LAMPETER-STRASBURG SCHOOL DISTRICT

Administration Building

Academic Committee Agenda January 2, 2024 6:30 p.m.

Items for Discussion:

- 1. Community Action Partnership (CAP) Collaboration with Hans Herr Elementary
- 2. Agreement for Services Winner's Circle Center
- 3. Curriculum Approvals:
 - a. Principles (Foundations) of Scienceb. Biology
- 4. Instructional Video Request
 - a. Till (2022) 9th Grade American Cultures
- 5. PA State Legislative Update
- 6. Policy Updates
 - a. 106 Guides for Planned Instruction
 - b. 107 Adoption of Planned Instruction
 - c. 108 Adoption of Textbooks

Items from the Group:

Course Title: Tools for Healthy Relationships for 4th Graders

Lesson 1: Listening and Communicating Effectively

Objectives:

- To understand that listening is more than hearing, and active listening involves engaging the mind and body.
- To develop skills in active listening and healthy communication.

Activities:

- 1. Introduction
 - Discuss the importance of effective communication.
 - Differentiate between hearing and active listening.
- 2. Listening Games
 - Play engaging listening games that involve verbal and non-verbal communication.
 - Activities to enhance focus, concentration, and understanding.

3. Scenarios and Role-Playing

- Act out scenarios illustrating active listening and healthy communication.
- Discuss the importance of body language and eye contact in effective communication.

4. Reflection

- Group discussion on the experiences and challenges faced during the activities.
- Emphasize the importance of empathy in communication.

Lesson 2: Conflict Resolution Skills

Objectives:

- To understand that conflict is a natural part of life but can be resolved through healthy communication.
- To learn the five steps of healthy conflict resolution.

Activities:

- 1. Introduction to Conflict:
 - Discuss the concept of conflict and its normalcy.
 - Emphasize that conflicts can be opportunities for growth and understanding.

2. Five Steps of Conflict Resolution:

- Present the five steps:
 - Stop and recognize your own emotions.
 - Watch your words (no put downs, insults, or blaming).
 - Listen to the perspectives of the other person.
 - Identify the problem.
 - Agree on a solution or compromise.

3. Activities on Perspectives

- Engage students in activities that help them understand different perspectives.
- Use scenarios or stories to illustrate how individuals may perceive situations differently.

4. Conflict Resolution Game

- Play a fun and engaging game that challenges the students' conflict resolution skills.
- Encourage teamwork and communication in finding solutions.
- 5. Conclusion and Reflection
 - Discuss the importance of resolving conflicts peacefully.
 - Reflect on what they've learned about effective communication and conflict resolution.

January 3, 2024

Dear Families of Fourth Grade Students,

We are excited to inform you that Hans Herr Elementary is partnering with Community Action Partnership (CAP) to enhance our students' social development. Over two days, January 9 & 10, 2024, and February 6 & 7, our fourth-grade classes will engage in two 45-minute lessons focusing on cultivating healthy relationships.

These interactive sessions will concentrate on essential life skills, including conflict resolution and effective listening and communication. Incorporating engaging elements such as stories, videos, and games, the lessons aim to empower our students with the tools they need to navigate and build positive connections with their peers.

We believe these lessons will contribute to a nurturing and supportive learning environment. If you have any questions or concerns, please feel free to reach out to us. Thank you for your ongoing support in fostering the well-rounded development of our students.

<u>I've included an outline of the material that will be covered.</u> If you desire not to have your child participate in any portion of this program, please notify me in writing immediately.

Sincerely,

Jeffrey T. Smecker, Ed.D. Hans Herr Elementary School Herrbrook Farm 2256 New Danville Pike Lancaster, PA 17603 Telephone (484) 643-9568 Fax (717) 584-3354 www.winnerscirclecenter.com

AGREEMENT OF SERVICES Psycho-Educational Groups 2023-24

This agreement made this th day of November 3, 2023 by and between:

Winner's Circle Center Inc.ANDLampeter-Strasburg School DistrictHerrbrook Farm1600 Book Rd.2256 New Danville PikeLancaster, PA 17602Lancaster, PA 176032000 Content of the second sec

Psycho-Educational Groups / Equine-Assisted Therapy & Learning Service Overview: This experiential program utilizes equine-assisted learning and skill-building using the EAGALA (Equine Assisted Growth & Learning Association) model. Many skill building programs are offered in a didactic manner that can be unappealing to youth. Allowing students to learn about and experience horse behavior is a logical way to help them learn about how behaviors of all kinds are learned, reinforced and maintained. Horses offer immediate, honest feedback/reactions to behaviors presented to them, and students must adapt their own behaviors in the moment to accomplish the given tasks. The curriculum concentrates on feelings identification and expression, empathy, perspective taking, 'expected' versus 'unexpected' behaviors, appropriate communication skills and anger/frustration management. As students utilize problem solving skills to master various tasks, they experience success and their self-confidence and self-esteem are strengthened. Winner's Circle Center, Inc. will work with each All activities with horses are performed on the ground; there is no horseback riding.

Facilitator: Kate Black, M.S., LPC, LPCMH, NCC, is a Licensed Professional Counselor of Mental Health in PA and DE, National Certified Counselor and PA Certified K-12 Guidance Counselor, and is a certified Equine-Assisted Psychotherapist.

Staff: Para-Professional Aides and mental health clinicians provided by Winner's Circle Center, Inc.

Confidentiality: Winner's Circle Center Inc. will adhere to codes of confidentiality. Any questionable practice will be grounds for termination of this agreement.

Termination of Agreement: This agreement may be terminated by either party by giving thirty (30) days written notification of such termination.

Liability Insurance: Winner's Circle Center, Inc. will provide farm property insurance, equine activity liability insurance and facilitator liability insurance. The School District will be named an additional insured on liability insurance policies and will be provided with proof of coverage.

Group Scheduling: The School District will reserve specific days throughout the school year for up to 1.5 hours per day at which time Winner's Circle will facilitate a psycho-educational therapeutic activity with the class. The students will be accompanied by classroom staff and agency staff when applicable. Transportation will be provided by The School District.

Equipment/Supplies: Winner's Circle Center, Inc. will provide all supplies and equipment required for experiential mental health and psycho-educational group activities, including art supplies, games and equine/canine related supplies. Students and staff should arrive dressed for the outdoors with sturdy closed-toed shoes. In case of extreme weather, activities will take place under cover or indoors.

Weather-Related Delays or Cancellations: In the case of school cancellation, delay, or severe weather, group sessions will be cancelled. Winner's Circle Center, Inc. will make every effort to re-schedule missed sessions on a mutually agreed upon date.

Location: Winner's Circle Center, Inc. at Herrbrook Farm, 2256 New Danville Pike, Lancaster, PA 17603

Payment and Frequency of Payment:

• \$475 per group session 1.0 hour up to 1.5 hours (10 student per group maximum)

Winner's Circle Center, Inc. shall submit detailed invoices once per month for services rendered showing the days for which services were contracted, a description of the services provided and the resultant amount charged. Services for Group Sessions will be billed according to actual services rendered; however no-shows without prior cancellation will be billed at the regular rate. Payment by The School District shall be made on or before thirty (30) days following receipt of the aforementioned invoices.

READ THIS ENTIRE AGREEMENT WHICH CONSISTS OF TWO (2) PAGES BEFORE SIGNING YOUR NAME BELOW.

ATTEST:

Winner's Circle Center, Inc. at Herrbrook Farm

Kate Black, President

<u>11/3/2023</u> Date

Lampeter-Strasburg School District

Name

Date

Title

Date

Signature

Date

Curriculum Map: Biology

Course: Biology Sub-topic: Biology

Grade(s): None specified

Course Description: The content of this course will include introductory topics in biology, chemistry, earth and space science, with an umbrella of environmental science incorporated within the content. Students will engage in topics on matter and energy, cellular structure and function, inheritance and variation, human sustainability, earth science, ecosystems, natural selection, and environmental issues. This course will be designed to engage students in critical thinking through 3-dimensional learning strategies that prompt curiosity and independent reasoning.

