motion

November

Week Eleven and Twelve

Motion and Forces: Laws of Motion are used to describe the effects of forces in the motions of objects. Gravity is the universal force that each mass exerts on every other mass.

Science – H 1.4.1

Science – H-1.4.2

Newton’s First law of Motion

Newton’s Second Law of Motion

Newton’s Law of Gravity

Newton’s Third law of Motion

December

Week Thirteen and Fourteen and Fifteen and Sixteen Students will distinguish between kinetic energy, potential energy, and energy fields.

Work and Energy

What is Work?

Power: Potential and Kinetic Energy

Machines and Mechanical Advantage

Simple Machines

Energy and Work

Law of Conservation of Energy

Christmas Break

January 2013 New Year

Week Seventeen and Eighteen

Students will examine how energy is transferred and recognize that the total energy of the Universe is constant.

Heat and Temperature

Temperature Scales

Methods of Energy transfer

Conductors and Insulators

February

Week Nineteen and Twenty

Students will investigate energy transfer.

Waves: Transverse and Longitudinal Waves

Surface Waves

Wave Properties and Wave Speed

Doppler Effect

Wave Interaction

Week Twenty one and Twenty Two and Twenty Three

Science-H-1.6.2

Electromagnetic Waves, including radio waves, microwaves, infrared radiation, visible light, ultraviolet radiation, x-rays, and gamma rays, result when a charged object is accelerated.

Sound and Light

Properties of sound

Musical instruments

Hearing and the Ear

Ultrasound and Sonar

The Nature of light

Waves and Particles

The Electromagnetic Spectrum

Refraction Lenses and Prisms

March

Week Twenty Four and Twenty Five

Students will investigate gravitational and electromagnetic forces.

The electric force is a universal force between any two charged objects. Opposite charges attract while like charges repel. Science-H-1.4.3

Electricity

Electrical Charge

Transfer Charge

Electrical Force

Voltage and Current

Circuits

Electrical Energy

March

Week Twenty Six and Twenty Seven

Students will investigate energy transfer caused when waves and matter interact. Students will investigate electrical energy through matter. Science-H-1.6.1

Waves including seismic and sound waves, waves on the water, and electromagnetic waves, can transfer energy when they interact with matter. Apparent changes in frequency can provide information about relative motion.

Magnetism

Properties of Magnets

Magnetic Fields

Earth’s Magnetic Field

Electromagnetism

April Spring Break

Week Twenty Eight and Twenty Nine and Thirty

Students will investigate how to estimate geologic time. Students will examine and interpret ongoing changes of the Earth’s Systems.

Science-H-2.3.2

Techniques to estimate geologic time include radioactive dating, observing rock sequences, and comparing fossils to correlate the rock sequences at various locations.

Planet Earth

Plate Tectonics

Plate Boundaries

What are Earthquakes?

Measuring Earthquakes

May

Week Thirty One and Thirty Two

Science-H-2.3.3

Interactions among the solid Earth, the oceans, the atmosphere, and living things have resulted in the ongoing development of a changing Earth system. Earthquakes and volcanic eruptions can be observed on a human time scale, but many processes, such as mountain building and plate movements, take place over millions of years.

Types of Volcanoes

Minerals

Structure of Rocks

Types of Rocks

How old are Rocks?

May

Week Thirty Three and Thirty Four and Thirty Five

Energy in the Earth System

Students will examine the internal and external sources of energy. Examine how internal sources of energy propel crustal plates across the face of our planet. Students will examine how external forces produce wind and ocean currents. Students will examine how external forces of energy determine global climate.

The Atmosphere

Layers and Characteristics

Changes in the Earth’s Atmosphere

Weather and Climate

Fronts and Severe Weather

Climate

Last Week of School Week Thirty Six

State Wide Testing

Grading Scale

90-100=A

80-89=B

70-79=C

60-69=D

50-59=F

You will be expected to be in your seat for the very first of class. No food or drinks are allowed. Cell, I, and all electronic devices must be Turned Off. Please have a notebook and your textbook with you every day.

You will be expected to work and participate in class every day. You will be expected to keep a journal of our activities and bell ringers, I Can statements, and ACT Question Review.

We will work hard and find success this year in ESPS.