Warren County School District

PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Science Grade 3

Course Number: _____

Course Prerequisites: _____

Course Description: (Include "no final exam" or "final exam required")

Third grade science covers the various aspects of biological, physical, earth, and environmental sciences using an activity-based approach. Unifying themes, inquiry and design are incorporated within the areas of study.

Suggested Grade Level: 3

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:
Publisher:
ISBN #:
Copyright Date:
Date of WCSD Board Approval:

BOARD APPROVAL:

Date Written: 6-17-09

Date Approved: _____

Implementation Year: 2010-2011

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

Course Standards

PA Academic Standards: (List by Number and Description)

3.1 Unifying Themes
- 3.1.4.A Know that natural and human-made objects are made up of parts.
- 3.1.4.B Know models as useful simplifications of objects or processes.
- 3.1.4.C Illustrate patterns that regularly occur and reoccur in nature.
- 3.1.4.D Know that scale is an important attribute of natural and human made objects, events and phenomena.
- 3.1.4.E. Recognize change in natural and physical systems.

3.2 Inquiry and Design
- 3.2.4.A Identify and use the nature of scientific and technological knowledge.
- 3.2.4.B Describe objects in the world using the five senses.
- 3.2.4.C Recognize and use the elements of scientific inquiry to solve problems.

3.3 Biological Sciences
- 3.3.4.A Know the similarities and differences of living things.
- 3.3.4.B Know that living things are made up of parts that have specific functions.

3.4 Physical Science, Chemistry, and Physics
- 3.4.4.A Recognize basic concepts about the structure and properties of matter.
- 3.4.4.B Know basic energy types, sources, and conversions.
- 3.4.4.C Observe and describe different types of force and motion.
- 3.4.4.D Describe the composition and structure of the universe and the earth's place in it.

3.5 Earth Sciences
- 3.5.4.A Know basic landforms and earth history.
- 3.5.4.B Know types and uses of earth materials.
- 3.5.4.C Know basic weather elements.
- 3.5.4.D Recognize the earth's different water resources.

3.6 Technology Education
- 3.6.4.C Know physical technologies of structural design, analysis, and engineering, finance, production, marketing, research, and design.

3.7 Technological Devices
- 3.7.4.A Explore the use of basic tools, simple materials, and techniques to safely solve problems.
- 3.7..4.B Select appropriate instruments to study materials.

3.8 Science, Technology, and Human Endeavors
- 3.8.4.C Know the pros and cons of possible solutions to scientific and technological

problems in society.

4.1 Watersheds and Wetlands
- 4.1.4.A Identify various types of water environments.
- 4.1.4.D Identify a wetland and the plants and animals found there.
- 4.1.4.E Recognize the impact of watersheds and wetlands on animals and plants.

4.2 Renewable and Nonrenewable Resources
- 4.2.4.B Identify products derived from natural resources.
- 4.2.4.C Know that some natural resources have limited life spans.

4.3 Environmental Health
- 4.3.4.B Identify how human actions affect environmental health.
- 4.3.4.C Understand that the elements of natural systems are interdependent.

4.4 Agriculture and Society
- 4.4.4.A Know the importance of agriculture to humans.
- 4.4.4.B Identify the role of the science in Pennsylvania agriculture.

4.5 Integrated Pest Management
- 4.5.4.C Understand societies need for integrated pest management.

4.6 Ecosystems and Their Interactions
- 4.6.4.A Understand that living things are dependent on nonliving things in the environment for survival.
- 4.6.4.C Identify how ecosystems change over time.

4.7 Threatened, Endangered and Extinct Species
- 4.7.4.B Know that adaptations are important for survival.

4.8 Humans and the Environment
- 4.8.4.D Know the importance of natural resources in daily life.

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

(List Objectives, PA Standards #'s, Other Standards (see samples at end))

S41. The Nature of Science

S4 A.1 Reasoning and Analysis

S4A.1.1 Identify and explain the pros and cons of applying scientific, environmental, or technological knowledge to possible solutions to problems.