Unit: Structure and Function of Living Things			
Description:	Cellular (sub)Structure and Function		
	Endomembrane System		
	Cell Specialization		
	Multicellular Organization (Hierarchical)		
	Interacting Systems		
	Feedback Mechanisms		
	Homeostasis		
Unit Essential Questions:	How do the structures of organisms enable life's functions?		
Unit Big Ideas:	Organisms have characteristic structures which enable functions and behaviors that allow them to grow, reproduce, and die. 		
	Organisms have structures which enable functions and behaviors that allow them to grow, reproduce, and die.		
Unit Assignments:	Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins, which carry out the essential functions of life through systems of specialized cells.		
	Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly.		
Unit Key Terminology & Definitions :	The Central Dogma DNA RNA Gene Protein DNA Replication Transcription Translation		
STANDARDS:	STANDARDS State: Pennsylvania STEELS K-12 - Science (2022) 3.1.9-12.A Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which		

carry out the essential functions of life through systems of

specialized cells.

3.1.9-12.B	Develop and use a model to illustrate the hierarchical	
(Advanced)	organization of interacting systems that provide specific	
	functions within multicellular organisms.	
3.1.9-12.C	Plan and conduct an investigation to provide evidence that	
(Advanced)	feedback mechanisms maintain homeostasis.	
STATE: Pennsylvania	a SAS Keystone Anchors (2010-2014)	
BIO.A.4.1.1	Describe how the structure of the plasma membrane allows it	
(Advanced)	to function as a regulatory structure and/or protective barrier	
	for a cell.	
BIO.A.4.1.2	Compare the mechanisms that transport materials across the	
(Advanced)	plasma membrane (i.e., passive transport-diffusion, osmosis,	
	facilitated diffusion; and active transport-pumps, endocytosis,	,
	exocytosis).	
BIO.B.4.2.1	Describe how energy flows through an ecosystem (e.g., food	
(Advanced)	chains, food webs, energy pyramids).	17

This Curriculum Map Unit has no Topics to display

Unit: Matter and Energy			
Unit Cycling of Carbon among hydrosphere, atmosphere, geosphere and biosphere			
Description:			
	C, H and O Bonding to form Macromolecules		
	Cell Respiration (aerobic and anaerobic cycling of matter)		
	Photosynthesis		
Unit Essential	How do organisms obtain and use the matter and energy they need to live and grow?		
Questions:			
	How do matter and energy move through an ecosystem?		
Unit Big Ideas	The structures functions, and behaviors of graphisms allow them to obtain use transport		
onic big racas.	and remove the matter and energy needed to live &nhsn:		
	and remove the matter and energy needed to invertails sp,		
	The cycling of matter and the flow of energy within ecosystems occur through interactions		
	among different organisms and between organisms and the physical environment.		
11	llas a model beard en avidance to illustrate the velationships between evolutions on between		
Assianments:	Use a model based on evidence to illustrate the relationships between systems or between		
/ Bolginieneo	Ruben		
	Construct and revise an explanation based on valid and reliable evidence obtained from a		
	variety of sources (including students’: own investigations, models, theories,		
	simulations, peer review) and the assumption that theories and laws that describe the natural		
	world operate today as they did in the past and will continue to do so in the future.		
	Develop a model based on evidence to illustrate the relationships between systems or		
	components of a system.		
	Simple computational simulations are created and used based on mathematical models of basic		
	assumptions. Use mathematical representations of phenomena or design solutions to support		
Unit Key	ADP/ATP		
Terminology &	Chloroplast		
Definitions :	Photosynthesis		
	Mitochondria		
	Cellular respiration		
	Organic molecules&nDSp Monomer&nbsn:		
	ruymenanusp, Macromolecules		
	Anaerobic Respiration		

Carbon Cycle Carrying Capacity Limiting Factors Biodiversity Biotic/Abiotic

STANDARDS: STANDARDS

State: Pennsylvania STEELS K-12 - Science (2022)

3.1.9-12.E (Advanced)	Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.	
3.1.9-12.F (Advanced)	Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.	
3.1.9-12.G (Advanced)	Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.	
3.1.9-12.J	Construct and revise an explanation based on evidence for the	
(Advanced)	cycling of matter and flow of energy in aerobic and anaerobic conditions.	
3.1.9-12.K	Develop a model to illustrate the role of photosynthesis and	
(Advanced)	cellular respiration in the cycling of carbon among the	
	biosphere, atmosphere, hydrosphere, and geosphere.	
3.1.9-12.L	Use mathematical representations to support and revise	
(Advanced)	explanations based on evidence about factors affecting	
	biodiversity and populations in ecosystems of different scales.	
STATE: Pennsylvania	SAS Keystone Anchors (2010-2014)	
BIO.B.1.2.2	Explain the functional relationships between DNA, genes,	
(Advanced)	alleles, and chromosomes and their roles in inheritance.	
BIO.B.2.1.2	Describe processes that can alter composition or number of	
(Advanced)	chromosomes (i.e., crossing-over, nondisjunction, duplication, translocation, deletion, insertion, and inversion).	
BIO.B.2.3.1	Describe how genetic mutations alter the DNA sequence and	
(Advanced)	may or may not affect phenotype (e.g., silent, nonsense, frame-shift).	
BIO.B.2.4.1	Explain how genetic engineering has impacted the fields of	
(Advanced)	medicine, forensics, and agriculture (e.g., selective breeding, gene splicing, cloning, genetically modified organisms, gene therapy).	

This Curriculum Map Unit has no Topics to display

Unit: Inheritance and Variation

Unit Description:	DNA and Genes Inheritance of Traits Mitosis and Differentiation of Cells Meiosis
	 Inheritable Genetic Variation Viable Errors Mutations Caused by Environmental Factors
	 Coevolution of Earth's Systems and Life on Earth
Unit Essential Questions:	How do organisms grow and develop? How are the characteristics of one generation related to the previous generation?
Unit Big Ideas:	The characteristic structures, functions and behaviors of organisms change in predictable ways

as they progress through their life cycle.

Offspring resemble, but are not identical to, their parents due to traits being passed from one generation to the next via genes.

Unit Assignments:	Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms. Use a model based on evidence to illustrate the relationships between systems or between components of a system. Ask questions to clarify relationships about the role of DNA and chromosomes in coding the
Unit Key Terminology & Definitions :	Instructions for characteristic traits passed from parents to offspring. Ask questions that arise from examining models or a theory to clarify relationships. Cell Cycle Interphase Mitosis

Cytokinesis Differentiation

STANDARDS: STANDARDS

<u> State: Pennsylvania STEELS K-12 - Science (2022)</u>			
3.3.9-12.N	Construct an argument based on evidence about the		
(Advanced)	simultaneous coevolution of EarthÕs systems and life on		
	Earth.		
3.1.9-12.D	Use a model to illustrate the role of cellular division (mitosis)		
(Advanced)	and differentiation in producing and maintaining complex		
	organisms.		
3.1.9-12.P	Ask questions to clarify relationships about the role of DNA		
(Advanced)	and chromosomes in coding the instructions for characteristic		
	traits passed from parents to offspring.		
3.1.9-12.Q	Make and defend a claim based on evidence that inheritable		
(Advanced)	genetic variations may result from (1) new genetic		
	combinations through meiosis, (2) viable errors occurring		
	during replication, and/or (3) mutations caused by		
	environmental factors.		
STATE: Pennsylvania SAS Keystone Anchors (2010-2014)			
BIO.B.1.1.1	Describe the events that occur during the cell cycle:		
(Advanced)	interphase, nuclear division (i.e., mitosis or meiosis),	• •	
	cytokinesis.		
BIO.B.1.1.2	Compare the processes and outcomes of mitotic and meiotic		
(Advanced)	nuclear divisions.	17	

This Curriculum Map Unit has no Topics to display

Unit: Natural Selection and Evolution

Unit Evolution results from:

Description:

- Species increase in number
- Heredity of mutations
- Competition for resources
- Proliferations of organisms best suited for the environment

Natural selection → adaptations Statistics and Probability

- Variation and distribution of traits
- Advantageous traits tend to increase in proportion to organisms lacking

Changes in environmental conditions may lead to:

- Increases in numbers of individuals of some species
- Emergence of new species over time

• Extinction of other species

Communicate:

Common ancestry and biological evolution are supported by multiple lines of empirical evidence

