WARREN COUNTY SCHOOL DISTRICT

PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: STEM Grade 4
Course Number: 08453
Course Prerequisites: None

Course Description: Technological Literacy courses expose students to the communication, transportation, energy, production, biotechnology, and integrated technology systems and processes that affect their lives. The study of these processes enables students to better understand technological systems and their applications and uses.

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 50 Mathematics; CSPG 53 Middle Level Math; CSPG 54 Middle Level Science; CSPG 65 Technology Education PK-12; CSPG 69 Grades PK-4; CSPG 70 Grades 4-8; CSPG 71 Computer Science 7-12
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: 21051
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.

TEXTBOOKS AND SUPPLEMENTAL MATERIALS

Board Approved Textbooks, Software, and Materials:

Title:	SmartLab Learning Hub
Publisher:	n/a
ISBN #:	n/a
Copyright Date:	n/a
WCSD Board Approval Date:	n/a

Supplemental Materials: Creative Learning Systems (CLS) SmartLab and included materials

Curriculum Document

WCSD Board Approval:

Date Finalized:	7/3/2023
Date Approved:	8/14/2023
Revision Date:	6/03/2024
Implementation Year:	2023-2024

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 Units

- Vernier Elementary Energy Efficiency: Keep Our SmartLab Cool
- Vernier Elementary Energy Efficiency: Save Energy At School
- Vernier Elementary Energy Efficiency: Sound Waves
- Vernier Elementary Energy Efficiency: Motion Sensor
- Vernier Elementary Energy Efficiency: Design an Expedition Suit
- Snap Circuits: Sound Waves with Morse Code
- Snap Circuits: Green Energy: Hand Crank
- Snap Circuits: Green Energy: Wind Power
- Snap Circuits: Green Energy: Solar Energy
- Google Maps: Mapping My Area
- Tinkercad Circuits: Piano Circuit
- Tinkercad Circuits: Explore 3D Shapes and Volume
- Makey Makey: House of Shapes
- Makey Makey: Music and the Coordinate Plane
- Makey Makey: Board Games and Fractions
- Code.org: Hour of Code (Course E)

Standards/Eligible Content and Skills

Performance Indicator	PA Core Standard and/or Eligible Content	Marking Period Taught
Use appropriate symbols, numbers, and words to communicate key ideas about technological products and systems.	3.5.3-5.A	MP1, MP2, MP3, MP4
Examine information to assess the trade-offs to using a product or system.	3.5.3-5.B	MP1, MP2, MP3, MP4
Follow directions to complete a technological task.	3.5.3-5.C	MP1, MP2, MP3, MP4
Predict how certain aspects of their daily lives would be different without given technologies.	3.5.3-5.D	MP1, MP2, MP3, MP4
Explain why responsible use of technology requires sustainable management of resources.	3.5.3-5.E	MP1, MP2, MP3, MP4
Classify resources used to create technologies as either renewable or nonrenewable.	3.5.3-5.F	MP1, MP2, MP3, MP4
Describe the helpful and harmful effects of technology.	3.5.3-5.G	MP1, MP2, MP3, MP4
Determine factors that influence changes in a society's technological systems or infrastructure.	3.5.3-5.H	MP1, MP2, MP3, MP4
Design solutions by safely using tools, materials, and skills.	3.5.3-5.I	MP1, MP2, MP3, MP4
Explain how technologies are developed or adapted when individual or societal needs and wants change.	3.5.3-5.J	MP1, MP2, MP3, MP4
Judge technologies to determine the best one to use to complete a given task or meet a need.	3.5.3-5.K	MP1, MP2, MP3, MP4
Demonstrate how tools and machines extend human capabilities, such as holding, lifting, carrying, fastening, separating, and computing.	3.5.3-5.L	MP1, MP2, MP3, MP4
Demonstrate essential skills of the engineering design process.	3.5.3-5.M	MP1, MP2, MP3, MP4
Identify why a product or system is not working properly.	3.5.3-5.N	MP1, MP2, MP3, MP4
Describe requirements of designing or making a product or system.	3.5.3-5.O	MP1, MP2, MP3, MP4
Evaluate the strengths and weaknesses of existing design solutions, including their own solutions.	3.5.3-5.P	MP1, MP2, MP3, MP4
Practice successful design skills.	3.5.3-5.Q	MP1, MP2, MP3, MP4
Apply tools, techniques, and materials in a safe manner as part of the design process.	3.5.3-5.R	MP1, MP2, MP3, MP4
Illustrate that there are multiple approaches to design.	3.5.3-5.S	MP1, MP2, MP3, MP4
Apply universal principles and elements of design.	3.5.3-5.T	MP1, MP2, MP3, MP4
Evaluate designs based on criteria, constraints, and standards.	3.5.3-5.U	MP1, MP2, MP3, MP4
Interpret how good design improves the human condition.	3.5.3-5.V	MP1, MP2, MP3, MP4
Describe the properties of different materials.	3.5.3-5.W	MP1, MP2, MP3, MP4

Performance Indicator	**PA Core Standard and/or Eligible Content**	**Marking Period Taught**
Explain how various relationships can exist between technology and engineering and other content areas.	3.5.3-5.X	MP1, MP2, MP3, MP4
Identify the resources needed to get a technical job done, such as people, materials, capital, tools, machines, knowledge, energy, and time.	3.5.3-5.Y	MP1, MP2, MP3, MP4
Create a new product that improves someone's life.	3.5.3-5.Z	MP1, MP2, MP3, MP4
Illustrate how, when parts of a system are missing, it may not work as planned.	3.5.3-5.BB	MP1, MP2, MP3, MP4
Describe how a subsystem is a system that operates as a part of another larger system.	3.5.3-5.CC	MP1, MP2, MP3, MP4
Demonstrate how simple technologies are often combined to form more complex systems.	3.5.3-5.DD	MP1, MP2, MP3, MP4
Explain how solutions to problems are shaped by economic, political, and cultural forces.	3.5.3-5.EE	MP1, MP2, MP3, MP4
Compare how things found in nature differ from things that are human made, noting differences and similarities in how they are produced and used.	3.5.3-5.FF	MP1, MP2, MP3, MP4
Describe the unique relationship between science and technology, and how the natural world can contribute to the human made world to foster innovation.	3.5.3-5.GG	MP1, MP2, MP3, MP4
Differentiate between the role of scientists, engineers, technologists, and others in creating and maintaining technological systems.	3.5.3-5.HH	MP1, MP2, MP3, 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, writing, 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, and narrative presentations.