PA Standards: 3.2.4.A, 3.2.4.C, 3.8.4.C

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
A.	**S4.A.1.1.1** Distinguish between a scientific fact and an opinion, providing clear explanations that connect observations and results (e.g., a scientific act can be supported through making observations).			
B.	**S4.A.1.1.2** Identify and describe examples of common technological changes past to present in the community (e.g., energy production, transportation, communications, agriculture, packaging materials) that have either positive or negative impacts on society or the environment.			

S.4.A.2 Processes, Procedures and Tools of Scientific Investigations

S4.A.2.1 Apply skills necessary to conduct an experiment or design a solution to a problem

PA Standard: 3.2.4.C

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
A.	**S4.A.2.1.1** Generate questions about objects, organisms, or events that can be answered through scientific investigations.			
B.	**S4.A.2.1.2** Design and describe an investigation (a fair test) to test one variable.			
C.	**S4.A.2.1.3** Observe a natural phenomenon (e.g., weather changes, length of daylight/night, movement of shadows, animal migrations, growth of plants), record observations, and then make a prediction based on those observations.			
D.	**S4.A.2.1.4** State a conclusion that is consistent with the information.			

S4.A.2.2 Identify appropriate instruments for a specific task and describe the information the instrument can provide

PA Standards: 3.7.4.A, 3.7.4.B

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
A.	**S4.A.2.2.1** Identify appropriate tools or instruments for specific tasks and describe the information they can provide (e.g., measuring: length-ruler, mass-balance scale, volume-beaker, temperature-thermometer; making observations: hand lens, binoculars, telescope).			

S4.B. Biological Sciences

S4. B.1 Structure and Function of Organisms

S4.B.1.1 Identify and describe similarities and difference between living things and their life processes.

PA Standard: 3.3.4.A., 3.3.4.B., 4.4.4.A., 4.3.4.C., 4.6.4.A.

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
A.	**S4.B.1.1.1** Identify life processes of living things (e.g., growth, digestion, respiration).			
B.	**S4.B.1.1.2** Compare similar functions of external characteristics of organisms (e.g., anatomical characteristics: appendages, type of covering, body segments).			
C.	**S4.B.1.1.3** Describe basic needs of plants and animals (e.g., air, water, food).			
D.	**S4.B.1.1.4** Describe how different parts of a living thing work together to provide what the organism needs (e.g., parts of plants: roots, stems, leaves).			

E.	**S4.B.1.1.5** Describe the life cycles of different organisms (e.g., moth, grasshopper, frog, seed producing plant).			

S4. B.2 Continuity of Life
S4.B.2.1 Identify and explain how adaptations help organisms to survive.

PA Standard: 4.7.4.B

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
A.	**S4.B.2.1.1** Identify characteristics for plant and animal survival in different environments (e.g., wetland, tundra, desert, prairie, deep ocean, forest).			
B.	**S4.B.2.1.2** Explain how specific adaptations can help a living organism survive (e.g., protective coloration, mimicry, leaf sizes and shapes, ability to catch or retain water).			

S4.B.3 Ecological Behavior and Systems
S4.B.3.1 Identify and describe living and nonliving things in the environment and their interaction.

PA Standard: 4.6.4.A

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
A.	**S4.B.3.1.1** Describe the living and nonliving components of a local ecosystem (e.g., lentic and lotic systems, forest, cornfield, grasslands, city park or playground).			
B.	**S4.B.3.1.2** Describe interactions between living and nonliving components (e.g., plants – water, soil, sunlight, carbon dioxide, temperature; animals – food, water, shelter, oxygen, temperature) of a local ecosystem.			

S4.B.3.2 Describe, explain, and predict change in natural or human-made systems and the possible effects of those changes on the environment.

PA Standard: 4.2.4.C, 4.3.4.C, 4.6.4.C, 3.1.4.E

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
A.	**S4.B.3.2.1** Describe what happens to a living thing when its habitat is changed.			
B.	**S4.B.3.2.2** Describe and protect how changes in the environment (e.g., fire, pollution, flood, building dams) can affect systems.			
C.	**S4.B.3.2.3** Explain and predict how changes in seasons affect plants, animals, or daily human life (e.g., food availability, shelter, mobility).			

S4.B.3.3 Identify or describe human reliance on the environment at the individual or the community level.