Unit Essential Questions:	Why do individuals of the same species vary in how they look, function, and behave?
	What evidence supports the relationship between species?
	How does genetic variation among organisms affect survival and reproduction?
	How does the environment influence populations of organisms over multiple generations?
	How does the environment influence populations of organisms over multiple generations?
Unit Big Ideas:	Variation among individuals of the same species can be explained by both genetic and environmental factors.
	Comparisons between species provides evidence that they evolved from common ancestors, explaining the similarities and differences between species.
	In any environment, individuals with particular traits may be more likely than others to survive and produce offspring.
	When the environment changes, some individuals in a population may have traits that provide a reproductive advantage which over many generations can change the makeup of a population.
Unit Assignments:	Apply concepts of statistics and probability (including determining function fits to data, slope, intercept, and correlation coefficient for linear fits) to scientific and engineering questions and problems, using digital tools when feasible.
	Communicate scientific information (e.g., about phenomena and/or the process of development and the design and performance of a proposed process or system) in multiple formats (including orally, graphically, textually, and mathematically).
	Construct an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own investigations, models, theories simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.
	Construct an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own investigations, models, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.
	Evaluate the evidence behind currently accepted explanations or solutions to determine the merits of arguments.
Unit Key Terminology & Definitions :	Genotype Phenotype Inheritance Evolutionary Evidence Natural Selection Biological Fitness Natural Selection Allele Frequency Adaptation Biodiversity Speciation Biological Extinction

STANDARDS: STANDARDS State: Pennsylvania STEELS K-12 - Science (2022)

3.1.9-12.R	Apply concepts of statistics and probability to explain the	
(Advanced)	variation and distribution of expressed traits in a population.	
3.1.9-12.S	Communicate scientific information that common ancestry and	
(Advanced)	biological evolution are supported by multiple lines of empirical evidence.	
3.1.9-12.T (Advanced)	Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.	
3.1.9-12.U	Apply concepts of statistics and probability to support	
(Advanced)	explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.	
3.1.9-12.W	Construct an explanation based on evidence for how natural	
(Advanced)	selection leads to adaptation of populations.	
3.1.9-12.X	Evaluate the evidence supporting claims that changes in	
(Advanced)	environmental conditions may result in (1)increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.	
STATE: Pennsylvania	SAS Keystone Anchors (2010-2014)	
BIO.B.2.1.1	Describe and/or predict observed patterns of inheritance (i.e.,	
(Advanced)	dominant, recessive, co-dominance, incomplete dominance, sex-linked, polygenic, and multiple alleles).	
BIO.B.3.1.1	Explain how natural selection can impact allele frequencies of	
(Advanced)	a population.	
BIO.B.3.2.1	Interpret evidence supporting the theory of evolution (i.e.,	
(Advanced)	fossil, anatomical, physiological, embryological, biochemical, and universal genetic code).	
BIO.B.3.3.1	Distinguish between the scientific terms: hypothesis,	
(Advanced)	inference, law, theory, principle, fact, and observation.	

This Curriculum Map Unit has no Topics to display

Unit: Ecosystems

Unit Description:	Ecosystems are complex systems that include both living (biotic) and non-living (abiotic) components that interact with each other.
	Cycling of matter and flow of energy
	Group behavior affects survival and reproduction
	Factors that affect carrying capacity of ecosystems at different scales
	Mathematical representations:
	•

Factors affecting biodiversity

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Factors affecting populations in ecosystems of different scales

Interactions maintain consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.

Unit Essential	How do organisms interact with the living and nonliving environments to obtain matter and
Questions:	energy?

How do matter and energy move through an ecosystem?

How do environmental changes impact ecosystems?

How do organisms interact in groups so as to benefit individuals?

Unit Big Ideas: Ecosystems are complex systems that include both living (biotic) and non-living (abiotic) components that interact with each other.

The cycling of matter and the flow of energy within ecosystems occur through interactions among different organisms and between organisms and the physical environment.

As the environment and populations of species change, there are resulting changes in ecosystems.

Many species live in groups, increasing the chances of survival for individuals and their relatives.

Unit Simple computational simulations are created and used based on mathematical models of basic assumptions. Use mathematical and/or computational representations of phenomena or design solutions to support explanations.

Simple computational simulations are created and used based on mathematical models of basic assumptions. Use mathematical representations of phenomena or design solutions to support and revise explanations.

Ecosystems have carrying capacities, which are limits to the numbers of organisms and populations they can support. These limits result from such factors as the availability of living and nonliving resources and from such challenges such as predation, competition, and disease. Organisms would have the capacity to produce populations of great size were it not for the fact that environments and resources are finite. This fundamental tension affects the abundance (number of individuals) of species in any given ecosystem.

Evaluate the claims, evidence, and reasoning behind currently accepted explanations or solutions to determine the merits of arguments.

Unit Key
Terminology &
Definitions :Carrying Capacity
Limiting Factors
Ecosystem
Biotic
Abiotic
Biodiversity
Food Chains/Webs
Trophic Levels
Ecological Relationships
Niche
Succession
Group Behaviors
Genetic Relatedness

STANDARDS: STANDARDS

State: Pennsylvania STEELS K-12 - Science (2022)

3.1.9-12.H (Advanced)	Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.	
3.1.9-12.I (Advanced)	Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.	
3.1.9-12.L (Advanced)	Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.	
3.1.9-12.M (Advanced)	Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.	
3.1.9-12.0 (Advanced)	Evaluate the evidence for the role of group behavior on individual and speciesÕ chances to survive and reproduce.	
BIO.B.4.1.1 (Advanced)	Describe the levels of ecological organization (i.e., organism, population, community, ecosystem, biome, and biosphere).	
BIO.B.4.1.2 (Advanced)	Describe characteristic biotic and abiotic components of aquatic and terrestrial ecosystems.	
BIO.B.4.2.1	Describe how energy flows through an ecosystem (e.g., food	

(Advanced)	chains, food webs, energy pyramids).	
BIO.B.4.2.2	Describe biotic interactions in an ecosystem (e.g., competition, &	
(Advanced)	predation, symbiosis).	
BIO.B.4.2.3	Describe how matter recycles through an ecosystem (i.e.,	
(Advanced)	water cycle, carbon cycle, oxygen cycle, and nitrogen cycle).	
BIO.B.4.2.4	Describe how ecosystems change in response to natural and	
(Advanced)	human disturbances (e.g., climate changes, introduction of nonnative species, pollution, fires).	
BIO.B.4.2.5	Describe the effects of limiting factors on population dynamics &	
(Advanced)	and potential species extinction.	

This Curriculum Map Unit has no Topics to display

Unit: Human Sustainability

Unit	Earth's systems' relationships, and how they are modified by human activity
Description:	
	and mineral recourses
	:
	Natural resources, natural hazards and changes in climate → human activity
	Computational simulation for:
	Management of natural resources
	Sustainability of human populations Riediversity
	Solutions for reducing the impacts of human activities on the environment
	Technological solutions that reduce impacts of human activities on natural systems and
	biodiversity.
	Mitigation of adverse impacts of human activity on biodiversity
Unit Essential	How do humans depend on Earth’:s resources?
Questions:	
	How do natural hazards affect individuals and societies?
	How do humans change the planet?
	&nhsn:
	What regulates weather and climate?
	How do environmental changes impact ecosystems?
	How does the environment influence populations of organisms over multiple generations?
Unit Big Ideas:	Human activities in agriculture, industry, and everyday life has an impact on the land, rivers,
	ocean, and air.
	Natural processes can cause sudden or gradual changes to Earth's systems, some of
	which hay develsely affect humans. Allosp,
	All materials, energy, and fuels that humans use are derived from natural sources, some of
	which are renewable over time and others are not.
	Weather and climate are influenced by interactions involving sunlight, the ocean, the
	autosphere, ice, ianarottis, and inving utiligs.
	As the environment and populations of species change, there are resulting changes in
	ecosystems.
	When the environment changes, some individuals in a population may have traits that provide
	a reproductive advantage which over many generations can change the makeup of a nonulation
	population

Unit Materials: Human activities in agriculture, industry, and everyday life has an impact on the land, rivers, ocean, and air.

Natural processes can cause sudden or gradual changes to Earth's systems, some of which may adversely affect humans.

