DELAWARE VALLEY SCHOOL DISTRICT

PLANNED INSTRUCTION

A PLANNED COURSE FOR:

Science

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Grade Level: 4

Date of Board Approval: _____2019_____

Planned Instruction

Title of Planned Instruction:

Science and Technology and Engineering Education

Subject Area: Science Grade: 4

Course Description:

This course of study will cover all science standards, assessment anchors, and eligible content set forth by the Commonwealth of Pennsylvania. Course content will include Nature of Science, Biological Science, Physical Science, Earth and Space Science, and Technology and Engineering Education.

Time/Credit for the Course: 1 Year

Curriculum Writing Committee: Brian Crowley, Tiffany Genovese, Kathy Tschop, Anne Wasko

PDE Science and Technology and Engineering concepts encompassed within this course:

What is science? Any study of science includes the search for understanding the natural world and facts, principles, theories and laws that have been verified by the scientific community and are used to explain and predict natural phenomena and events.

Acquiring scientific knowledge involves constructing hypotheses using observation and knowledge in the content area in order to formulate useful questions that provoke scientific inquiry. As a result of repeated, rigorous testing over time and applying multiple perspectives to a problem, consistent information emerges. A theory describes this verifiable event or phenomena. Theories are powerful elements in science and are used to predict other events. As theories lose their ability to predict, they are modified, expanded or generalized or incorporated into a broader theory.

Knowledge of what science is incorporates carefully developed and integrated components:

Nature of science – the ways in which scientists search for answers to questions and explanations of observations about the natural world; includes process knowledge of observing, classifying, inferring, predicting, measuring, hypothesizing, experimenting and interpreting data.

Unifying themes of science – concepts, generalizations and principles (e.g., systems, models, patterns, scale, and change) that result from and lead to inquiry.

Knowledge – facts, principles, theories and laws verifiable through scientific inquiry by the world community of scientists; includes physics, chemistry, earth science and biological sciences

Inquiry – an intellectual process of logic that includes verification of answers to questions about and explanation for natural objects, events and phenomena.

Process skills – Recognition by students how knowledge is acquired and applied in science by observing, classifying, inferring, predicting, measuring, computing, estimating, communicating, using space/time relationships, defining operationally, formulating hypotheses, testing and experimenting, designing controlled experiments, recognizing variables, manipulating variables, interpreting data, formulating models, designing models and producing solutions.

Problem solving – application of concepts to problems of human adaptation to the environment that often leads to recognition of new problems; has social implications and leads to person decision-making and action; a process which forms the link for interactions between scientific and technological results or findings; involves operational definitions, recognizing variables, formulating models and asking questions.

Scientific thinking – the disposition to suspend judgment, not make decisions and not take action until results, explanations or answers have been tested and verified with information.

Curriculum Map

Marking Period One – time range: 8 ½ weeks

Unit 1 - Nature of Science: 8 days
Overview: The science year begins with this brief overview of how science incorporates reasoning, analysis, tools, processes, procedures, systems, models, and patterns in observing the natural world around us.

Goals:
Understanding of:

- Know that science is a way of understanding the natural world through inquiry, observation, and verification
- Know that natural and human-made objects are made up of parts
- Know models as useful simplifications of objects or processes
- Illustrate patterns that regularly occur and reoccur in nature.
- Know that scale is an important attribute of natural and human-made objects, events, and phenomena
- Recognize change in natural and physical systems
- Identify and use the nature of scientific and technological knowledge
- Describe objects in the world using the five senses
- Recognize and use the elements of scientific inquiry to solve problems
- Recognize and use the technological design process to solve problems

Marking Periods 1 – 3: Upon the completion of Unit 1, one of either Units 2, 3, or 4 will be taught, dependent upon the rotation of the materials at that campus. It is not required that Units 2, 3, or 4 be taught in any fixed order, but that all Units 1 - 4 be completed by the end of Marking Period 3, in preparation for Science PSSA testing.

Unit 2 - Biology (includes **FOSS Environments** Module**):** 8 ½ weeks
Overview: All living things are made of parts that have specific functions. Different characteristics of plants and animals help some populations survive and reproduce in greater numbers.

Goals:
Understanding of:

- Organisms have unique characteristics and basic needs.
- Most living things need food, water, light, air, and a way to dispose of wastes.
- Energy is needed for all organisms to stay alive and grow.

- Parts of living things work together to carry out life functions.
- Each plant or animal has different structures that serve different functions in growth, survival, and reproduction.
- Plants and animals have life cycles that include being born, developing into adults, reproducing, and eventually dying. The details of this life cycle are different for different organisms.
- Plants and animals closely resemble their parents.
- Understand the parts of the food and fiber system.
- How to work collaboratively.
- How to design and conduct an investigation or experiment to answer a question.
- How to write a claim based on evidence, draw a conclusion, and engage in argumentation?

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Unit 3 - Physics (includes **FOSS Energy and Electromagnetism** Module): 8 ½ weeks
Overview: Energy exists in many forms and can be changed from one form to another (transformed) as it moves through a system. A force is required to change an object's speed or direction. Magnets and electricity produce related forces. Matter has observable and measurable physical properties.

Goals:
Understanding of:

- Energy can be found in moving objects, light, sound, and heat.
- Light from the sun is an important source of energy for living and nonliving systems, and some source of energy is needed for all organisms to stay alive and grow.
- Vibrating objects make sound, and sound can make things vibrate.
- The bigger the vibration, the louder the sound. The faster the vibrations, the higher the perceived pitch.
- To have a sound you need to have a source, a medium, and a receiver.
- Moving objects in contact with each other produce heat, and electrical, mechanical, and living things often produce heat.
- When warmer things are put with cooler things, the warmer things get cooler and the cooler things get warmer until all are at the same temperature.
- Electric circuits may produce or use light, heat, sound and magnetic energy.
- Electric circuits require a closed pathway through which an electric current can pass.
- Materials have different properties.
- Some materials transfer heat more rapidly than others or some materials conduct electricity better than others.
- An object's change in position can be observed and measured.

- Changes in speed or direction of motion are caused by forces.
- An object's position can be described in terms of its relationship to another object or a stationary background.
- The greater the force, the greater the change in motion.
- Magnets attract or repel other magnets.
- Magnets attract certain kinds of materials.
- Forces can attract or repel other objects.
- Electric charges flowing through a wire can produce a measurable force on magnets and other objects.
- Matter has observable and measurable physical properties.
- Matter occurs in several states.
- Matter is composed of parts too small to be seen without magnification.

