Warren County School District

PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Science 6

Course Number: 00303

Course Prerequisites: none

Course Description: (Include "no final exam" or "final exam required")
This interactive science course leads students from the center of the Earth to the Universe as a whole. In the Earth's Structure students will explore different types of minerals and rocks, the structure of the Earth, and how plate tectonics influence Earthquakes, and Volcanoes. In the Earth's Surface students will learn about mapping systems, the geologic time scale, and how Erosion and Deposition affect the mineral components of the Earth. In Water and the Atmosphere students will explore aquatic and marine environments as well as how the water component of planet Earth determines our temperature and weather patterns. These weather patterns create climates that can make environments suitable or unsuitable to sustain life. Students will also explore how climate changes could affect life on Earth. All of the abiotic elements to the earth combine to create an environment that can sustain life. In Ecology and the Environment students will study populations and communities and the divisions of the earth into regions of study called Biomes. Students will be introduced to Environmental and Natural Resource Issues as they affect, and are affected by the human population. Lastly students will look at the Earth as part of a larger system in the universe in Astronomy and Space Science. Students will learn how the sun and moon affect the earth as well as our Solar System and the stars and galaxies that lay beyond it. Students will learn how scientists study such large and distant expanses of our universe.

Suggested Grade Level: grade 6

Length of Course: _____ One Semester x Two Semesters _____Other (Describe)

Units of Credit: none (Insert ***NONE*** if appropriate.)

PDE *Certification and Staffing Policies and Guidelines (CSPG)* Required Teacher Certification(s)
(Insert certificate title and CSPG#) _____

Certification verified by WCSD Human Resources Department:
_____ Yes _____ No

Board Approved Textbooks, Software, Materials:
Title: Earth's Structure
Publisher: Pearson
ISBN #: 0-13-373487-0
Copyright Date: 2011
Date of WCSD Board Approval: 4/12/10

Title: Water and the Atmosphere
Publisher: Pearson
ISBN #: 0-13-373519-2
Copyright Date: 2011
Date of WCSD Board Approval: 4/12/10

Title: Ecology and Environment
Publisher: Pearson
ISBN #: 0-13-373488-9
Copyright Date: 2011
Date of WCSD Board Approval: 4/12/10

BOARD APPROVAL:

Date Written: 9/23/10

Date Approved: _____

Implementation Year: _____

Suggested Supplemental Materials: (List or insert **None**)

Course Standards

PA Academic Standards: (List by Number and Description)
Unifying Themes: 3.1.7A, 3.1.7.B, 3.1.7.C, 3.1.7.D, 3.1.7.E
Inquiry and Design: 3.2.7.A, 3.2.7.B, 3.2.7.C, 3.2.7.D,
Biological Science 3.3.7.A
Physical Science, Chemistry and Physics 3.4.7.D
Earth Sciences 3.5.7.A, 3.5.7.C, 3.5.7.D
Watersheds and Wetlands 4.1.7.A, 4.1.7.C, 4.1.7.D
Agriculture and Society 4.4.7.B

WCSD Academic Standards: (List or **None**)
None

Industry or Other Standards: (List, Identify Source or **None**)
None

WCSD EXPECTATIONS

WCSD K-12 Expectations for instruction in writing, reading, mathematics and, technology have been developed and revised annually. The teacher will integrate all WCSD Expectations into this planned instruction.

SPECIAL EDUCATION AND GIFTED REQUIREMENTS

The teacher shall make appropriate modifications to instruction and assessment based on a student's Individual Education Plan (IEP) or Gifted Individual Education Plan (GIEP).

SPECIFIC EDUCATIONAL OBJECTIVES/CORRESPONDING STANDARDS AND ELIGIBLE CONTENT WHERE APPLICABLE

PA Standard: 3.1 Unifying Themes

	Performance Indicators	1	2	Assessment
	3.1.7.A Explain the parts of a simple system and their relationship to each other.			
	3.1.7.B Describe the use of models as an application of scientific or technological concepts.			
	3.1.7.C Identify patterns as repeated processes or recurring elements in science and technology			
	3.1.7.D Explain scale as a way of relating concepts and ideas to one another by some measure			
	3.1.7.E Identify change as a variable in describing natural and physical systems.			

PA Standard: 3.2 Inquiry and Design

	Performance Indicators	1	2	Assessment
	3.2.7.A Explain and apply scientific and technological knowledge			
	3.2.7.B Apply process knowledge to make and interpret observations.			
	3.2.7.C Identify and use the elements of scientific inquiry to solve problems.			
	3.2.7.D Know and use the technological design process to solve problems.			

PA Standard: 3.3 Biological Sciences

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
	3.3.7.A Describe the similarities and differences that characterize diverse living things.			

PA Standard: 3.4 Physical Science, Chemistry and Physics

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
	3.4.7.D Describe essential ideas about the composition and structure of the universe and the earth's place in it.			

PA Standard: 3.5 Earth Sciences

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
	3.5.7.A Describe earth features and processes.			
	3.5.7.B Recognize earth resources and how they affect everyday life.			
	3.5.7.C Describe basic elements of meteorology.			
	3.5.7.D Explain the behavior and impact of the earth's water systems.			