All materials, energy, and fuels that humans use are derived from natural sources, some of which are renewable over time and others are not.

Weather and climate are influenced by interactions involving sunlight, the ocean, the atmosphere, ice, landforms, and living things.

As the environment and populations of species change, there are resulting changes in ecosystems.

When the environment changes, some individuals in a population may have traits that provide a reproductive advantage which over many generations can change the makeup of a population.

Unit Construct an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own investigations, models, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.

Evaluate competing design solutions to a real-world problem based on scientific ideas and principles, empirical evidence, and logical arguments regarding relevant factors (e.g. economic, societal, environmental, ethical considerations).

Create a computational model or simulation of a phenomenon, designed device, process, or system.

Design or refine a solution to a complex real-world problem, based on scientific knowledge, student generated sources of evidence, prioritized criteria, and tradeoff considerations.

Use a computational representation of phenomena or design solutions to describe and/or support claims and/or explanations.

Design, evaluate, and refine a solution to a complex real-world problem, based on scientific knowledge, student-generated sources of evidence, prioritized criteria, and trade off considerations.

Create or revise a simulation of a phenomenon, designed device, process, or system.

Unit Key Environmental Factors Terminology & Hazard Definitions : Population Size and Migration Patterns Causal Relationships **Correlational Relationships** Cost-Benefit Ratios Mineral Energy Reserve Constraints Natural Resource Ecosystem Sustainability Biodiversity Population Feedback Stabilizes/Destabilizes System Tradeoffs Benefits/Costs/Risks Stability Hydrosphere Atmosphere Cryosphere Geosphere Biosphere Atmospheric CO2 Photosynthetic Biomass Ocean Acidification Human Disturbances Speciation **Biological Extinction**

STANDARDS		
State: Pennsylvania	STEELS K-12 - Science (2022)	
3.3.9-12.M	Use a computational representation to illustrate the	
(Advanced)	relationships among Earth systems and how those	
	relationships are being modified due to human activity.	
3.3.9-12.0	Construct an explanation based on evidence for how the	
(Advanced)	availability of natural resources, occurrence of natural hazards,	
	and changes in climate have influenced human activity.	
3.3.9-12.P	Evaluate competing design solutions for developing,	
(Advanced)	managing, and utilizing energy and mineral resources based	
	on cost-benefit ratios.	
3.3.9-12.Q	Create a computational simulation to illustrate the	
(Advanced)	relationships among management of natural resources, the	
	sustainability of human populations, and biodiversity.	
3.3.9-12.R	Evaluate or refine a technological solution that reduces the	
(Advanced)	impact of human activities on natural systems.	
3.1.9-12.N	Design, evaluate, and refine a solution for reducing the	
(Advanced)	impacts of human activities on the environment and	
	biodiversity.	
3.1.9-12.V	Create or revise a simulation to test a solution to mitigate the	
(Advanced)	adverse impacts of human activity on biodiversity.	
STATE: Pennsylvania	a SAS Keystone Anchors (2010-2014)	
BIO.B.4.2.4	Describe how ecosystems change in response to natural and	
(Advanced)	human disturbances (e.g., climate changes, introduction of	
	nonnative species, pollution, fires).	
BIO.B.4.2.5	Describe the effects of limiting factors on population dynamics	
(Advanced)	and potential species extinction.	• •

STANDARDS:

This Curriculum Map Unit has no Topics to display

Unit: Environmental Issues

Unit Description:	Investigate regional and global environmental issues
	Watersheds and wetlands
	Pest management practices on indoor and outdoor environments
	Analyze management practices and environmental laws for sustainability
	Regional environmental condition and its implications on environmental justice and social
	equity
	Agricultural systems
	Motivations that lead to conflict, cooperation, and change among individuals, group and
	nations
	Local environmental issues
	Stewardship

STANDARDS: STANDARDS

<u>State: Pennsylvania STEELS K-12 - Science (2022)</u>		
Analyze and interpret how issues, trends, technologies, and		
policies impact agricultural, food, and environmental systems		
and resources.		
Apply research and analytical skills to evaluate the conditions		
and motivations that lead to conflict, cooperation, and change among individuals, groups, and nations.		
Analyze and interpret how issues, trends, technologies, and		
policies impact watersheds and water resources.		
Apply research and analytical skills to systematically		
investigate environmental issues ranging from local issues to		
those that are regional or global in scope.		
Plan and conduct an investigation utilizing environmental data		
	<u>STEELS K-12 - Science (2022)</u> Analyze and interpret how issues, trends, technologies, and policies impact agricultural, food, and environmental systems and resources. Apply research and analytical skills to evaluate the conditions and motivations that lead to conflict, cooperation, and change among individuals, groups, and nations. Analyze and interpret how issues, trends, technologies, and policies impact watersheds and water resources. Apply research and analytical skills to systematically investigate environmental issues ranging from local issues to those that are regional or global in scope. Plan and conduct an investigation utilizing environmental data	

(Advanced)	about a local environmental issue.	
3.4.9-12.F	Evaluate and communicate the effect of integrated pest	
(Advanced)	management practices on indoor and outdoor environments.	
3.4.9-12.G	Analyze and evaluate how best resource management	
(Advanced)	practices and environmental laws achieve sustainability of natural resources.	
3.4.9-12.H	Design and evaluate solutions in which individuals and	
(Advanced)	societies can promote stewardship in environmental quality and community well-being.	
3.4.9-12.I	Analyze and interpret data on a regional environmental	
(Advanced)	condition and its implications on environmental justice and social equity.	

This Curriculum Map Unit has no Topics to display

Curriculum Map: Principles of Science

Course: Science 09 Sub-topic: General

Grade(s): None specified

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Course Description: The content of this course will include introductory topics in chemistry and physics as well as general scientific principles and skills. Students will engage in topics on structures and properties of matter, chemical reactions, space systems, energy, waves and electromagnetic radiation, and forces and interactions. This course will be designed to engage students in strengthening their studying skills as well as their confidence in skills necessary to be successful in future lab courses.

Textbooks,	
Workbooks, Materials Citations:	Holt Science Spectrum: Physical Science with Earth and Space Science

Unit: Fundamentals of Science	
Description:	Metric System & Conversions
	Significant Figures & Conversions
	Scientific Notation
	Lab Safety
	Lab Equipment
	Scientific Method

Unit Essential

Questions: How can one assess the impact of technology and engineering on society?

How do costs, benefits, and tradeoffs factor into decisions made about technology and engineering?

How do criteria and constraints drive design?

Why is there no single correct solution in design?

Unit Big Ideas:

Technology and engineering have both positive and negative impacts on society and the environment. Decisions made about technology and engineering involve consideration of costs, benefits, and tradeoffs.

Design optimization is driven by criteria and constraints.

There is no single, best solution as designs can always be improved and refined.

Unit

Assignments: Uses evidence to better understand and solve problems in technology and engineering, including applying computational thinking.

Designs and troubleshoots technological systems in ways that consider the multiple components of the system.

Demonstrates the ability to regulate and improve making and doing skills.

Unit Key Terminology & Prioritized Criteria Definitions : Trade Offs

Aesthetics

	Engineering Design
	Process
	Computer Simulation
	Systems
	Model
	Societal Needs
	Societal Wants
	Engineering
	Systematically
	Priority
STANDARDS:	STANDARDS

State: Perinsylvania	<u>STEELS K-12 - Science (2022)</u>	
3.5.9-12.I	Evaluate a solution to a complex real-world problem based on	
(Advanced)	prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.	
3.5.9-12.K	Use a computer simulation to model the impact of proposed	
(Advanced)	solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.	
3.5.9-12.T	Analyze a major global challenge to specify qualitative and	
(Advanced)	quantitative criteria and constraints for solutions that account for societal needs and wants.	
3.5.9-12.Y	Design a solution to a complex real-world problem by breaking	
(Advanced)	it down into smaller, more manageable problems that can be solved through engineering.	

This Curriculum Map Unit has no Topics to display

Unit: Atom	
Description:	Parts of the Atom
	Isotopes & Notation
	Ions
	Nuclear Fusion/Fission
	Radioactive Decay
	Nuclear Energy (Sun)

Unit Essential

Questions: What forces hold nuclei together and mediate nuclear processes?