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Unit 4 - Earth and Space Science (includes **FOSS Sun, Moon, and Planets** Module**):** 8 ½ weeks
Overview: The earth system changes constantly as air, water, soil, and rock interact, and the earth is a part of a larger sun, earth, moon system.

Goals:
Understanding of:

- Know that science is a way of understanding the natural world through inquiry, observation, and verification
- Know that natural and human-made objects are made up of parts
- Know models as useful simplifications of objects or processes
- Illustrate patterns that regularly occur and reoccur in nature.
- Know that scale is an important attribute of natural and human-made objects, events, and phenomena
- Recognize change in natural and physical systems
- Identify and use the nature of scientific and technological knowledge
- Describe objects in the world using the five senses
- Recognize and use the elements of scientific inquiry to solve problems
- A system is made of parts, and the parts can interact.
- Anything on or near the earth is pulled downward by the earth's gravity.
- Objects in the sky have patterns of movement that can be observed.
- The Earth rotates on its axis once every 24 hours, giving rise to the cycle of night and day.
- The Earth's rotation causes the sun, moon, stars, and planets to appear to orbit the Earth once each day.
- When liquid water disappears, it turns into a gas (water vapor) in the air.

- It can reappear as a liquid when cooled or as a solid when cooled further.
- Clouds and fog are made up of tiny water droplets or ice crystals.
- When such droplets or crystals get large enough, they fall as precipitation.
- Water from precipitation can seep into the ground, run off, or evaporate.
- Most groundwater eventually flows through streams, rivers and lakes and returns to the ocean.

Marking Period Four – Overview with time range: 7 weeks

Overview: Following the Science PSSA testing week, earlier omitted lessons/investigations may be taught. (See Marking Period One for Goals)

Unit 2: Biology
Macmillan: *Science, A Closer Look* text: Unit A Chapter 1: *L1: Plant and Animal Cells *L2: Classifying Living Things
Macmillan: *Science, A Closer Look* text: Unit A Chapter 2: *L1: Invertebrates *L2: Vertebrates
FOSS Environments Module ***Investigation 3: Brine Shrimp Hatching** *3.1: Setting Up the Experiment *3.2: Determining a Range of Tolerance *3.3: Determining Viability *3.4: Variation in a Population *Inv. 3 I-Check
Unit 3: Physical Science
Macmillan: *Science, A Closer Look* text: Unit E Chapter 10: *L2: Mixtures *L3: Compounds
Macmillan: *Science, A Closer Look* text: Unit F Chapter 11: *L4: Simple Machines
FOSS Energy and Electromagnetism **Investigation 2: Series and Parallel** *2.4: Solar Cells in Series and Parallel
FOSS Energy and Electromagnetism ***Investigation 4: Electromagnetism** *4.1: Building an Electromagnet *4.2: Changing the Strength

*4.3: Reinventing the Telegraph Inv. 4 I-Check
FOSS Energy and Electromagnetism * Investigation 5: Light Insight *5.1: Light Travels (if not taught earlier) *5.2: Seeing Colors Inv. 5 I-Check
Unit 4: Earth and Space Science
FOSS Sun, Moon, and Planets Module *Investigation 3: The Solar System *3.1: Solar System Cards *3.2: Solar System Gravity Inv. 3 I-Check
FOSS Sun, Moon, and Planets Module *Investigation 4: Patterns in the Sky *4.1: Star Patterns *4.2: Studying Stars Inv. 4 I-Check

Curriculum Plan

Unit 1: Nature of Science

Time Range: 8 days

The Nature of Science concepts are intentionally taught first as a brief, separate unit to establish a common science language and familiarity with the scientific process.

Standards Addressed:

www.ped.sas.org

Overview: Nature of Science introduces the ways in which scientists search for answers to questions and explanations of observations about the natural world; includes process knowledge of observing, classifying, inferring, predicting, measuring, hypothesizing, experimenting and interpreting data.

Goal #1: Identify and explain the application of scientific, environmental, or technological knowledge to possible solutions to problems.

Objectives: Students will be able to:

- Distinguish between a scientific fact and an opinion, providing clear explanations that connect observations and results (e.g., a scientific fact can be supported by making observations).
- Identify and describe examples of common technological changes past to present in the community (e.g., energy production, transportation, communications, agriculture, packaging materials) that have either positive or negative impacts on society or the environment.

<table>
<tr><td colspan="2">PSSA Finish Line, content can be utilized as printed packets for each student or accessed online through laptops, overhead viewers, Smartboards, or other media.</td></tr>
<tr><td>PSSA Finish Line Nature of Science Lessons:
1. Reasoning in Science</td><td>● KWL, graphic organizers, concept maps, group discussion
● Direct instruction, modeling
● Cooperative learning, collaborative groups
● Inquiry
● Hands-on manipulatives, tools
● Independent learning
● Reciprocal teaching</td></tr>
<tr><td colspan="2">MacMillan: Science, A Closer Look Text: Be a Scientist</td></tr>
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Goal #2: Recognize and describe change in natural or human-made systems and the possible effects of those changes.

Objectives: Students will be able to:

- Observe and record change by using time and measurement.
- Describe relative size, distance, or motion.
- Observe and describe the change to objects caused by temperature change or light.
- Explain what happens to a living organism when its food supply, access to water, shelter, or space is changed (e.g., it might die, migrate, change behavior, eat something else).
- Provide examples, predict, or describe how everyday human activities (e.g., solid waste production, food production and consumption, transportation, water consumption, energy production and use) may change the environment.

Core Activities for Nature of Science	**Corresponding Instructional Methods**
PSSA Finish Line, content can be utilized as printed packets for each student or accessed online through laptops, overhead viewers, Smartboards, or other media.	
PSSA Finish Line Nature of Science Lessons: 2. Analysis in Science	● KWL, graphic organizers, concept maps, group discussion ● Direct instruction, modeling ● Cooperative learning, collaborative groups ● Inquiry ● Hands-on manipulatives, tools ● Independent learning ● Reciprocal teaching
MacMillan: *Science, A Closer Look Text:* Be a Scientist	

Goal #3: Apply skills necessary to conduct an experiment or design a solution to solve a problem.

Objectives: Students will be able to:

- Generate questions about objects, organisms, or events that can be answered through scientific investigations.
- Design and describe an investigation (a fair test) to test one variable.
- Observe a natural phenomenon (e.g., weather changes, length of daylight/night, movement of shadows, animal migrations, growth of plants), record observations, and then make a prediction based on those observations.
- State a conclusion that is consistent with the information/data.