PA Standard: 4.1 Watersheds and Wetlands

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
	4.1.7.A Explain the role of the water cycle within a watershed.			
	4.1.7.C Explain the effects of water on the life or organisms in a watershed.			
	4.1.7.D Explain and describe characteristics of a wetland.			

PA Standard: 4.4 Agriculture and Society

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
	4.4.7.B Investigate how agricultural science has recognized the various soil types found in Pennsylvania.			

ASSESSMENTS

PSSA Assessment Anchors Addressed: The teacher must be knowledgeable of the PDE Assessment Anchors and/or Eligible Content and incorporate them into this planned instruction. Current assessment anchors can be found at pde@state.pa.us.

Formative Assessments: The teacher will develop and use standards-based assessments throughout the course.

Portfolio Assessment: _____ Yes __X__ No

District-wide Final Examination Required: _____ Yes __X__ No

Course Challenge Assessment (Describe):

REQUIRED COURSE SEQUENCE AND TIMELINE

(Content must be tied to objectives)

Content Sequence	Dates
Earth's Structure (12 weeks)	

Introducing Earth
- The Earth System
- Earth's Interior
- Convection and the Mantle

Minerals and Rocks
- Properties of Minerals
- Classifying Rocks
- Igneous Rocks
- Sedimentary Rocks
- Metamorphic Rocks
- The Rock Cycle

Plate Tectonics
- Drifting Continents
- Sea-Floor Spreading
- The Theory of Plate Tectonics

Earthquakes
- Forces in Earth's Crust
- Earthquakes and Seismic Waves
- Monitoring Earthquakes

Volcanoes
- Volcanoes and Plate Tectonics
- Volcanic Eruptions
- Volcanic Landforms

Water and the Atmosphere (12 weeks)

Fresh Water
- Water on Earth
- Surface Water
- Water Underground
- Wetland Environments

The Oceans
- Exploring the Ocean
- Wave Action
- Currents and Climate
- Ocean Habitats

The Atmosphere
- The Air Around You
- Air Pressure
- Layers of the Atmosphere
- Energy in Earth's Atmosphere
- Heat Transfer
- Winds

Weather
- Water in the Atmosphere
- Clouds
- Precipitation
- Air Masses
- Storms
- Predicting the Weather

Climate and Climate Change
- What Causes Climate?

Climate Regions
Changes in Climate
Human Activities and Climate Change

Ecology and the Environment (12 weeks)
Populations and Communities
Living Things and the Environment
Populations
Interactions Among Living Things
Changes in Communities
Ecosystems and Biomes
Energy Flow in Ecosystems
Cycles of Matter
Biomes
Aquatic Ecosystems
Biogeography
Resources and Living Things
Introduction to Environmental Issues
Introduction to Natural Resources
Human Population Growth
Forests and Fisheries
Biodiversity
Land, Air, and Water Resources
Conserving Land and Soil
Waste Disposal and Recycling
Air Pollution and Solutions
Water Pollution and Solutions
Ocean Resources
Energy Resources
Fossil Fuels
Alternative Sources of Energy
Energy Use and Conservation

Objectives:

- Identify and describe the main components of the Earth system.
- Summarize the effects of constructive and destructive forces.
- Explain how minerals are identified, formed, located and used.
- List the characteristics used to identify rocks, and identify the three major groups of rocks.
- Explain the theory of plate tectonics and how it effects the Earth's surface, including earthquakes and volcanoes.
- Identify the needs that must be met by an organism's surroundings
- Describe the levels of organization within an ecosystem.
- Describe how populations change in size.
- Explain how adaptations help an organism survive.
- Describe the biotic and abiotic forces that shape an ecosystem.
- Explain how energy moves through an ecosystem.
- Define and describe the major ecological cycles on Earth.
- Describe the six major biomes found on Earth as well as the aquatic ecosystems.

- Discuss current environmental issues.
- Describe resources may be managed as renewable resources.
- Explain limited resources and how they can be conserved.
- Identify ways that human activity threatens and protects biodiversity.
- Describe how various types of pollution can be reduced.
- Identify and describe various renewable and nonrenewable sources of energy.
- Describe the composition of the atmosphere, and its properties.
- Explain how energy reaches the earth, how it is transferred and the forms it takes on Earth.
- Explain how air masses move and create weather in many different forms.
- Explain how weather forecasters use observations, data, and technology to predict the weather.
- Describe what can be learned from information shown on weather maps.
- Identify factors that influence weather and climate

WRITING TEAM: Sally Beckerink, , Diane Finley, Susan Howe, Stephanie Massa, Rhonda Thompson.

WCSD STUDENT DATA SYSTEM INFORMATION

1. Is there a required final examination? _____ Yes ___X___ No
2. Does this course issue a mark/grade for the report card?

   ___X___Yes _____ No
3. Does this course issue a Pass/Fail mark? _____Yes ___X___ No
4. Is the course mark/grade part of the GPA calculation?

   _____Yes ___X___ No
5. Is the course eligible for Honor Roll calculation? ___X___ Yes _____ No
6. What is the academic weight of the course?

   ___X___ No weight/Non credit _____ Standard weight

   _____ Enhanced weight (Describe)