What is the universe, and what goes on in stars?

Unit Big Ideas:

Phenomena involving nuclei explain the formation of the elements, radioactivity, and the release of energy.

We can infer information about stars based on observations we make from Earth.

Unit Key Terminology & Definitions :	Isotopes
	Nuclear Fission
	Radioactive Decay
	Stable Nuclei
	Unstable Nuclei
	Half-life
	Types of Radiation
	Alpha, Beta, Gamma
	Nuclear Fusion
	Nucleus
	Energy
	Radiation
	Mass
	Lifetime
	Solar Flare
	Sunspot Cycle
	Core
STANDARDS:	STANDARDS State: Pennsylvania STEELS K-12 - Science (2022) 3.3.9-12.4 Payelon a model based on evidence to illustrate the l

Develop a model based on evidence to illustrate the life span & nbsp;
of the sun and the role of nuclear fusion in the sunOs core to
release energy in the form of radiation.
Develop models to illustrate the changes in the composition of
the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.

This Curriculum Map Unit has no Topics to display

Unit: History/Formation of Solar System

 Unit Description:
 Life Cycle of Stars

 The Early History of Earth (as it relates to the formation of the Solar System)

 Formation of the Geographic Surfaces of Earth

Unit Essential Questions: What is the universe, and what goes on in stars? How do people reconstruct and date events in Earth's planetary history? Why do the continents move, and what causes earthquakes and volcanoes? How and why is Earth constantly changing? How do Earth's major systems interact?

Unit Big Ideas:

We can infer information about stars based on observations we make from Earth.

We can infer Earth's planetary history by features we observe today.

Plate tectonics explains the past and current movements and features of the rocks at Earth's surface.

Changes we observe on Earth are the result of energy flowing and matter cycling between interconnected systems (the geosphere, hydrosphere, atmosphere, and biosphere).

Unit

Construct an explanation based on valid and reliable evidence obtained from a variety of Assignments: sources (including students' own investigations, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.

> Communicate scientific ideas (e.g. about phenomena and/or the process of development and the design and performance of a proposed process or system) in multiple formats (including orally, graphically, textually, and mathematically).

Evaluate evidence behind currently accepted explanations or solutions to determine the merits of arguments.

Apply scientific reasoning to link evidence to the claims to assess the extent to which the reasoning and data support the explanation or conclusion.

Develop a model based on evidence to illustrate the relationships between systems or between components of a system.

Analyze data using computational models in order to make valid and reliable scientific claims.

Unit Kev electromagnetic/light spectrum, radiation, Big Bang Theory, cosmic microwave background, Terminology & supernova, interstellar, redshift, nucleosynthesis, conservation, mass, emission and absorption, **Definitions**: spectra, elements, atoms, nuclei, protons, neutrons, plate tectonics, continental drift, erosion, crust, mid-ocean ridges, plate interactions, radiometric dating, magma, subduction, asteroid, meteor, meteorite, radioactive decay, impact craters, mountains, valleys, plateaus, trenches, ridges, seamounts, volcanism, mountain building, tectonic uplift, weathering, erosion, climate, geosphere, hydrosphere, atmosphere, biosphere, feedback, greenhouse gases, glacial ice, runoff, ground water, humidity, radiation

STANDARDS: STANDARDS

STANDARDS		
State: Pennsylvania	<u>STEELS K-12 - Science (2022)</u>	
3.3.9-12.B	Construct an explanation of the Big Bang theory based on	
(Advanced)	astronomical evidence of light spectra, the motion of distant galaxies, and the composition of matter in the universe.	
3.3.9-12.C	Communicate scientific ideas about the way stars, over their	
(Advanced)	life cycle, produce elements.	
3.3.9-12.F	Evaluate evidence of the past and current movements of	
(Advanced)	continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.	
3.3.9-12.G	Apply scientific reasoning and evidence from ancient Earth	
(Advanced)	materials, meteorites, and other planetary surfaces to construct an account of EarthÕs formation and early history.	
3.3.9-12.H	Analyze geoscience data to make the claim that one change to	
(Advanced)	Earth's surface can create feedback that causes changes to other Earth systems.	
3.3.9-12.J	Develop a model to illustrate how EarthÕs internal and surface	
(Advanced)	processes operate at different spatial and temporal scales to form continental and ocean-floor features.	

This Curriculum Map Unit has no Topics to display

Description:	Periodic Table
	Ionic Bonding
	Covalent Bonding
	Hydrogen Bonding
	Polarity
	Adhesion
	Cohesion
	Surface Tension
	Universal Solvent

Unit Essential Questions:

Unit

How do particles combine to form the variety of matter one observes? What underlying forces explain the variety of interactions observed?

How do the properties and movements of water shape Earth's surface and affect its systems?

Unit Big Ideas:

All forms of matter exist as a result of the combination or rearrangement of atoms.

All forces between objects, regardless of size or direction, arise from only a few types of interactions.

Water's presence and properties impact Earth's ecosystems and surface features.

Unit

Assignments: Use a model to predict the relationships between systems or between components of a system.

Construct and revise an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own investigations, models, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.

Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly.

Communicate scientific and technical information (e.g. about the process of development and the design and performance of a proposed process or system) in multiple formats (including orally, graphically, textually, and mathematically).

Unit Key
Terminology &
Definitions :proton, neutron, electron, atomic number, mass number, isotope, electron affinity, shielding
effect, electronegativity, atomic radius, ionization energy, valence electrons, electron shells,
octet rule, orbital diagrams, electron configuration, orbitals sublevels, reactants,
products, types of bonds, types of reactions reactivity, intermolecular forces, ions,
physical properties, coulomb’s law, Lewis dot structures, lattice
energy, molecular structure, conductivity, polarity, state of matter, friction, heat
capacity, density, solid, liquid, gas, vapor, polarity (molecular structure), air, stream table,
transportation, deposition, soil, moisture, chemical weathering, rust

STANDARDS:	STANDARDS
	<u> </u>

State: Pennsylvania	<u> STEELS K-12 - Science (2022)</u>	
3.3.9-12.K	Plan and conduct an investigation of the properties of water	
(Advanced)	and its effects on Earth materials and surface processes.	
3.2.9-12.A	Use the periodic table as a model to predict the relative	
(Advanced)	properties of elements based on the patterns of electrons in	
	the outermost energy level of atoms.	
3.2.9-12.B	Plan and conduct an investigation to gather evidence to	
(Advanced)	compare the structure of substances at the bulk scale to infer	

	3.2.9-12.C (Advanced) 3.2.9-12.N (Advanced)	the strength of electrical forces between particles. Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties. Communicate scientific and technical information about why the molecular- level structure is important in the functioning of	 -
	(designed materials.	
This Curriculum M	lap Unit has no Topic	s to display	
Unit: Chemica Unit Description:	I Reactions Types of Reactions Balancing/Energy Tra Rates of Reactions	ansfer	
Unit Essential	How do particles con	nhine to form the variety of matter one observes?&nhsp:	
Questionsi	How do substances of	combine or change (react) to make new substances?	
	How does one chara	cterize and explain these reactions and make predictions about	them?
Unit Big Ideas:	All forms of matter e	exist as a result of the combination or rearrangement of atoms.	
	The atoms of some s different properties.	substances combine or rearrange to form new substances that h	nave
Unit Assignments:	Develop a model bas components of a sys	sed on evidence to illustrate the relationships between systems tem.	or between
	Apply scientific princ design problems, tak	iples and evidence to provide an explanation of phenomena and king into account possible unanticipated effects.	l solve
	Use mathematical re	presentations of phenomena to support claims.	
Unit Key Terminology & Definitions :	energy transfers, typ reactions, reaction ra solubility, equi balancing equations,	bes of energy, bond and binding energy, collision theory, ate, reactants, solutions, temperature, concentration, ilibrium, percent yield, Le Chatelier's Principle, mo stoichiometry, law of conservation of matter	chemical lar mass,
STANDARDS:	STANDARDS		
	3.2.9-12.D (Advanced)	Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.	
	3.2.9-12.E (Advanced)	Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs	
	3.2.9-12.F (Advanced)	Refine the design of a chemical system by specifying a change in conditions that would produce increased amounts of products at equilibrium	
	3.2.9-12.G (Advanced)	Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.	