Core Activities for Nature of Science	Corresponding Instructional Methods
PSSA Finish Line, content can be utilized as printed packets for each student or accessed online through laptops, overhead viewers, Smartboards, or other media.	
PSSA Finish Line Nature of Science Lessons: 3. Processes and procedures of Scientific Investigations	● KWL, graphic organizers, concept maps, group discussion ● Direct instruction, modeling ● Cooperative learning, collaborative groups ● Inquiry ● Hands-on manipulatives, tools ● Independent learning ● Reciprocal teaching
MacMillan: *Science, A Closer Look Text:* Be a Scientist	

Goal #4: Identify appropriate instruments for a specific task and describe the information the instrument can provide.

Objectives: Students will be able to:

- Identify appropriate tools or instruments for specific tasks and describe the information they can provide (e.g., measuring: length - ruler, mass - balance scale, volume - beaker, temperature - thermometer; making observations: hand lens, binoculars, telescope).

Core Activities for Nature of Science	Corresponding Instructional Methods
PSSA Finish Line, content can be utilized as printed packets for each student or accessed online through laptops, overhead viewers, Smartboards, or other media.	
PSSA Finish Line Nature of Science Lessons: 4. Tools in Scientific Investigations	● KWL, graphic organizers, concept maps, group discussion ● Direct instruction, modeling ● Cooperative learning, collaborative groups ● Inquiry ● Hands-on manipulatives, tools ● Independent learning ● Reciprocal teaching
MacMillan: *Science, A Closer Look Text:* Be a Scientist	

Goal #5: Identify systems and describe relationships among parts of a familiar system (e.g., digestive system, simple machines, water cycle).

Objectives: Students will be able to:

- Categorize systems as either natural or human-made (e.g., ballpoint pens, simple electrical circuits, plant anatomy, water cycle).

- Explain a relationship between the living and nonliving components in a system (e.g., food web, terrarium).
- Categorize the parts of an ecosystem as either living or nonliving and describe their roles in the system.
- Identify the parts of the food and fiber systems as they relate to agricultural products from the source to the consumer.

Core Activities for Nature of Science	Corresponding Instructional Methods
PSSA Finish Line, content can be utilized as printed packets for each student or accessed online through laptops, overhead viewers, Smartboards, or other media.	
PSSA Finish Line Nature of Science Lessons: **5.** Systems	● KWL, graphic organizers, concept maps, group discussion ● Direct instruction, modeling ● Cooperative learning, collaborative groups ● Inquiry ● Hands-on manipulatives, tools ● Independent learning ● Reciprocal teaching
MacMillan: *Science, A Closer Look Text:* Be a Scientist	

Goal #6: Use models to illustrate simple concepts and compare the models to what they represent.

Objectives: Students will be able to:

- Identify what different models represent (e.g., maps show physical features, directions, distances; globes represent Earth; drawings of watersheds depict terrain; dioramas show ecosystems; concept maps show relationships of ideas).
- Use models to make observations to explain how systems work (e.g., water cycle, Sun-Earth-Moon system).
- Use appropriate, simple modeling tools and techniques to describe or illustrate a system (e.g., two cans and string to model a communications system, terrarium to model an ecosystem).

Core Activities for Nature of Science	Corresponding Instructional Methods
PSSA Finish Line, content can be utilized as printed packets for each student or accessed online through laptops, overhead viewers, Smartboards, or other media.	
PSSA Finish Line Nature of Science Lessons: **6.** Models	● KWL, graphic organizers, concept maps, group discussion ● Direct instruction, modeling ● Cooperative learning, collaborative groups ● Inquiry ● Hands-on manipulatives, tools

	● Independent learning ● Reciprocal teaching
MacMillan: *Science, A Closer Look Text:* Be a Scientist	

Goal #7: Identify and make observations about patterns that regularly occur and reoccur in nature.

Objectives: Students will be able to:

- Identify and describe observable patterns (e.g., growth patterns in plants, weather, water cycle).
- Predict future conditions/events based on observable patterns (e.g., day/night, seasons, sunrise/sunset, lunar phases).

Core Activities for Nature of Science	**Corresponding Instructional Methods**
PSSA Finish Line, content can be utilized as printed packets for each student or accessed online through laptops, overhead viewers, Smartboards, or other media.	
PSSA Finish Line Nature of Science Lessons: 7. Patterns	● KWL, graphic organizers, concept maps, group discussion ● Direct instruction, modeling ● Cooperative learning, collaborative groups ● Inquiry ● Hands-on manipulatives, tools ● Independent learning ● Reciprocal teaching
MacMillan: *Science, A Closer Look Text:* Be a Scientist	

Supplemental materials if available:

Science Prep Workbooks

www.pde.sas.org

Assessments:

Diagnostic: Scientific Method Pretest, KWL

Formative: Itś Your Turn daily lesson quiz, exit ticket, observation

Summative: Nature of Science comprehensive unit test, science journal, project/models

Extensions:

Journals

Projects

Independent research

Reciprocal teaching

Correctives:

Provide manipulatives and hands-on activities to support the core activities
Reciprocal teaching
Scaffolding in collaborative groups

Materials and Resources:

PSSA Finish Line
MacMillan: A Closer Look textbook
Science Prep Workbooks

Unit 2: Biology

Time Range: 8 ½ weeks

Standards Addressed: www.pde.sas.org

Overview:

Biology of organisms and cells concerns living things, their appearance, different types of life, the scope of similarities and differences, where they live and how they live. Living things are made of the same components as all other matter, involve the same kinds of transformations of energy and move using the same basic kinds of forces as described in chemistry and physics standards. Through the study of the diversity of life, students learn how life has evolved. This great variety of life forms continues to change even today as genetic instructions within cells are passed from generation to generation, yet the amazing integrity of most species remain.

Goal #1: Identify and describe similarities and differences between living things and their life processes.

Objectives: Students will be able to:

- Identify life processes of living things (e.g., growth, digestion, respiration).
- Compare similar functions of external characteristics of organisms (e.g., anatomical characteristics: appendages, type of covering, body segments).
- Describe basic needs of plants and animals (e.g., air, water, food).
- Describe how different parts of a living thing work together to provide what the organism needs (e.g., parts of plants: roots, stems, leaves).
- Describe the life cycles of different organisms (e.g., moth, grasshopper, frog, seed-producing plant).

