Warren County School District

PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Science 7 Elective (Exploring Our Environment)

Course Number: 00301

Course Prerequisites: None

Course Description:

Exploring Our Environmental is a one semester elective designed for seventh grade students. It will reinforce the Environmental and Ecology standards. 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. Focus will be placed on Pennsylvanian region. Relevant lab activities will be incorporated throughout, utilizing scientific inquiry and appropriate technology

Suggested Grade Level: Seventh Grade

Length of Course: ☒ One Semester ☐ Two Semesters ☐ Other (Describe)

Units of Credit: .5 Middle Level Credit (Insert ***None*** if appropriate)

PDE *Certification and Staffing Policies and Guidelines* (CSPG) Required Teacher Certifications:
CSPG Biology, General Science, Environmental Science, Earth Science, Middle Level Science

Certification verified by WCSD Human Resources Department: ☒ Yes ☐ No

TEXTBOOK AND SUPPLEMENTAL MATERIALS

Continue using Board approved textbook? ☐ Yes ☐ No (*If yes, then complete the information below.*)

Board Approved Textbooks, Software, Supplemental Materials:
Title: Life Science Glencoe
Publisher: McGraw
ISBN #: 978-0-07-677284
Copyright Date: 2017

ConnectEd Software

The references are found on the Pennsylvania Envirothon website at ***www.envirothonpa.org*** under ***Station Training*.**

1. Pennsylvania Species, Ecosystems & Biodiversity
2. Helping Wildlife: Working with Nature booklet
3. Envirothon Skull Resource – compiled by the Pennsylvania Game Commission
4. Elk management, research, biology, and history – The following sections are required for the Envirothon competition.
    - Elk Biology and Natural History – pdf
    - Elk Frequently Asked Questions – pdf
    - Elk Management and Research – pdf
5. Avian Influenza – pdf
6. Wildlife Profile 2018 – Envirothon students will be able to identify, describe the natural history, determine the wildlife biology, and evaluate habitat for the animals listed in the profile. Identification signs can include: a picture, a replica, decoy, fur, hair, feather, gnawing, rubbing, pellet, nest, scat, track, song or sound. Students should review the Pennsylvania Game Commission Wildlife Notes, sounds, songs, tracks, etc. which correlate to the 12 animals designated in the **Wildlife Profile 2018**.
    - Eastern Coyote
    - Elk
    - Shrews
    - Cottontail Rabbit
    - Woodchucks
    - Squirrels
    - Swifts, Martins, Swallows
    - Tanager
    - Canada Goose
    - Ruffed Grouse
    - Sparrows and Towhees
    - Kingfisher
    - Mammal Sounds – The Cornell Lab of Ornithology Macaulay Library website
    - Birds Songs – Utilize the Identiflyer or visit The Cornell Lab of Ornithology All About Birds website
    - Animal Tracks – Envirothon Animal Track sheet or visit iTrack wildlife (Animal tracks App). Additional resources to review: Pocket Guide to PA Animal Tracks by the Pennsylvania Trappers Association and Mammal Tracks and Scat: Life-Size Pocket Guide by Lynn Levine
    - Beaks and Tongues (pdf) – Pennsylvania Songbirds – Chap. 1 Bird Biology, Lesson 6 – Used with permission from the PA DCNR Bureau of State Parks and Audubon PA
    - Feet are Neat (pdf) – Pennsylvania Songbirds – Chap. 1 Bird Biology, Lesson 7 – Used with permission from the PA DCNR Bureau of State Parks and Audubon PA
7. Mowing and Wildlife: Managing Open Space for Wildlife Species – pdf
8. Food Plots – pdf

Most of these materials are excerpted from publications produced by the Pennsylvania State University or from the USDA Forest Service. Many topics are covered more than once in different ways. So the volume of material is not as overwhelming as it might appear at first glance. **http://www.envirothonpa.org/station/forestry/**

1. **Trees**
    1.1 Common Trees of Pennsylvania
    1.2 From the Woods Series: Ten Important Hardwoods

1.3 Penn State School of Forest Resources: Identifying PA Trees Program
1.4 Tree Rings
1.5 Anatomy of a Tree
1.6 Key to Some Common Trees of Pennsylvania

2. **Forest Ecology**
   2.1 Forest Types of Pennsylvania
   2.2 Land cover map 11×17
   2.3 Forest Succession and Wildlife
   2.4 Habitat Adaptations of Some Common Trees of Pennsylvania
   2.5 Pennsylvania Woodlands: #6 Woodland Wildlife Management
   2.6 Forest Stewardship Bulletin #9: Understanding Biological Wealth in Our Forests
   2.7 Pennsylvania Wildlife No. 6 – Penn State Extension Publication
3. **Forest Resources, Management and Protection**
   3.1 PA Forests 2014
   3.2 Basic Forest Management
   3.3 Forests and Waters
   3.4 Forest Measurement
   3.5 Insect Threats
   - Asian Longhorn beetle
   - Emerald Ash Borer
   - Gypsy Moth Control
   - Hemlock Woolly Adelgid