Unit: Force and Motion			
Description:	Distance vs. Displacement		
	Speed vs. Velocity,	Acceleration	
	Newton's Lav	NS	
	Universal Gravitation	n (Kepler's Laws)	
Unit Essential Questions:	How can one predic	t an object’:s continued motion, changes in motion, or st	abilitv?
Questions.	What underlying for	ces explain the variety of interactions observed?	abiiity :
	How are forces relat	red to energy?	
	What are the predic	table patterns caused by Earth’:s movement in the solar	system?
	that are the prease		system:
Unit Pig Idooc			
Unit Big Ideas.	A change in motion	of interacting objects can be explained and predicted by forces.	
	All forces between c interactions.	bjects, regardless of size or direction, arise from only a few type	es of
	Forces between obje	ects can result in transfer of energy between these objects.	
	Observations of the moon, sun and plan	sky can be explained by predictable patterns of the movement ets.	of Earth,
Unit Assignments:	Analyze data using t order to make valid	ools, technologies, and/or models (e.g., computational, mathen and reliable scientific claims or determine an optimal design sol	natical) in ution.
	Use mathematical re	epresentations of phenomena to describe explanations.	
	Plan and conduct ar	investigation individually and collaboratively to produce data to) serve as
	the basis for evidence needed to produce r data (e.g., nu	ce, and in the design: decide on types, how much, and accuracy reliable measurements and consider limitations on the precision mber of trials, cost, risk, time), and refine the design according	/ of data of the ly.
	Develop and use a r systems or between	nodel based on evidence to illustrate the relationships be components of a system.	tween
	Use mathematical or computational representations of phenomena to describe explanations.		anations.
Unit Key Terminology & Definitions :	force, system, speed causality, grav electric force, invers law, orbit, gra	d, velocity, acceleration, mass, net force, vector, scalar, magnituvitational force, newton's law of gravitation, Coulomb&rse square law, field, electric current, field, circuit, Lowity, satellites, laws, trajectory, eccentricity, ellipse (foci, axis)	ude, iquo;s Law, prentz force
STANDARDS:	STANDARDS		
	State: Pennsylvania 3.3.9-12.D (Advanced)	<u>STEELS K-12 - Science (2022)</u> Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.	
	3.2.9-12.I (Advanced)	Analyze data to support the claim that NewtonÖs second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration	
	3.2.9-12.L (Advanced)	Use mathematical representations of NewtonÕs Law of Gravitation and CoulombÕs Law to describe and predict the gravitational and electrostatic forces between objects.	
	3.2.9-12.M (Advanced)	Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.	
	3.2.9-12.S (Advanced)	Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between	

This Curriculum Map Unit has no Topics to display

Unit: Energy and Momentum

Unit	Kinetic vs. Potential Energy
Description:	Energy Conservation
	Thermodynamics
	Momentum Conservation
	Inelastic vs. Elastic Collisions

Unit Essential

Questions: How can one predict an object's continued motion, changes in motion, or stability?

What is energy?

What is meant by conservation of energy?

How is energy transferred between objects or systems?

Unit Big Ideas:

A change in motion of interacting objects can be explained and predicted by forces.

Energy can be modeled as either motions of particles or as being stored in force fields.

The total change of energy in any system is always equal to the total energy transferred into or out of the system.

Unit

Use mathematical representations of phenomena to describe explanations. Assignments:

> Apply scientific ideas to solve a design problem, taking into account possible unanticipated effects.

Create a computational model or simulation of a phenomenon, designed device, process, or system.

Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system.

Design, evaluate, and/or refine a solution to a complex real-world problem, based on scientific knowledge, student-generated sources of evidence, prioritized criteria, and tradeoff considerations.

Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly.

Unit Key	momentum, impulse, force, conservation, net force, elastic collision, inelastic
Terminology &	collision, time, impulse, momentum, collision, acceleration, kinetic energy,
Definitions :	mechanical energy, potential energy, energy transfer, system, conservation of
	energy, first law of thermodynamics, energy, second law of
	thermodynamics, thermal energy, heat, heat transfer

STANDARDS: STANDARDS

• · · · · · · · · · · · · · · · · · · ·		
State: Pennsylvania	STEELS K-12 - Science (2022)	
3.2.9-12.J	Use mathematical representations to support the claim that	
(Advanced)	the total momentum of a system of objects is conserved when there is no net force on the system.	
3.2.9-12.K	Apply scientific and engineering ideas to design, evaluate and	
(Advanced)	refine a device that minimizes the force on a macroscopic object during a collision.	

3.2.9-12.0 (Advanced)	Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.	
3.2.9-12.P (Advanced)	Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects).	
3.2.9-12.Q (Advanced)	Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.	
3.2.9-12.R (Advanced)	Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).	

This Curriculum Map Unit has no Topics to display

Unit: Waves	
Description:	Wave Speed
	Frequency
	Wavelength
	Electromagnetic Radiation
	Conduction
	Convention
	Weather (sub-unit)

Unit Essential

Questions: What are the characteristic properties and behaviors of waves?

What is light? How can one explain the varied effects that involve light? What other forms of electromagnetic radiation are there?

How are instruments that transmit and detect waves used to extend human senses?

What are the predictable patterns caused by Earth's movement in the solar system?

What regulates weather and climate?

Unit Big Ideas:

Waves are repeating patterns of motion that transfer energy and information without transferring matter.

Electromagnetic radiation (e.g., radio, microwaves, light) can be modeled as a wave pattern of changing electric and magnetic fields that interact with matter.

Useful modern technologies and instruments have been designed based on an understanding of waves and their interactions with matter.

Observations of the sky can be explained by predictable patterns of the movement of Earth, moon, sun and planets.

Weather and climate are influenced by interactions involving sunlight, the ocean, the atmosphere, ice, landforms, and living things.

Unit Assignments: Use mathematical representations of phenomena or design solutions to describe and/or support claims and/or explanations. Evaluate questions that challenge the premise(s) of an argument, the interpretation of a data set, or the suitability of a design.

Evaluate the claims, evidence, and reasoning behind currently accepted explanations or solutions to determine the merits of arguments.

Evaluate the validity and reliability of multiple claims that appear in scientific and technical texts or media reports, verifying the data when possible.

Communicate technical information or ideas (e.g. about phenomena and/or the process of development and the design and performance of a proposed process or system) in multiple formats (including orally, graphically, textually, and mathematically).

Use a model to provide mechanistic accounts of phenomena.

Analyze data using computational models in order to make valid and reliable scientific claims.

Unit Key

Terminology & medium, frequency, wave, wavelength, longitudinal wave, transverse wave, wave Definitions : speed, digital transmission, information, storage, wave behavior, digital transmission, information, storage, wave behavior, electromagnetic radiation, wave model of radiation, particle model of radiation, photon, electromagnetic wave, wave energy, wave absorption, digital transmission, wave interference, intensity, orbit, climate, axis, rotation, ice age, tectonic activity, circulation, glaciation, energy, sea-level, climate model, temperature, precipitation, pH, reversible

STANDARDS: STANDARDS

State: Pennsylvania	STEELS K-12 - Science (2022)	
3.3.9-12.E (Advanced)	Use a model to describe how variations in the flow of energy into and out of EarthÕs systems result in changes in climate.	
3.3.9-12.S (Advanced)	Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current	
	rate of global or regional climate change and associated future impacts to Earth systems.	
3.2.9-12.T	Use mathematical representations to support a claim	
(Advanced)	regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.	
3.2.9-12.U	Evaluate questions about the advantages of using digital	
(Advanced)	transmission and storage of information.	
3.2.9-12.V (Advanced)	Evaluate the claims, evidence, and reasoning behind the idea that electromagnetic radiation can be described either by a wave model or a particle model and that for some situations one model is more useful than the other	
3 2 9-12 W	Evaluate the validity and reliability of claims in published	&nhsn:
(Advanced)	materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter.	canoop/
3.2.9-12.X	Communicate technical information about how some	
(Advanced)	technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.	