Core Activities for Biology	**Corresponding Instructional Methods**
***** PSSA Finish Line and Macmillan core activities may be taught separately or paired with appropriate FOSS investigations as needed.*	
PSSA Finish Line Biological Science Lessons: 1. Similarities Between Plants and Animals 2. Differences Between Plants and Animals	● KWL, graphic organizers, concept maps, group discussion ● Direct instruction, modeling ● Cooperative learning, collaborative groups ● Inquiry ● Hands-on manipulatives, tools ● Independent learning ● Reciprocal teaching
FOSS Environments Module **Module Pretest/Survey** **Investigation 1: Environmental Factors** 1.1: Observing Mealworms	

1.2: Designing an Isopod Experiment 1.3: Leaf-Litter Critters Inv. 1: I-Check	
FOSS Environments Module **Investigation 4: Range of Tolerance** 4.1: Water or Salt Tolerance of Plants 4.2: Plant Patterns 4.3: Plant Attractions	Journals, word wall, collaborative groups conduct investigations to answer focus questions, write claims supported with evidence, draw conclusions, and engage in argumentation, close read FOSS/related literature
Module Posttest/Survey	

Goal #2: Identify and explain how adaptations help organisms to survive.

Objectives: Students will be able to:

- Identify characteristics for plant and animal survival in different environments (e.g., wetland, tundra, desert, prairie, deep ocean, forest).
- Explain how specific adaptations can help a living organism survive (e.g., protective coloration, mimicry, leaf sizes and shapes, ability to catch or retain water).

Core Activities for Biology	**Corresponding Instructional Methods**
***** PSSA Finish Line and Macmillan core activities may be taught separately or paired with appropriate FOSS investigations as needed.*	
PSSA Finish Line Biological Science Lessons: 3. Adaptations	● KWL, graphic organizers, concept maps, group discussion ● Direct instruction, modeling ● Cooperative learning, collaborative groups ● Inquiry ● Hands-on manipulatives, tools ● Independent learning ● Reciprocal teaching
Macmillan: *Science, A Closer Look* text: Unit B Chapter 4: L1: Animal Adaptations L2: Plant Adaptations L3: Changes in Ecosystems Unit B Ch 4 Summative Assessment	
Generation Genius (online) L: Adaptation and the Environment	● DIY hands-on activities are virtually found ● Vocabulary ● exit tickets ● Kahoot ● paper quizzes ● discussion questions ● additional reading materials
Module Posttest/Survey	

Goal #3: Identify that characteristics are inherited and, thus, offspring closely resemble their parents.

Objectives: Students will be able to:

- Identify physical characteristics (e.g., height, hair color, eye color, attached earlobes, ability to roll tongue) that appear in both parents and could be passed onto offspring.

Core Activities for Biology	**Corresponding Instructional Methods**
***** PSSA Finish Line and Macmillan core activities may be taught separately or paired with appropriate FOSS investigations as needed.*	
PSSA Finish Line Biological Science Lessons: 4. Inherited Characteristics	● KWL, graphic organizers, concept maps, group discussion ● Direct instruction, modeling ● Cooperative learning, collaborative groups ● Inquiry ● Hands-on manipulatives, tools ● Independent learning ● Reciprocal teaching
Macmillan: *Science, A Closer Look* text: **Unit A Chapter 1:** *L1: Plant and Animal Cells *L2: Classifying Living Things L3: Plant Kingdom (plant part functions) L4: How Seed Plants Reproduce Unit A Ch 1 Summative Assessment *(L1, L2 are not PSSA tested content and can be later taught as an extension.)	
Module Posttest/Survey	

Goal #4: Identify and describe living and nonliving things in the environment and their interaction.

Objectives: Students will be able to:

- Describe the living and nonliving components of a local ecosystem (e.g., lentic and lotic systems, forest, cornfield, grasslands, city park, playground).
- Describe interactions between living and nonliving components (e.g. plants – water, soil, sunlight, carbon dioxide, temperature; animals – food, water, shelter, oxygen, temperature) of a local ecosystem.

Core Activities for Biology	**Corresponding Instructional Methods**
***** PSSA Finish Line and Macmillan core activities may be taught separately or paired with appropriate FOSS investigations as needed.*	
PSSA Finish Line Biological Science Lessons: 5. Ecosystems	● KWL, graphic organizers, concept maps, group discussion ● Direct instruction, modeling ● Cooperative learning, collaborative groups

	● Inquiry ● Hands-on manipulatives, tools ● Independent learning ● Reciprocal teaching
Macmillan: *Science, A Closer Look* text: **Unit B Chapter 3:** L1: Introduction to Ecosystems L2: Biomes L3: Relationships in Ecosystems Unit B Ch 3 Summative Assessment	
FOSS Environments Module **Investigation 2: Ecosystems (Online)** 2.1: Designing an Aquarium 2.2: Food Chains and Food Webs 2.3: Population Simulation 2.4: Kelp Forest Food Web Inv. 2: I-Check	
Generation Genius (online) **L: Ecosystems** **L: Food Webs**	● DIY hands-on activities are virtually found ● Vocabulary ● exit tickets ● Kahoot ● paper quizzes ● discussion questions ● additional reading materials
Module Posttest/Survey	

Goal #5: Describe, explain, and predict change in natural or human-made systems and the possible effects of those changes on the environment.

Objectives: Students will be able to:

- Describe what happens to a living thing when its habitat is changed.
- Describe and predict how changes in the environment (e.g., fire, pollution, flood, building dams) can affect systems.
- Explain and predict how changes in seasons affect plants, animals, or daily human life (e.g., food availability, shelter, mobility).

Core Activities for Biology	**Corresponding Instructional Methods**
***** PSSA Finish Line and Macmillan core activities may be taught separately or paired with appropriate FOSS investigations as needed.*	
PSSA Finish Line Biological Science Lessons: 6. Natural and Human Changes to Ecosystems	● KWL, graphic organizers, concept maps, group discussion ● Direct instruction, modeling ● Cooperative learning, collaborative groups ● Inquiry ● Hands-on manipulatives, tools ● Independent learning ● Reciprocal teaching
Macmillan: *Science, A Closer Look* text: **Unit A Chapter 2:** *L1: Invertebrates	

*L2: Vertebrates L3: Systems in Animals L4: Animal Life Cycles Unit A Ch 2 Summative Assessment *(L2, L3 are not PSSA tested content and can be later taught as an extension.)	
Module Posttest/Survey	

Goal #6: Identify and describe human reliance on the environment at the individual or the community level.