PA Standard: 4.3.4.B, 4.4.4.B, 4.5.4.C, 3.8.4.C

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
A.	**S4.B.3.3.1** Identify everyday human activities (e.g., driving, washing, eating, industry, farming, littering) within a community that depend on the natural environment.			
B.	**S4.B.3.3.2** Describe the human dependence on the food and fiber systems from production to consumption (e.g., food, clothing, shelter, products).			

C.	**S4.B.3.3.3** Identify biological pests, (e.g., plants – foxtail, mold, purple loosestrife, Eurasian water milfoil; animals – aphides, ticks, zebra mussels, starlings, mice) that compete with humans for resources.			
D.	**S4.B.3.3.4** Identify major land uses in the urban, suburban, and rural communities (e.g., housing, commercial, recreation).			
E.	**S4.B.3.3.5** Describe the effects of pollution (e.g., litter) in the community.			

S4.C Physical Sciences

S4.C.1 Structure, Properties, and Interaction of Matter and Energy

S4.C.1.1 Describe observable physical properties of matter.

PA Standard: 3.4.4.A, 3.2.4.B

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
A.	**S4.C.1.1.1** Use physical properties (e.g., mass, shape, size, volume, color, texture, magnetic property, state (solid, liquid, gas), conductivity (electrical or heat)) to describe matter.			
B.	**S4.C.1.1.2** Categorize/group objects using physical characteristics.			

S4.C.2 Forms, Sources, Conversion, and Transfer of Energy

S4.C.2.1 Recognize basic energy types and sources, or describe how energy can be changed from one form to another.

PA Standard: 3.4.4.B, 3.4.4.C

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
A.	**S4.C.2.1.1** Identify energy forms and examples (e.g., light, heat, storied, motion, electrical).			
B.	**S4.C.2.1.2** Describe the flow of energy through an object or system (e.g., feeling radiant heat from a light bulb, eating food to get energy, using a battery to light a bulb or run a fan).			
C.	**S4.C.2.1.4** Identify characteristics of sound (e.g., pitch, loudness, echoes).			

S4.C.3 Principles of Motion and Force

S4.C.3.1 Identify and describe different types of force and motion, or the effect of the interaction between force and motion.

PA Standard: 3.4.4.C, 3.6.4.C, 3.2.4.B

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
A.	**S4.C.3.1.1** Describe changes in motion caused by forces (e.g., magnetic, pushes or pulls, gravity, friction).			
B.	**S4.C.3.1.2** Compare the relative movement of objects or describe types of motion that are evident (e.g., bouncing ball, moving in a straight line, back and forth, merry-go-round).			

S4.D Earth and Space Sciences

S4.D.1 Earth Features and Presses that Change Earth and Its Resources

S4.D.1.1 Describe basic landforms in Pennsylvania.

PA Standard: 3.5.4.A

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
A.	**S4.D.1.1.1** Describe how prominent Earth features in Pennsylvania (e.g., mountains, valleys, beaches, caves, sinkholes, lakes, rivers) were formed.			
B.	**S4.D.1.1.2** Identify various Earth structures (e.g., mountain, watershed, peninsula, lake, river, valley) through use of models.			
C.	**S4.D.1.1.3** Describe the composition of soil as weathered rock and decomposed organic remains.			

S4.D.1.2 Identify the types and uses of Earth's resources.

PA Standard: 3.5.4.B, 3.5.4.D, 4.2.4.B, 4.8.4.D

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
A.	**S4.D.1.2.1** Identify products and by-products of plants and animals for human use (e.g., food, clothing, building materials, paper products).			
B.	**S4.D.1.2.2** Identify the types and uses of Earth materials for renewable, nonrenewable, and reusable products (e.g., human-made products: concrete, paper, plastics, metal, fabrics, buildings, highways).			
C.	**S4.D.1.2.3** Recognize ways that humans benefit from the use of water resources (e.g., agriculture, energy, recreation).			

S4.D.1.3 Describe Earth's different sources of water or describe changes in the form of water.

PA Standard: 3.5.4.C, 4.1.4.A, 4.1.4.D, 4.1.4.E

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
A.	**S4.D.1.3.1** Describe the type s of freshwater and saltwater bodes (e.g., lakes, rivers, wetlands, oceans).			
B.	**S4.D.1.3.2** Explain how water goes through phase changes (i.e., evaporation, condensation, freezing, and melting).			
C.	**S4.D.1.3.3** Describe or compare lotic systems (ponds, lakes, bays) and lentic systems (streams, creeks, rivers).			
D.	**S4.D.1.3.4** Explain the role and relationship of a watershed or a wetland on water sources (e.g., water storage, groundwater recharge, water filtration, water sources, water cycle).			