This Curriculum Map Unit has no Topics to display

LAMPETER-STRASBURG SCHOOL DISTRICT Lampeter, Pennsylvania 17537-0428

Request Form to Use Commercial Videos

Date Submitted: 11/3/2023	Date Approved:
Teacher: Matthew Shockey	Building: High School
Grade(s): 9th Grade	Subject(s): American Cultures
Principal Approval (having viewed the video	2 *(Required prior to being presented to CIA Committee)
Number of times video will be shown:1	Entire Movie X Clips Only
If requesting "Clips Only" list scene(s)/counters to ident	ify clips requested for approval:
Recommend purchase for permanent collection: Yes	
Video Title (include version/copyright date etc.)	Fill Rating: PG-13

Parent prior-approval will be required prior to students viewing video/clips.

NR	Not Rated – Movie has never received a rating.
G	General Audience – All ages permitted.
PG	Parental Guidance suggested – Some material may not be suitable for children.
PG-13	Parents Strongly Cautioned – Some material may be inappropriate for children under 13.
R	Restricted – Under 17 requires accompanying parent or guardian.
NC-17	No Children Under 17 Admitted. (Formerly X-rated movies)

Please answer each question below individually.

1. In what ways does this video represent the *best* use of instructional time? What is the student learning objective and why is a movie the most appropriate resource to achieve this objective?

The murder of 14-year-old Emmett Till in 1955 garnered national attention, shedding light on the pervasive racial violence and injustice prevalent in Mississippi. By that year, African Americans across the United States, even in the segregated South, had already initiated their quest for justice. Emmett Till's tragic death served as a catalyst within the growing wave of activism and resistance, eventually crystallizing into the Civil Rights movement. The gruesome image of his battered body pushed many who had previously remained on the sidelines directly into the struggle for racial equality.

This film excels not only in retelling Emmett Till's story but also in establishing the brutal and deeply entrenched forms of racism that prevailed in the Deep South and other parts of the nation during that era. Only by immersing ourselves in the historical atmosphere of those decades can we truly comprehend and effectively teach the Civil Rights movement.

The movie is linked to the essential question #5 of the unit "Post WWII: The Cold War, Civil Rights, and Cultural Change." This essential question asks, "How did the emergence of the Civil Rights Movement in the 1950s and 1960s pave the way for human rights and freedoms for African Americans?"

As history educators, one of our most significant challenges is creating a historical context for the events we teach. For instance, understanding the Holocaust necessitates an examination of the deep-seated antisemitism prevalent in the 19th and 20th centuries. Similarly, the same principle applies to comprehending the Civil Rights Movement in the United States. We encounter difficulties in conveying the pervasive violence and racism of that time, which rendered the Civil Rights Movement an imperative force. Today's students, who have diverse friendships and relationships, often struggle to grasp a time when merely speaking to a white woman could result in a death sentence.

2. Please list the state standards and curricular connection associated with the video.

Standard - 8.3.9.A : Compare the role groups and individuals played in the social, political, cultural, and economic development of the U.S.

Standard - 8.3.9.D : Interpret how conflict and cooperation among groups and organizations have impacted the growth and development of the U.S.

- Ethnicity and race
- Working conditions
- Immigration
- Military conflict
- Economic stability
- 3. What instructional activities will be implemented to connect the video to the course's curricular content and/or standards?
 - Analysis of primary source documents
 - Exploration of its influence on the Civil Rights Movement
 - Examination of present-day issues linked to Emmett Till's story
 - Representation of Emmett Till in popular culture
- 4. What is the estimated amount of instructional time being devoted to the use of this video?

2 class periods

5. What other approved resources have you considered prior to requesting approval of this video (i.e. Safari Montage, Discovery Streaming, etc.)? Please provide a brief explanation of why this video was chosen over other approved options.

We have incorporated various resources in our curriculum, such as the 1987 documentary series "Eyes on the Prize," which is undeniably valuable. However, it may not resonate well with all students due to its age, as it is nearly 30 years old, which can be a deterrent for many. Alongside this, we have utilized primary source documents, including trial transcripts, and delivered lectures on the subject. While these sources remain valuable and will continue to be employed as secondary resources, the new film "Till" excels in reviving an "age-old" narrative,

making it more relatable to a younger audience, who often find it challenging to personally connect with historical stories.

6. If requesting the use of clips as opposed to the entire movie, please list the scenes and time counter placements of each requested scene.

Not applicable

 What questionable content is included in the video? (Please attach IMDB "Parent's Guide" information/ www.imdb.com)

> A "parent's guide" for Till is not available, so I have included information from the website "Common Sense Media"

Common Sense Media Age Recommendation: 13+ years

Positive Message 5/5

Reveals how a mother, through her grief, was able to draw national attention to evils of lynching and need for the civil rights movement. Shows how civil rights workers and all Black people in the South put their lives and privacy at risk simply by existing. Explores how individuals raised national consciousness about inequality in the South. Major themes include courage, empathy, integrity, self-control, perseverance.

Positive Role Models 5/5

Mamie is caring, brave, loving. She works hard to make sure she can not only pay tribute to her son but let people know how he was killed. She becomes an outspoken activist against lynching and segregation. Her partner, Gene Mobley, is supportive and understanding. As the NAACP field rep, Medgar Evers supports and encourages Mamie. Mamie's Southern family members each take a stand against what happened to Emmett.

Diverse Representation 5/5

This story is about a Black mother's love and courage and a reminder of how the Jim Crow South upheld White supremacy at all costs. Black people -- both individuals and families -grieve together after the horrific lynching of a child and then the injustice of a trial in which an all-White jury fails to convict the perpetrators. The director/co-writer is a Black woman.

Violence and Scariness 3/5

The bloated, battered dead body of Emmett Till is visible several times. Grieving mothers cry, wail, faint. A White woman points a rifle at her Black customers. Armed White men force their way into a Black family's home, threaten everyone, kidnap Emmett. A young man hears a boy screaming and later sees men holding a body.

Sex Romance and Nudity 1/5

An adult couple kiss and embrace.

Language 3/5

In the Mississippi scenes, there's frequent use of the "N" word by White men and women, including law enforcement, as well as the racial slur "uppity."

Drinking, Drugs and Smoking 2/5

Lots of characters smoke cigarettes. Adults drink recreationally (mostly beer) at meals. Teens seem to be holding drinks at an outdoor party.

8. How well does the content meet the maturity and interest level of your students?

The film excellently conveys a crucial historical narrative that is appropriate for a younger audience.

9. How well does the content deal or relate with situations in which your students find themselves? How free is the content of prejudices on controversial issues?

Because Emmett Till was 14 years old, the same age as most 9th graders, it provides students with a relatable point of connection to the material. The content is free from any elements that would be considered controversial by a modern audience.

10. How fairly and completely are controversial issues handled?

The themes explored in the film are not considered controversial by today's standards. The movie presents the issue of race in Mississippi and the United States with a high degree of historical accuracy.

11. How correct is the factual material of content?

It stands out as one of the most historically precise films I've had the pleasure of viewing. The movie meticulously reenacts iconic photographs and incorporates primary source materials in the trial scenes, a rarity in cinematic storytelling. The film is based on the book and documentary "The Untold Story of Emmett Louis Till" (2005) by Keith Beauchamp, who also played a significant role in co-writing the movie.

12. How accurate is the content in terms of plot, historical events, and/or character portrayals?

See response to question #11

Comments:

After reviewing the approved movies/films list we recommend the removal of the following movies.

Amazing Grace Bowling for Columbine Little Budda Rough Riders Sicko Signs The Chosen Whale Rider

State Budget 2023-24 Update....

Completed! December 13, 2024

House Bill 301 Signed by Governor 12.13.23

- Extends Act 91 Provisions
- Ends Plancon 1.0
- School Safety and Security Enhancements
- Substitute Teacher Flexibilities
- Classroom Monitors
- Student Teacher Grant Program \$10 million allocation, funding includes leftover recovery funds
- School Lunch and Breakfast Reimbursement
- School Security Changes (move to PCCD from PDE Safe Schools Office)
- School Safety and Security and School Mental Health Grants
- School Security Coordinator Training
- MOU
- Safe Schools Advocate

- EITC Funds
 - Changes from 80% to 90% Use of Funds (controls administrative fees to 10%)
 - Changes data reporting requirements
 - $\circ~$ Makes data publicly available
 - $\circ~$ Increases funds by \$150 million
- Funding for Public Libraries
- CTC Funding –\$14 million increase
- Payments to IUs
- Financially Distressed School funding
- Ready to Learn Block Grants
- Social Security Payments
- School Environmental Repairs
- School Police Officer Reporting
- Community College Reimbursement

Allocates...