Objectives: Students will be able to:

- Identify everyday human activities (e.g., driving, washing, eating, manufacturing, farming) within a community that depend on the natural environment.
- Describe the human dependence on the food and fiber systems from production to consumption (e.g., food, clothing, shelter, products).
- Identify biological pests (e.g., fungi – molds, plants – foxtail, purple loosestrife, Eurasian water milfoil; animals – aphides, ticks, zebra mussels, starlings, mice) that compete with humans for resources.
- Identify major land uses in the urban, suburban and rural communities (e.g., housing, commercial, recreation).
- Describe the effects of pollution (e.g., litter) in the community.

Core Activities for Biology	**Corresponding Instructional Methods**
***** *PSSA Finish Line and Macmillan core activities may be taught separately or paired with appropriate FOSS investigations as needed.*	
PSSA Finish Line Biological Science Lessons: 7. Agriculture	● KWL, graphic organizers, concept maps, group discussion ● Direct instruction, modeling ● Cooperative learning, collaborative groups ● Inquiry ● Hands-on manipulatives, tools ● Independent learning ● Reciprocal teaching
Module Posttest/Survey	

Assessments:

Diagnostic: observation, question and answer, KWL, FOSS Environments Module pretest/survey, focus question prediction in journal

Formative: FOSS I-Checks for each investigation, journal, line of learning (l0l) in journals, embedded assessments, observation, Macmillan study guide entries and quizzes, argumentation, Generation Genius paper quiz and exit ticket, Finish Line: It's Your Turn Lesson checks
Summative: FOSS Environments Module Posttest/Survey, journal, written science claims, Macmillan chapter test, biome model and research project, Finish Line: Biological Sciences Review

Extensions: FOSS language and math extensions at the end of each investigation, small group collaboration, reciprocal teaching (peer, pair, share), fossweb.com activities, independent research, Generation Genius DIY activities, kahoot, and discussion questions
Correctives: fossweb.com online tutorials, peer tutors, small group collaboration, reciprocal teaching (peer, pair, share), journal sentence frames, gallery walk to observe others' journal entries, close read FOSS text/literature

Materials and Resources:
Science Journals
FOSS Environments Module and Textbooks
Living organisms ordered from FOSS 3 weeks in advance
Fossweb.com (online activities and resources)
Teacher-Created Word Wall
Macmillan, Science, A Closer Look Textbooks
Finish Line
Generation Genius
Science Prep Workbooks
www.pdesas.org

Unit 3: Physical Science **Time Range:** 8 ½ weeks

Standards Addressed: www.pde.sas.org

Overview: Physics and chemistry involve the study of objects and their properties. Students examine changes to materials during mixing, freezing, heating, and dissolving and then learn how to observe and measure results. In chemistry students study the relationships between properties and the structure of matter. Laboratory investigations of chemical interactions provide a basis for students to understand atomic theory and their applications in business, agriculture and medicine. Physics deepens the understanding of the structure and properties of materials and includes atoms, waves, light, electricity, magnetism and the role of energy, forces and motion.

Goal #1: Describe observable physical properties of matter.

Objectives: Students will be able to:

- Use physical properties [e.g., mass, shape, size, volume, color, texture, magnetism, state (i.e., solid, liquid, and gas), conductivity (i.e., electrical and heat)] to describe matter.
- Categorize/group objects using physical characteristics.

Core Activities for Physical Science –	**Corresponding Instructional Methods**
Finish Line L1: Properties of Matter	● KWL, graphic organizers, concept maps, group discussion ● Direct instruction, modeling ● Cooperative learning, collaborative groups ● Inquiry ● Hands-on manipulatives, tools ● Independent learning ● Reciprocal teaching
Macmillan: Science, A Closer Look text: **Unit E Chapter 9:** L1 Describing Matter L2 Measurement L3 Classifying Matter Unit E Ch 9 Summative Assessment**,** journal	Preview lesson, read aloud (or independently), take notes, collaborative groups complete scaffolded study guides, share completed study guides Engage: See TMp408B for hands-on activities
Macmillan: *Science, A Closer Look* text: **Unit E Chapter 10:** L1: How Matter Can Change *L2: Mixtures *L3: Compounds *(L2, L3 are not PSSA tested content and can be later taught as an extension.)	Preview lesson, read aloud (or independently), take notes, collaborative groups complete scaffolded study guides, review completed study guides Engage: See TMp442B for hands-on activities, journal

Unit E Ch 10 Summative Assessment	
Generation Genius (online) L: Chemical and Physical Property Change L: Properties of Matter	● DIY hands-on activities are virtually found ● Vocabulary ● exit tickets ● Kahoot ● paper quizzes ● discussion questions ● additional reading materials
Module Posttest/Survey	

Goal #2 Recognize basic energy types and sources, or describe how energy can be changed from one form to another.

Objectives: Students will be able to:

- Identify energy forms, energy transfer, and energy examples (e.g., light, heat, electrical).
- Describe the flow of energy through an object or system (e.g., feeling radiant heat from a light bulb, eating food to get energy, using a battery to light a bulb or run a fan).
- Recognize or illustrate simple direct current series and parallel circuits composed of batteries, light bulbs (or other common loads), wire, and on/off switches.
- Identify characteristics of sound (e.g., pitch, loudness, reflection).

Core Activities for Physical Science –	**Corresponding Instructional Methods**
Finish Line L2: Forms of Energy L3: Changing Energy from One form to Another	● KWL, graphic organizers, concept maps, group discussion ● Direct instruction, modeling ● Cooperative learning, collaborative groups ● Inquiry ● Hands-on manipulatives, tools ● Independent learning ● Reciprocal teaching
Macmillan: *Science, A Closer Look* text: **Unit F Chapter 12:** *L2: Sound (Can be integrated with FOSS Inv. 1.4: Presence of Energy.) L3: Light (or FOSS Inv. 5.1: Light Travels) Unit F Ch 12 Summative Assessment	Preview lesson, read aloud (or independently), take notes, collaborative groups complete scaffolded study guides, review completed study guides Engage: See TMp480B for hands-on activities, journal
FOSS Energy and Electromagnetism **Module Pretest/Survey** **Investigation 1: Energy and Circuit** 1.1: Lighting a Bulb 1.2: Energy on the Move 1.3: Conductors and Insulators 1.4: Presence of Energy	***See FOSS TMp39 for Suggested Schedule of 10 weeks.** Begin journals, word wall, collaborative groups conduct investigations to answer focus questions, write claims supported with evidence, draw conclusions, and engage in argumentation, close read FOSS/related literature