S4.D.2 Weather, Climate and Atmospheric Processes

S4.D.2.1 Identify basic weather conditions and how they are measured.

PA Standard: 3.5.4.C, 3.7.4.B, 3.2.4.B

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
A.	**S4.D.2.1.1** Identify basic cloud types (cirrus, cumulus, stratus, cumulonimbus) and make connections to basic elements of weather (e.g., changes in temperature and precipitation).			

S4.D.3 Composition and Structure of the Universe

S4.D.3.1 Describe Earth's relationship to the sun and the moon.

PA Standard: 3.4.4.D

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
A.	**S4.D.3.1.1** Describe motions1 of the sun-Earth-moon system.			
B.	**S4.D.3.1.2** Explain how the motion of the sun-Earth-moon system			

	relates to time (e.g., days, months, years).			
C.	**S4.D.3.1.3** Describe the causes of seasonal change as it relates to the rotation of the Earth and the tilt of the Earth's axis.			

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.

- Pre-Assessments of prior knowledge (e.g. entrance cards of KWL chart)
- Labs/lab reports
- Bell ringers/Problems of the Day (PODs)
- Discussions
- Teacher observation/Questioning
- Graphic organizers (e.g. Venn diagrams, word mapping, webbing, KWL charts, etc)
- Summarizing
- Retelling
- Notebooking
- Problem-based learning modules
- Authentic assessment
- Journaling
- Student presentations/projects
- Open-ended response
- Activities
- Classroom Performance System (CPS)
- White boards
- Charts/Graphs

Suggested Summative Assessments:

- Open ended Responses
- Retelling
- Projects
- Teacher Observation
- Portfolios
- Activities

Portfolio Assessment: _____ Yes __x__ No

District-wide Final Examination Required: _____ Yes ___x___ No

Course Challenge Assessment (Describe):
None

REQUIRED COURSE SEQUENCE AND TIMELINE

(Content must be tied to objectives)

Content Sequence	Dates
I. Cell Theory and <u>Organisms</u>:	**8 weeks**
A. Basic needs of living organisms.	
B. Organisms need energy.	
C. Grouping living things.	
D. introduction to cells	
II Evolution	**2 weeks**
A. Survival of the fittest	
B. Introduction to fossils	
III Earth System Theory	**8 weeks**
A. Interacting parts	
B. gravity	
C. Earth rotation	
IV Energy	**4 weeks**
A. light, sound and heat and moving objects	
B. solar energy	
C. sound and vibration	
V Force and Motion	**3 weeks**
A. change in position	
B. Changes in motion	
VI Force and Motion II	**3 weeks**
A. Attract or repel	
B. Magnet and forces	
VII Theory of Matter	**4 weeks**
A. Matter	
B. States of matter	
C. Changes in matter	

Objectives:

A. The student will observe and object's change in position and measure the change in speed or direction of motion caused by forces.
B. The student will explain how forces can attract or repel other objects through the use of magnets and selected materials.
C. The student will identify that all objects and substances are made of matter which can exists in different states, and explain how temperature change may cause changes in the properties of matter.
D. The student will explain how different characteristics of plants and animals help some populations survive and reproduce in greater numbers through examination of plants, animals, and fossils.

E. The student will explain how the earth system changes constantly as air, water, soil, and rock interact and identify the earth as part of a larger sun-earth-moon system.
F. The student will categorize living things based on their similarities and differences, and identify that most living things need food, water, light, air, a way to dispose of wastes, and a transfer of energy to stay a live and grow.
G. The student will explain that energy exists in many forms and can be changed from one form to another (transformed) as it moves through a system e.g., light, sound, and heat.

WRITING TEAM: Amanda McBriar, WAEC and Megan Yeager, WAEC

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?

   _____Yes __x__ 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? _____ Yes __x__ No
6. What is the academic weight of the course?

   __x__ No weight/Non credit _____ Standard weight

   _____ Enhanced weight (Describe)