

WARREN COUNTY SCHOOL DISTRICT

PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Science 4

Course Number: 08433

Course Prerequisites: None

Course Description: Students will use models to describe patterns of waves in terms of amplitude and wavelength and will understand that waves can cause objects to move. Students will understand the effects of erosion by water, ice, wind, or vegetation. Students will describe patterns of Earth's features and analyze and interpret data from maps. Students will understand that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. Students will develop models to illustrate that an object can be seen when light reflected from its surface enters the eye. Students will use evidence to construct an explanation of the relationship between the speed of an object and the energy of that object. Students will understand that energy can be transferred from place to place by sound, light, heat, and electric currents or from object to object through collisions. Students will apply their understanding of energy to design, test, and refine a device that converts energy from one form to another.

Suggested Grade Level: Grade 4

Length of Course: Two Semesters

Units of Credit: None

PDE Certification and Staffing Policies and Guidelines (CSPG) Required Teacher Certifications:

CSPG 69 and Elementary K-6

To find the CSPG information, go to [CSPG](#)

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

WCSD STUDENT DATA SYSTEM INFORMATION

Course Level: Academic

Mark Types: Check all that apply.

☒F – Final Average ☒MP – Marking Period ☐EXM – Final Exam

GPA Type: ☒ GPAEL-GPA Elementary ☐ GPAML-GPA for Middle Level ☐ NHS-National Honor Society

☐ UGPA-Non-Weighted Grade Point Average ☐ GPA-Weighted Grade Point Average

State Course Code: 03234

To find the State Course Code, go to [State Course Code](#), download the Excel file for SCED, click on SCED 6.0 tab, and choose the correct code that corresponds with the course.

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TEXTBOOKS AND SUPPLEMENTAL MATERIALS

Board Approved Textbooks, Software, and Materials:

Title: Inspire Science
Publisher: McGraw Hill
ISBN #: 978-0-07-678004-4
Copyright Date: 2017
WCSD Board Approval Date: 12/03/2018

Supplemental Materials: STEM Lab Activities

Curriculum Document

WCSD Board Approval:

Date Finalized: 7/19/2022
Date Approved: Click or tap to enter a date.
Implementation Year: 2022-2023

SPECIAL EDUCATION, 504, and GIFTED REQUIREMENTS

The teacher shall make appropriate modifications to instruction and assessment based on a student's Individual Education Plan (IEP), Chapter 15 Section 504 Plan (504), and/or Gifted Individual Education Plan (GIEP).

SCOPE AND SEQUENCE OF CONTENT AND CONCEPTS

Marking Period 1

- Life Science: From Molecules to Organisms
- Physical Science: Waves and Their Applications

Marking Period 2

- Physical Science: Energy

Marking Period 3

- Earth and Space Sciences: Earth's Place in the Universe
- Earth and Space Sciences: Earth's Systems

Marking Period 4

- Earth and Space Sciences: Earth and Human Activity

WARREN COUNTY SCHOOL DISTRICT

PLANNED INSTRUCTION

Standards/Eligible Content and Skills

| Performance Indicator | PA Core Standard and/or Eligible Content | Marking Period Taught |
|--|--|-----------------------|
| Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. | 4-LS1.1 | MP1 |
| Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. | 4-LS1.2 | MP1 |
| Classify plants and animals according to the physical characteristics that they share. | 3.1.4.A.1 | MP1 |
| Describe the different resources that plants and animals need to live. | 3.1.4.A.2 | MP1 |
| Identify differences in the life cycles of plants and animals. | 3.1.4.A.3 | MP1 |
| Describe common functions living things share to help them function in a specific environment. | 3.1.4.A.5 | MP1 |
| Recognize that reproduction is necessary for the continuation of life. | 3.1.4.B.2 | MP1 |
| Identify different characteristics of plants and animals that help some populations survive and reproduce in greater numbers. Describe how environmental changes can cause extinction in plants and animals. | 3.1.4.C.1 | MP1, MP 4 |
| Describe plant and animal adaptations that are important to survival. | 3.1.4.C.2 | MP1 |
| Describe how the history of civilization is linked closely to technological development. | 3.4.4.B.4 | MP1 |
| Explain how living things are dependent upon other living and nonliving things for survival. Explain what happens to an organism when its food supply, access to water, shelter or space (niche / habitat) is changed. Identify similarities and differences between living organisms, ranging from single-celled to multicellular organisms through the use of microscopes, video, and other media. | 4.1.4.A | MP1 |
| Identify how matter cycles through an ecosystem. Trace how death, growth, and decay cycle matter through an ecosystem. | 4.1.4.B | MP1, MP 4 |
| Explain how specific adaptations can help organisms survive in their environment. | 4.1.4.D | MP 1, MP 3 |
| Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. | 4-PS4.1 | MP1 |
| Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen. | 4-PS4.2 | MP1 |
| Generate and compare multiple solutions that use patterns to transfer information. | 4-PS4.3 | MP1 |
| Demonstrate that materials are composed of parts that are too small to be seen without magnification. | 3.2.4.A.2 | MP1 |
| Explain how an object's change in motion can be observed and measured. | 3.2.4.B.1 | MP1, MP 2 |
| Identify types of energy and their ability to be stored and changed from one form to another. | 3.2.4.B.2 | MP1, MP 2 |