Inv. 1 I-Check	
FOSS Energy and Electromagnetism **Investigation 2: Series and Parallel** 2.1: Building Series Circuits 2.2: Building Parallel Circuits 2.3: Solving the String-of-Lights Problem *2.4: Solar Cells in Series and Parallel (Inv. 2.4 is not PSSA tested content and can be later taught as an extension.) Inv. 2 I-Check	Journals, word wall, collaborative groups conduct investigations to answer focus questions, write claims supported with evidence, draw conclusions, and engage in argumentation, close read FOSS/related literature
FOSS Energy and Electromagnetism **Investigation 5: Light Insight** *5.1: Light Travels (Properties of light energy **are** PSSA tested content. Either **FOSS Inv. 5.1** or **Macmillan Unit F Ch. 12 L3 Light** may be taught.) *5.2: Seeing Colors *(Inv. 5 is not PSSA tested content and can be later taught as an extension.)	Journals, word wall, collaborative groups conduct investigations to answer focus questions, write claims supported with evidence, draw conclusions, and engage in argumentation, close read FOSS/related literature
Generation Genius (online) L: Energy Transfer	● DIY hands-on activities are virtually found ● Vocabulary ● exit tickets ● Kahoot ● paper quizzes ● discussion questions ● additional reading materials
Module Posttest/Survey	

Goal #3: Identify and describe different types of force and motion resulting from these forces, or the effect of the interaction between force and motion.

Objectives: Students will be able to:

- Describe changes in motion caused by forces (e.g., magnetic, pushes or pulls, gravity, friction). Compare the relative movement of objects or describe types of motion that are evident (e.g., bouncing ball, moving in a straight line, back and forth, merry-go-round).
- Describe the position of an object by locating it relative to another object or a stationary background (e.g., geographic direction, left, up).

Core Activities for Physical Science –	**Corresponding Instructional Methods**
Finish Line L4: Principles of Force and Motion	● KWL, graphic organizers, concept maps, group discussion ● Direct instruction, modeling ● Cooperative learning, collaborative groups ● Inquiry ● Hands-on manipulatives, tools

	● Independent learning ● Reciprocal teaching
Macmillan: *Science, A Closer Look* text: **Unit F Chapter 11:** L1: Motion and Forces L2: Changing Motion L3: Work and Energy *L4: Simple Machines *(L4 is not PSSA tested content and can be later taught as an extension) Study Island: Relative Object, Motion, and Position Unit F Ch 11 Summative Assessment	Preview lesson, read aloud (or independently), take notes, collaborative groups complete scaffolded study guides, review completed study guides Engage: See TMp480B for hands-on activities, journal
FOSS Energy and Electromagnetism **Investigation 3: The Force of Magnetism** 3.1: Magnets and Materials 3.2: Magnets Interact 3.3: Magnetic Fields 3.4: Magnetic Force *3.5: Magnets Outdoors (*Inv. 3.5 is not PSSA tested content and may be later taught as an extension.) Inv. 3 I-Check	Journals, word wall, collaborative groups conduct investigations to answer focus questions, write claims supported with evidence, draw conclusions, and engage in argumentation, close read FOSS/related literature
FOSS Energy and Electromagnetism **Investigation 4: Electromagnetism** *4.1: Building an Electromagnet *4.2: Changing the Strength *4.3: Reinventing the Telegraph (Energy and magnetism as related forces are not PSSA tested content and can be later taught as an extension.) Inv. 4 I-Check	Journals, word wall, collaborative groups conduct investigations to answer focus questions, write claims supported with evidence, draw conclusions, and engage in argumentation, close read FOSS/related literature
Generation Genius: (online) L: Motion and Friction	● DIY hands-on activities are virtually found ● Vocabulary ● exit tickets ● Kahoot ● paper quizzes ● discussion questions ● additional reading materials
Module Posttest/Survey	

Assessments:

Diagnostic: observation, question and answer, KWL, FOSS Environments Module pretest/survey, focus question prediction in journal

Formative: FOSS I-Checks for each investigation, journal, line of learning (LOL) in journals, embedded assessments, observation, Macmillan study guide entries and

quizzes, argumentation, Generation Genius paper quiz and exit ticket, Finish Line: It's Your Turn Lesson checks

Summative: FOSS Environments Module Posttest/Survey, journal, written science claims, Macmillan chapter test, and Finish Line: Physical Sciences Review

Extensions: FOSS language and math extensions at the end of each investigation, small group collaboration, reciprocal teaching (peer, pair, share), fossweb.com activities, independent research, Generation Genius DIY activities, kahoot, and discussion questions

Correctives: fossweb.com online tutorials, peer tutors, small group collaboration, reciprocal teaching (peer, pair, share), journal sentence frames, gallery walk to observe others' journal entries, close read FOSS text/literature

Materials and Resources:

Science Journals
FOSS Environments Module and Textbooks
Living organisms ordered from FOSS 3 weeks in advance
Fossweb.com (online activities and resources)
Teacher-Created Word Wall
Finish Line
Generation Genius (online)
Macmillan, Science, A Closer Look Textbooks
www.pdesas.org
Finish Line Workbooks
Generation Genius (online)
Science Prep Workbooks

Unit 4: Earth and Space Science **Time Range:** 8 ½ weeks

Standards Addressed: www.pde.sas.org

Overview: The dynamics of earth science include the studies of forces of nature that build up and wear down the earth's surface. Dynamics include energy flow across the earth's surface and its role in weather and climate. Space science is concerned with the origin and evolution of the universe. The understanding of these concepts uses principles from physical sciences, geography and mathematics.

Goal #1: Describe basic landforms in Pennsylvania.

Objectives: Students will be able to:

- Describe how prominent Earth features in Pennsylvania (e.g., mountains, valleys, caves, sinkholes, lakes, rivers) were formed.
- Identify various Earth structures (e.g., mountains, watersheds, peninsulas, lakes, rivers, valleys) through the use of models.
- Describe the composition of soil as weathered rock and decomposed organic remains.

Core Activities for Earth and Space Science	**Corresponding Instructional Methods**
Finish Line L1: Earth's Features and Processes	● KWL, graphic organizers, concept maps, group discussion ● Direct instruction, modeling ● Cooperative learning, collaborative groups ● Inquiry ● Hands-on manipulatives, tools ● Independent learning ● Reciprocal teaching
Macmillan: *Science, A Closer Look* text: **Unit C Chapter 5:** L1: Earth L2: The Moving Crust L3: Weathering and Erosion L4: Changes Caused by the Weather Unit C Ch 5 Summative Assessment	Preview lesson, read aloud (or independently), take notes, collaborative groups complete scaffolded study guides, share completed study guides Engage: See TMp200B for hands-on activities, journal
Generation Genius (online) L: Weathering and Erosion L: Earth's Landscapes	● DIY hands-on activities are virtually found ● Vocabulary ● exit tickets ● Kahoot ● paper quizzes ● discussion questions

	● additional reading materials
Module Posttest/Survey	

Goal #2: Identify the types and uses of Earth's resources.

