

Warren County School District

PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Science—Grade 2

Course Number: _____

Course Prerequisites: _____

Course Description: (Include “no final exam” or “final exam required”)

Second 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: Grade 2

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: _____

Date Approved: _____

Implementation Year: _____

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.C Illustrate patterns that regularly occur and reoccur in nature.
 - 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.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.
- 3.7 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.
- 4.2 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.A Know that plants, animals and humans are dependant on air and water.
 - 4.3.4.B Identify how human actions affect environmental health.

- 4.3.4.C Understand that the elements of natural systems are interdependent.
- 4.6 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.B Understand the concept of cycles.
 - 4.6.4.C Identify how ecosystems change over time.
- 4.7 Threatened, Endangered and Extinct Species
 - 4.7.4.A Identify differences in living things.
 - 4.7.4.B Know that adaptations are important for survival.
 - 4.7.4.C Define and understand extinction.
- 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).			

S4B Biological Sciences

S4.B.1 Structure and Function of Organisms

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

PA Standards: 3.3.4.A, 3.3.4.B, 4.3.4.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 Identify life processes of living things.			
B.	S4.B.1.1.2 Compare similar functions of external characteristics of organisms (types of covering, body segments).			
C.	S4.1.1.3 Describe basic needs of plants and animals (air, water and food).			
D.	S4.1.1.4 Describe how different parts of a living thing work together to provide what the organism needs (parts of plants, roots, stems, leaves).			
E.	S4.1.1.5 Describe the life cycles of different organisms (moth, grasshopper, frog, plant, etc.)			

S4.B.2 Continuity of Life

S4B.2.1 Identify and explain how adaptations allow organisms to survive.

PA Standard: 4.7.4.A, 4.7.4.B, 4.7.4.C

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
A.	S4.2.1.1 Identify characteristics for plant and animal survival in different environments (wetland, tundra, desert, prairie, deep ocean, forest).			
B.	S4. 2.1.2 Explain how specific adaptations can help a living organism survive (camouflage, mimicry, leaf sizes and shapes).			

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 Standards: 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 (forest, cornfield, grasslands, city park or playground).			
B.	S4.B.3.1.2 Describe interactions between living and nonliving components (plants-water, soil, sunlight, carbon dioxide, temperature, animals-food, water, shelter, oxygen, temperature) of a local ecosystem.			

S4B.3.2 Describe, explain, and predict change in natural or human-made systems and the possible effects of those changes on the environment.

PA Standards: 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.	S4B.3.2.1 Describe what happens to a living thing when its habitat has changed.			
B.	S4.B.3.2.2 Describe and predict how changes in the environment (fire, pollution, flood, building dams, etc.) can effect systems.			
C.	S4B.3.2.3 Explain and predict how changes in the seasons affect plants, animals, or daily human life (food availability, shelter and mobility).			

S4B.3.3 Identify or describe human reliance on the environment at the individual or community level.

PA Standards: 4.3.4.B, 3.8.4.C

X – performance assessed during that semester				
	Performance Indicators	1	2	Assessment
A.	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 Standards: 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, solid, liquid or gas) 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 Standards: 3.1.4.A, 3.4.4.B, 3.4.4.C

X – performance assessed during that semester				
	Performance Indicators	1	2	Assessment
A.	S4.C.2.1.2 Identify energy forms and examples (e.g. light, heat, stored, motion, electrical).			
B.	S4.C.2.1.2 Describe the flow of energy through an object or system (e.g. simple circuit using a battery, wire, and bulb).			
C.	S4.C.2.1.3 Recognize or illustrate simple circuit composed of a light bulb, wire and battery.			

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 Standards: 3.4.4.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).			
C.	S4.C.3.1.3 Describe the position of an object by locating it relative to another object or the background (e.g. geographic direction, north, south, east, west).			

S4.D Earth and Space Sciences**S4.D.1 Earth Features and Processes that Change Earth and Its Resources**

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

PA Standards: 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.1.2.2 Identify the types and uses of Earth materials for renewable, nonrenewable and reusable products (e.g. concrete, paper, plastics, metal, fabrics, building, highways).			

S4D.1.3 Describe Earth's different sources of water or describe changes in the form of water.

PA Standards: 3.5.4.C, 4.1.4.B, 4.6.4.B

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
A.	S4.D.1.3.1 Describe types of fresh water and salt water bodies.			
B.	S4D.1.3.2 Explain how water goes through phase changes (e.g. evaporation, condensation, freezing and melting).			

S4.D.2 Weather, Climate and Atmospheric Processes

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

PA Standards: 3.1.4.C, 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).			
B.	S4.D.2.1.2 Identify weather patterns from data, charts and graphs (e.g. temperature, wind direction, wind speed, cloud types, 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 Standards: 3.4.4.D

X – performance assessed during that semester

	Performance Indicators	1	2	Assessment
A.	S4.3.1.3 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):

REQUIRED COURSE SEQUENCE AND TIMELINE

(Content must be tied to objectives)

Content Sequence	Dates
1. Habitats-ecosystems, adaptations, living and nonliving	3-4 weeks
2. Weather-clouds, water cycle, climate, cycles	3-4 weeks
3. Motion-direction, forms of motion, distance	3-4 weeks
4. Energy-simple circuits, forms of energy, sources	3-4 weeks
5. Environment-natural resources, pollution, people and their impact	3-4 weeks
6. Matter-properties, materials, size	3-4 weeks
7. Nature of Science	throughout the year

Objectives: Students will be able to:

1. Observe and measure changes in an object's motion.
2. Describe that materials and objects have measurable properties.
3. Identify that Earth is home to a variety of living things.
4. Recognize the Earth is constantly changing and operates in cycles.
5. Recognize that living and nonliving things have similarities and differences.
6. Demonstrate that there are a variety of forms of energy.
7. Recognize that living things depend on their habitat to meet their basic needs.
8. Understand that ecosystems consist of living and nonliving components that change over time and have the ability to adapt to those changes.
9. Understand that natural resources are essential for the needs and wants of all living things.
10. Recognize that the health of all living things is directly related to the quality of the environment.
11. Understand that people influence the environment.

WRITING TEAM: Christine Allen, Mary Belleau, Sue Kafferlin, Medina Reynolds

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)