| WARREN COUNTY SCHOOL DISTRICT | | |
|---|--|-----------------------|
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| Understand that objects that emit light often emit heat. | 3.2.4.B.3 | MP1, MP 2 |
| Demonstrate how vibrating objects make sound and sound can make things vibrate. Demonstrate how light can be reflected, refracted, or absorbed by an object. | 3.2.4.B.5 | MP1, MP 2 |
| ENERGY Give examples of how energy can be transformed from one form to another. | 3.2.4.B.6 | MP1, MP 2 |
| Describe how various relationships exist between technology and other fields. | 3.4.4.A.2 | MP1 |
| Use evidence to construct an explanation relating the speed of an object to the energy of that object. | 4-PS3.1 | MP2 |
| Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. | 4-PS3.2 | MP2 |
| Ask questions and predict outcomes about the changes in energy that occur when objects collide. | 4-PS3.3 | MP2 |
| Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. | 4-PS3.4 | MP2 |
| Apply knowledge of basic electrical circuits to the design and construction of simple direct current circuits. Compare and contrast series and parallel circuits. Demonstrate that magnets have poles that repel and attract. | 3.2.4.B.4 | MP2 |
| Understand that systems have parts and components that work together. | 3.4.4.A.1 | MP2, MP 3 |
| Describe the engineering design process: Define a problem. Generate ideas. Select a solution and test it. Make the item. Evaluate the item. Communicate the solution with others. Present the results. | 3.4.4.C.2 | MP2 |
| Identify types of energy and the importance of energy conservation. | 3.4.4.E.3 | MP2 |
| Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. | 4-ESS1.1 | MP3 |
| Describe basic landforms. Identify the layers of the earth. Recognize that the surface of the earth changes due to slow processes and rapid processes. | 3.3.4.A.1 | MP3, MP 4 |
| Identify basic properties and uses of Earth's materials including rocks, soils, water, and gases of the atmosphere. | 3.3.4.A.2 | MP3, MP 4 |
| Recognize that fossils provide evidence about the plants and animals that lived long ago and the nature of the environment at that time. | 3.3.4.A.3 | MP3 |
| Recognize Earth's different water resources, including both fresh and saltwater. Describe phase changes in the forms of water on Earth. | 3.3.4.A.4 | MP3, MP 4 |
| Describe basic weather elements. Identify weather patterns over time. | 3.3.4.A.5 | MP 3, MP 4 |

WARREN COUNTY SCHOOL DISTRICT

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| Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. | 4-ESS2.1 | MP3 |
| Analyze and interpret data from maps to describe patterns of Earth's features. | 4-ESS2.2 | MP3 |
| Demonstrate the conservation of mass during physical changes such as melting or freezing. | 3.2.4.A.3 | MP3 |
| Describe basic weather elements. Identify weather patterns over time. | 3.3.4.A.5 | MP3 |
| Explain that ecosystems change over time due to natural and/ or human influences. | 4.1.4.E | MP3, MP 4 |
| Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. | 4-ESS3.1 | MP4 |
| Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. | 4-ESS3.2 | MP4 |
| MODELS/SCALE Identify basic landforms using models and simple maps. CONSTANCY/ CHANGE Identify simple changes in the earth system as air, water, soil and rock interact. SCALE Explain how basic weather elements are measured. | 3.3.4.A.6 | MP4 |
| Explain how most life on earth gets its energy from the sun. | 4.1.4.C | MP4 |
| Identify ways humans depend on natural resources for survival. Identify resources used to provide humans with energy, food, employment, housing and water. | 4.3.4.A | MP4 |
| Identify the geographic origins of various natural resources. | 4.3.4.B | MP4 |
| Identify how technology affects the development of civilizations through agricultural production. | 4.4.4.D | MP4 |
| Identify how people use natural resources in sustainable and non-sustainable ways. | 4.5.4.A | MP4 |

ASSESSMENTS

PDE Academic Standards, Assessment Anchors, and Eligible Content: The teacher must be knowledgeable of the PDE Academic Standards, Assessment Anchors, and Eligible Content and incorporate them regularly into planned instruction.

Formative Assessments: The teacher will utilize a variety of assessment methods to conduct in-process evaluations of student learning.

Effective formative assessments for this course include: center activities, cooperative learning activities, games, online activities, oral responses, teacher observations, local assessments, and worksheets.

Summative Assessments: The teacher will utilize a variety of assessment methods to evaluate student learning at the end of an instructional task, lesson, and/or unit.

Effective summative assessments for this course include: performance assessments, projects, writing, tests, and quizzes.