Objectives: Students will be able to:

- Identify products and by-products of plants and animals for human use (e.g., food, clothing, building materials, paper products).
- Identify the types and uses of Earth materials for renewable, nonrenewable, and reusable products (e.g., human-made products: concrete, paper, plastics, fabrics).
- Recognize ways that humans benefit from the use of water resources (e.g., agriculture, energy, recreation).

Core Activities for Earth and Space Science	**Corresponding Instructional Methods**
Finish Line Unit 4 L2: Natural Resources	● KWL, graphic organizers, concept maps, group discussion ● Direct instruction, modeling ● Cooperative learning, collaborative groups ● Inquiry ● Hands-on manipulatives, tools ● Independent learning ● Reciprocal teaching
Generation Genius L: Renewable and Non-renewable Resources	● DIY hands-on activities are virtually found ● Vocabulary ● exit tickets ● Kahoot ● paper quizzes ● discussion questions ● additional reading materials
Module Posttest/Survey	

Goal #3: Describe Earth's different sources of water or describe changes in the form of water.

Objectives: Students will be able to:

- Describe types of freshwater and saltwater bodies (e.g., lakes, rivers, wetlands, oceans).
- Describe or compare lentic systems (i.e., ponds, lakes, and bays) and lotic systems (i.e., streams, creeks, and rivers).
- Explain the role and relationship of a watershed or a wetland on water sources (e.g., water storage, groundwater recharge, water filtration, water source, water cycle).

Core Activities for Earth and Space Science	Corresponding Instructional Methods
Finish Line Unit 4 L3: Water on Earth Unit4 L4: Watershed and Wetlands	● KWL, graphic organizers, concept maps, group discussion ● Direct instruction, modeling ● Cooperative learning, collaborative groups ● Inquiry ● Hands-on manipulatives, tools ● Independent learning ● Reciprocal teaching
Macmillan: *Science, A Closer Look* text: **Unit C Chapter 6:** L1: Minerals and Rocks L2: Soil L3: Resources from the Past L4: Water L5: Pollution and Conservation Unit C Ch 6 Summative Assessment	Preview lesson, read aloud (or independently), take notes, collaborative groups complete scaffolded study guides, review completed study guides Engage: See TMp248B for hands-on activities
Generation Genius L: Water Cycle L: Water Quality and Distribution	● DIY hands-on activities are virtually found ● Vocabulary ● exit tickets ● Kahoot ● paper quizzes ● discussion questions ● additional reading materials
Module Posttest/Survey	

Goal #4: Identify basic weather conditions and how they are measured.

Objectives: Students will be able to:

- Identify basic cloud types (i.e., cirrus, cumulus, stratus, and cumulonimbus) and make connections to basic elements of weather (e.g., changes in temperature, precipitation).
- Identify weather patterns from data charts or graphs of the data (e.g., temperature, wind direction, wind speed, cloud types, precipitation).
- Identify appropriate instruments (i.e., thermometer, rain gauge, weather vane, anemometer, and barometer) to study weather and what they measure.

Core Activities for Earth and Space Science	Corresponding Instructional Methods
Finish Line Unit 4 L4: Weather	● KWL, graphic organizers, concept maps, group discussion ● Direct instruction, modeling ● Cooperative learning, collaborative groups ● Inquiry

	● Hands-on manipulatives, tools ● Independent learning ● Reciprocal teaching
Macmillan: *Science, A Closer Look* text: **Unit D Chapter 7:** L1: Air and Weather L2: The Water Cycle L3: Tracking the Weather L4: Climate Unit D Ch. 7 Summative Assessment	Preview lesson, read aloud (or independently), take notes, collaborative groups complete scaffolded study guides, review completed study guides Engage: See TMp310B for hands-on activities
Generation Genius L: Weather versus Climate	● DIY hands-on activities are virtually found ● Vocabulary ● exit tickets ● Kahoot ● paper quizzes ● discussion questions ● additional reading materials
Module Posttest/Survey	

Goal #5: Describe Earth's relationship to the Sun and the Moon.

Objectives: Students will be able to:

- Describe motions of the Sun - Earth - Moon system.
- Explain how the motion of the Sun - Earth - Moon system relates to time (e.g., days, months, years).
- Describe the causes of seasonal change as they relate to the revolution of Earth and the tilt of Earth's axis.

Core Activities for Earth and Space Science	**Corresponding Instructional Methods**
Finish Line Unit 4 L6: The Sun-Earth-Moon System	● KWL, graphic organizers, concept maps, group discussion ● Direct instruction, modeling ● Cooperative learning, collaborative groups ● Inquiry ● Hands-on manipulatives, tools ● Independent learning ● Reciprocal teaching
FOSS Sun, Moon, and Planets Module **Investigation 1: Sun and Earth** Module Pretest/Survey 1.1: Shadow Shifting 1.2: Sun Tracking 1.3: Day and Night Inv. 1 I-Check	***See FOSS TMp33 for Suggested Schedule of 9 wks** Begin journals, word wall, collaborative groups conduct investigations to answer focus questions, write claims supported with evidence, draw conclusions, and engage in argumentation, read related literature

FOSS Sun, Moon, and Planets Module **Investigation 2: Earth's Moon** 2.1: Night-Sky Observations 2.2: How Big and How Far? 2.3: Phases of the Moon Inv. 2 I-Check	Journals, word wall, collaborative groups conduct investigations to answer focus questions, write claims supported with evidence, draw conclusions, and engage in argumentation, read related literature
FOSS Sun, Moon, and Planets Module ***Investigation 3: The Solar System** *3.1: Solar System Cards *3.2: Solar System Gravity (*Inv.3: The Solar System is not PSSA tested content and can be later taught as an extension.) Inv. 3 I-Check	Journals, word wall, collaborative groups conduct investigations to answer focus questions, write claims supported with evidence, draw conclusions, and engage in argumentation, close read FOSS/related literature
FOSS Sun, Moon, and Planets Module ***Investigation 4: Patterns in the Sky** *4.1: Star Patterns *4.2: Studying Stars **(*Inv. 4: Patterns in the Sky** is not PSSA tested content and can be later taught as an extension.)	Journals, word wall, collaborative groups conduct investigations to answer focus questions, write claims supported with evidence, draw conclusions, and engage in argumentation, close read FOSS/related literature
Generation Genius L: Earth's Orbit and Rotation	● DIY hands-on activities are virtually found ● Vocabulary ● exit tickets ● Kahoot ● paper quizzes ● discussion questions ● additional reading materials
Module Posttest/Survey	