   3.6 What is an Invasive Plant?

   - Autumn-olive
   - Bush honeysuckle
   - Garlic mustard
   - Japanese barberry
   - Japanese knotweed
   - Multiflora rose
   - Tree-of-heaven

   3.7 Wildfire and Prescribed Fire in Pennsylvania
   3.8 Forest Stewardship Bulletin #4: Forestry Terminology.

4. **Community Forestry**
   4.1 Sustaining Americas Urban Trees & Forests

Date of WCSD Board Approval: 3/12/2018

BOARD APPROVAL:

Date Written: 02/14/2018

Date Approved: 3/12/2018; *March 11, 2019 Revised Credit*

Implementation Date: 2018-2019

SPECIAL EDUCATION AND GIFTED REQUIREMENTS

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

COURSE OVERVIEW

(*List the content to be taught*)

I. Matter and Energy in the Environment
   1. Abiotic Factors
   2. Biotic Factors
   3. Biological Cycles
   4. Energy Flow
   5. Trophic Levels

II. Pennsylvania Populations and Communities
   1. Populations
   2. Changing Populations
   3. Communities

III. Biomes and Pennsylvania Ecosystems
   1. Land Biomes
   2. Aquatic Ecosystems
   3. Ecosystem Changes

IV. Using Pennsylvania Natural Resources
   1. Renewable/Nonrenewable Resources
   2. Pollution
   3. Conservation

ANCHORS AND STANDARDS

S8.B.3.1 Explain the relationships among and between organisms in different ecosystems and their abiotic and biotic components.

- 4.1.7.C Explain the flow of energy within an ecosystem.
  - Compare and contrast the flow of energy between organisms in different habitats.
  - Explain the concept of trophic levels.
- 4.1.7.D Explain how biological diversity relates to the viability of ecosystems.
  - Compare and contrast monoculture with diverse ecosystems.
  - Explain how biological diversity relates to the ability of an ecosystem to adapt to change.
  - Explain how an adaptation is an inherited, structure, function, or behavior that helps an organism survive and reproduce.
- 3.1.7.A1 Describe the similarities and differences of physical characteristics in diverse organisms**.**
- 3.1.7.A2 Describes how organisms obtain and use energy throughout their lives.
- 3.1.7.A3 Explain why the life cycles of different organisms have varied lengths.
- 3.1.7.A8 Apply the appropriate models to show interactions among organisms in an environment.

S8.B.3.2 Identify evidence of change to infer and explain the ways different variables may affect change in natural or human-made systems.

- 4.3.7.B Explain the distribution and management of natural resources.
  - Differentiate between resource uses: conservation, preservation, and exploitation.

- 4.3.7.C Understand how theories are developed.
    - Identify questions that can be answered through scientific investigations and evaluate the appropriateness of questions.
    - Design and conduct a scientific investigation and understand that current scientific knowledge guides scientific investigations.
    - Describe relationships using inference and prediction.
    - Use appropriate tools and technologies to gather, analyze, and interpret data and understand that it enhances accuracy and allows scientists to analyze and quantify results of investigations.
    - Develop descriptions, explanations, and models using evidence and understand that these emphasize evidence, have logically consistent arguments and are based on scientific principles, models, and theories.
    - Analyze alternative explanations and understanding that science advances through legitimate skepticism.
    - Use mathematics in all aspects of scientific inquiry.
    - Understand that scientific investigations may result in new ideas for study, new methods or procedures for an investigation, or new technologies to improve data collection.

S8.B.3.3 Explain how renewable and nonrenewable resources provide for human needs or how these needs impact the environment.

- 4.4.7.A Describe how agricultural practices, the environment, and the availability of natural resources are related.
- 4.4.7.C Investigate resources, their relation to land use, and their impact on the food and fiber system.
- 4.5.7.C Explain how human actions affect the health of the environment.
    - Identify residential and industrial sources of pollution and their effects on environmental health.
- 3.2.7.B2 Describe how energy can be changed from one form to another (transformed) as it moves through a system or transferred from one system to another system.

ASSESSMENT

Portfolio Assessment: _____ Yes __X__ No

District-Wide Common Final Examination Required: _____ Yes __X__ No

Course Challenge Assessment (Describe)**:** None

WRITING TEAM: Warren County School District Teachers

WCSD STUDENT DATA SYSTEM INFORMATION

1. Is there a required final examination? _____ Yes __X__ No
   Warren County School District Policy 9741 and9744 state, "All classes in grades 9-12 shall have a final exam."
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? __X__ Yes ____ No

5. Is the course eligible for Honor Roll calculation? __X__ Yes ____ No

6. What is the academic weight of the course?

____ No weight/Non credit __X__ Standard weight ____ Enhanced weight