- \$300+ million to libraries and community colleges
- \$100 million to school mental health services
- \$175 million to school facility repairs, such as mold and asbestos abatement,
 \$100 million comes from funding previously earmarked for the <u>Level Up program</u>.
- \$150 million increase to the <u>Educational Improvement Tax Credit</u> (EITC) and <u>Opportunity Scholarship Tax Credit (OSTC) programs</u>.
- \$10 million for Student Teacher Grant Program
- \$14 million increase to CTC funding

Senate Bill 843 Signed by Governor 12.13.23

- Extends Special Education Funding Commission to reconvene in 2026 (was 2024)
- Extends BEF Commission Report Date to January 11
- Public Job Posting Database for school entities
- Instructional Vacancy Data
- Data Transparency -Educator Workforce Data
- Interstate Teacher Mobility Compact
- Recovery High School

- Economic Education and Personal Finance – State Standards Review and Update
- Personal Finance Literacy Course mandatory starting 2026-27
- Pre-K Counts Reporting
- Attendance in other Districts (specific to Duquesne City tuition fix)
- Credit Card Education Requirement 2024-25 for Higher Education

- House Bill 1507- Providing our students flexible instructional time in school (Representative Topper)
- Current law requires all public kindergartens, elementary and secondary schools to be kept open for at least 180 days AND 900/990 hours each school year. This bill will change that requirement to 180 days OR 900/990 hours of instruction per year. (currently provided to charters, private schools and homeschooled students)
- Schools will be better equipped to be more creative and innovative in their practices!

On Governor's Desk for Signature as of 12.13.23

House Bill 1258 – Calculating ADM for College in the High School – Dual Enrollment Introduced by Kinsey and others.

Section 1525.1. Calculation of Average Daily Membership for a Dual Credit Course.--(a) Notwithstanding 22 Pa. Code § 11.5 (relating to part-time attendance for potential graduates) or any other provision of law, each high school student who is enrolled in a dual credit course through an institution of higher education and who does not leave their school entity during the school day to attend the dual credit course **may be included in the school entity's average daily membership**.

On Governor's Desk for Signature as of 12.13.23

House Bill 1478 - Public Health Dental Hygiene Practitioners (Introduced by Representative Cephas)

 An Act that amends the Public School Code of 1949 to allow public health dental hygiene practitioners to perform school dental screenings.

On Governor's Desk for Signature as of 12.13.23

Senate Bill 907 – 3rd Consideration

SB907 (Reagan) – <u>Armed School Security</u>

• Legislation that aims to enhance the protection of our children by implementing a security presence in all publicly funded schools.

- (a)Notwithstanding any other provision of law, beginning in the 2024-2025 school year, a school entity shall have at least one armed school security personnel on duty during the school day at each school building.
- (b) Extracurricular activities.--A governing body of a school entity may decide to have an armed school security personnel on duty at the school campus during extracurricular activities that occur outside of the school day School safety personnel will undergo background investigations, be required to maintain certification, and be annually certified in position-specific training.
- (e) Funding.--Money allocated to the School Safety and Security Fund for the School Safety and Security Grant Program may be used for the requirements of this section.
- (f) Waiver.--A school entity that is unable to meet the requirements in section 1316-C(a) may apply for a waiver to the committee. The committee may waive the requirements in the case of a school entity that provides an attestation that it acted in good faith but is unable to fulfill the criteria. A waiver shall expire one year after its approval by the committee.
- PASA Oppose for multiple reasons: Unfunded Mandate, Lack of certified personnel, local control.

Passed by the Senate Education Committee by majority vote on 12.13.23

Book	Policy Manual
Section	100 Programs
Title	Guides for Planned Instruction
Code	106
Status	Active
Adopted	February 4, 2019

<u>Authority</u>

Guides shall be prepared for all planned instruction adopted by the Board in order to direct and assist the professional staff toward the attainment of academic standards established for a course of study.[1][2]

Guidelines

Each guide may contain, as appropriate to that planned instruction:

- 1. Essential questions of the instruction.
- 2. Concepts and skills to be taught.
- 3. Suggested activities designed to achieve the essential questions.
- 4. Suggested methods of instruction.
- 5. Assessment criteria and methods intended to evaluate the extent to which learning objectives have been achieved.

6. Reading list of supplemental titles for the guidance of teachers. **Delegation of Responsibility**

Each teacher shall use the planned instruction guide as the core of the course s/he has been assigned to teach.

The Superintendent or designee shall be responsible for the preparation of guides, and shall develop administrative regulations for such preparation which include:

- 1. Participation by appropriate staff members and resource personnel.
- 2. Continuing research in instructional methods, materials, activities and assessment strategies.
- 3. Systematic review of all guides to ensure their continuing effectiveness in achieving established academic standards.

A system of administrative review shall be implemented to ensure that guides are being followed by teaching staff members to the degree of conformity required.

Copies of all current guides for planned instruction shall be kept on file in the office of the Superintendent or designee.

Legal <u>1. 22 PA Code 4.4</u>

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2. Pol. 107 24 P.S. 1511 24 P.S. 1512 22 PA Code 4.11 Pol. 000

Book	Policy Manual
Section	100 Programs
Title	Adoption of Planned Instruction
Code	107
Status	Active
Adopted	February 4, 2019

<u>Purpose</u>

The Board shall provide a comprehensive program of planned instruction to enable district students to achieve educational objectives and attain academic standards required for student achievement. Planned instruction shall consist of at least the following: [1][2][3][4][5]

- 1. Essential questions to be achieved by all students.
- 2. Content, including materials, activities and instructional time.
- 3. Relationship between essential questions of a planned course and established academic standards.

4. Procedure for measurement of attainment of essential questions and academic standards. **Authority**

No planned instruction shall be taught in district schools unless it has been adopted by a majority vote of the full Board. The Board reserves the right to determine which units of the instructional program constitute planned instruction and are subject to adoption by the Board.[6][7][8][9]

Delegation of Responsibility

The Superintendent or designee shall be responsible for continuous evaluation of the effectiveness of the district's planned instruction and shall recommend to the Board new and altered planned instruction deemed to be in the best interests of district students.

The Superintendent or designee shall invite the participation of administrative and professional staff members at appropriate levels in the formulation of recommendations.

The Superintendent or designee shall maintain a current list of all planned instruction offered by this district and shall furnish each Board member with a copy.

Legal

1. 22 PA Code 4.11 2. 22 PA Code 4.12 3. Pol. 102 4. Pol. 105 5. Pol. 106 6. 24 P.S. 508 7. 24 P.S. 1511 8. 24 P.S. 1512

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9. Pol. 006 24 P.S. 1512.1 Pol. 100

Book	Policy Manual
Section	100 Programs
Title	Adoption of Textbooks
Code	108
Status	Active
Adopted	February 4, 2019

<u>Authority</u>

The Board shall, by an affirmative vote of a majority of the full Board, adopt all textbooks used for instruction in the district's educational program. The Board shall establish a planned cycle of textbook review and replacement, as appropriate. [1][2][3][4]

Definition

Textbooks shall be defined as the books, in print or digital format, used as the basic source of information in the planned instruction.

Delegation of Responsibility

The Superintendent, after consultation with administrative and professional staff, shall be responsible for the selection and recommendation of textbooks for Board consideration. No adoption or change of textbooks shall be made without the Superintendent's recommendation, except by a two-thirds vote of the Board.[1][3][4]

The Superintendent or designee shall establish administrative regulations for reviewing, evaluating and selecting textbooks.

A list of all approved textbooks used in district schools shall be maintained by the Superintendent or designee and shall be available to Board members, district staff, students, parents/guardians and community members.[5]

Legal

 1. 24 P.S. 508

 2. 24 P.S. 801

 3. 24 P.S. 803

 4. Pol. 006

 5. Pol. 105.1

 22 PA Code 14.106

 24 P.S. 807.1

 Pol. 103.1

 Pol. 610

12/21/23, 9:35 AM

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