Assessments:

Diagnostic: observation, question and answer, KWL, FOSS Environments Module pretest/survey, focus question prediction in journal

Formative: FOSS I-Checks for each investigation, journal, line of learning (LOL) in journals, embedded assessments, observation, Macmillan study guide entries and quizzes, argumentation, Generation Genius paper quiz and exit ticket, Finish Line: It's Your Turn Lesson checks

Summative: FOSS Environments Module Posttest/Survey, journal, written science claims, Macmillan chapter test, and Finish Line: Earth and Space Sciences Review

Extensions: FOSS language and math extensions at the end of each investigation, small group collaboration, reciprocal teaching (peer, pair, share), fossweb.com activities, independent research, Generation Genius DIY activities, kahoot, and discussion questions

Correctives: fossweb.com online tutorials, peer tutors, small group collaboration, reciprocal teaching (peer, pair, share), journal sentence frames, gallery walk to observe others' journal entries, close read FOSS text/literature

Materials and Resources:
Science Journals
FOSS Environments Module and Textbooks
Living organisms ordered from FOSS 3 weeks in advance
www.fossweb.com (online activities and resources)
Teacher-Created Word Wall
Macmillan, Science, A Closer Look Textbooks
www.pdesas.org
Science Prep Workbooks
Finish Line Workbooks
Generation Genius (online)

* Technology and Engineering Education

Time Range: *embedded within each unit

Standards Addressed: www.pde.sas.org

Overview: Unifying themes of science and technology provide big ideas that integrate with significant concepts and are embedded in each unit. There are only a few fundamental concepts and processes that form the framework upon which science and technology knowledges are organized – motion and forces, energy, structure of matter, change over time and machines. These themes create the context through which the content of the disciplines can be taught and are emphasized in each standard.

* Science as Inquiry

Time Range: *embedded within each unit

Standards: PA Academic Standards for Science and Technology and Engineering Education

Standards Addressed: www.pde.sas.org

Overview: Understanding of science content is enhanced when concepts are grounded in inquiry experiences. The use of science inquiry will help ensure that students develop a deep understanding of science content, processes, knowledge and understanding of scientific ideas, and the work of scientist; therefore, inquiry is embedded as a strand throughout all content areas. Teaching science as inquiry provides teachers with the opportunity to help all students in grades K-12 develop abilities necessary to understand and do scientific inquiry. These are very similar across grade bands and evolve in complexity as the grade level increases.

Goals:

- Distinguish between scientific fact and opinion.
- Ask questions about objects, organisms, and events.
- Understand that all scientific investigations involve asking questions and comparing the answer with what is already known.
- Plan and conduct a simple investigation and understand that different questions require different kinds of investigations.
- Use simple equipment (tools and other technologies) to gather data and understand that this allows scientists to collect more information than relying only on their senses to gather information.

- Use data/evidence to construct explanations and understand that scientists develop explanations based on their evidence and compare them with their current scientific knowledge.
- Communicate procedures and explanations giving priority to evidence and understanding that scientists make their results public, describe their investigations so they can be reproduced, and review and ask questions about the work of other scientists.

PSSA PREP

PSSA Science Assessment Testing Window:

2019 – 2020: April 27 - May 8th

PSSA Review

The following resources may be used to review as needed:

- www.pde.sas.org
- PDE PSSA Resource Materials:

http://www.portal.state.pa.us/portal/server.pt/community/state_assessment_system/20965/pennsylvania_system_of_school_assessment_(pssa)/1190526

- Macmillan *Science: A Closer Look* Textbook.
- Science Prep Workbooks

Primary Textbooks Used for this Course of Instruction

Name of Textbook:

FOSS Investigations Guide for Teachers
Environments, Premium 3rd Edition with online access

Textbook ISBN #:

Premium Content Codes: ENVP129405, ENV1268043

Textbook Publisher & Year of Publication:

Delta Education, School Specialty Science, The Regents of the University of California, 2012

32 Student Editions are included in the Environments Module
Delta parts reorder #1325284-ww.

Curriculum Textbook is utilized in: Science 4th Grade

Name of Textbook:

FOSS Investigations Guide for Teachers
Sun, Moon, and Planets, Premium 3rd Edition with online access

Textbook ISBN #:

Premium Content Codes: SMPP126777, SMP1296315

Textbook Publisher & Year of Publication:

Delta Education, School Specialty Science, The Regents of the University of California, 201**2**

32 Student Editions are included in the Sun, Moon, and Planets Module,
Delta parts reorder #1325287-ww.

Curriculum Textbook is utilized in: Science 4th Grade

Name of Textbook:

FOSS Investigations Guide for Teachers
Energy and Electromagnetism, Premium 3rd Edition with online access

Textbook ISBN #:
Premium Content Codes: EEP12n1623, EEM1235902

Textbook Publisher & Year of Publication:
Delta Education, School Specialty Science, The Regents of the University of California, 2012

32 Student Editions are included in the Energy and Electromagnetism Module,
Delta parts reorder# 1325281-ww.

Curriculum Textbook is utilized in: Science 4th Grade

Name of Textbook:
Science: A Closer Look, Grade 4, Earth Science

Textbook ISBN #: 978-0-02-287987-7 (Teacher's Edition)
ISBN#: 978-0-02-288008-8 (Student Edition)

Textbook Publisher & Year of Publication: Macmillan/McGraw Hill, 2011

Curriculum Textbook is utilized in: Science 4th Grade

Name of Textbook:
Science: A Closer Look, Grade 4, Life Science

Textbook ISBN #: 978-0-02-284208-6 (Teacher's Edition)
ISBN#: 978-0-02-284137-9 (Student Edition)

Textbook Publisher & Year of Publication: Macmillan/McGraw Hill, 2011

Curriculum Textbook is utilized in: Science 4th Grade

Name of Textbook:

Science: A Closer Look, Grade 4, Physical Science

Textbook ISBN #: 978-0-02-287988-4 (Teacher's Edition)
ISBN #: 978-0-02-288008-8 (Student Edition))

Textbook Publisher & Year of Publication: Macmillan/McGraw Hill, 2011

Curriculum Textbook is utilized in: Science 4th Grade