DELAWARE VALLEY SCHOOL DISTRICT

PLANNED INSTRUCTION

A PLANNED COURSE FOR:

Science

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Grade Level:

5th Grade

Date of Board Approval: _____2019_____

Planned Instruction

Title of Planned Instruction: Science

Subject Area: Science Grade: 5

Course Description:
This fifth grade science course focuses on The Nature of Science, Physical Science, Life Science, and Earth and Space Sciences.

Time/Credit for the Course: 1 year

Curriculum Writing Committee: Gail Atchison, Michele DiPillo, and Sandra Dunn.

Curriculum Map

Units 1 – 4: Upon the completion of Unit 1, one of either Units 2, 3, or 4 will be taught, dependent upon the rotation of the FOSS modules 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 4.

1. **Unit 1 The Nature of Science:**

    - **Overview based on 8 days:** This unit is about the processes, procedures, and tools of scientific investigations.

    - **Goal:** Apply knowledge of scientific investigation or technological design to make inferences and solve problems.

2. **Unit 2 Biological Science**

    - **Overview based on 45 days:** Biology concerns living things, their appearance, different types of life, the scope of their 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 to understand how life has changed over a long period of time. 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:** Describe how the cell is the basic unit of structure and function for all living things.
    - **Goal #2:** Explain how certain inherited traits and/or behaviors allow some organisms to survive and reproduce more successfully than others.
    - **Goal #3:** Describe the relationships between organisms in different ecosystems.
    - **Goal #4:** Explain how renewable and nonrenewable resources provide for human needs.

3. **Unit 3 Physical Science**

    - **Overview based on 45 days:** 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 relationship between matter, atomic structure and its activity. Laboratory investigations of the properties of substances and their changes through a range of chemical interactions provide a basis for students to understand atomic

theory and a variety of reaction types 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 the observable physical properties of matter.
- **Goal #2:** Describe that matter can undergo chemical and physical changes.
- **Goal #3:** Describe basic energy types and sources, and how energy can be changed from one form to another.
- **Goal #4:** Explain the relationships between mass, force, and movement.
- **Goal #5:** Observe and recognize how magnets and electricity producer related forces.

4. Unit 4 Earth and Space Science

- **Overview based on 45 days:** 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 constructive and destructive natural processes that form different geologic structures and resources.
    - **Goal #2:** Describe characteristic features of Earth's water systems and their impact on resources.
    - **Goal #3:** Differentiate between weather and climate.
    - **Goal #4:** Explain the relationships between objects in our solar system.

Curriculum Plan

Unit 1: The Nature of Science **Time Range: 8 days**

Standard(s): PA Academic Standards 3.1.5.A, 3.4.5.C, 3.4.5.D.
http://static.pdesas.org/content/documents/Grade_5_Science_Assessment_Anchors.pdf

Overview: This unit is about the processes, procedures, and tools of scientific investigations.

Goal: Apply knowledge of scientific investigation or technological design to make inferences and solve problems.

Objectives:

- design a simple, controlled experiment (fair test) identifying the independent and dependent variables, how the dependent variable will be measured and which variables will be held constant (e.g., relate the effect of variables [mass, release height, length of string] to number of swings of a pendulum, investigate the relationships between variables in paper airplane designs)
- describe relationships between variables through interpretation of data and observations (i.e., make predictions for the outcome of a controlled experiment using data tables and graphs)

Core Activities and Corresponding Instructional Methods:

Science Text - A Closer Look

- Scientific Method pgs. 2-11

Generation Genius

- What is Science?

Assessments:

- **Diagnostic:** KWL, Generation Genius Exit Ticket
- **Formative:** exit ticket, observation, Generation Genius Exit Ticket
- **Summative:** Comprehensive unit test, science journal, projects/models, Generation Genius Paper Test

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:

- Textbook A Closer Look: Life Science
- Computer, and Internet
- Journals/ Science Notebooks
- Macmillan McGraw Hill Website
- Worksheets
- Generation Genius Links

What is Science?

https://www.generationgenius.com/videolessons/what-is-science-video-for-kids/

Unit 2: Biological Science **Time Range: 45 days**

Standard(s): PA Academic Standards 3.1.5.A, 3.1.5.B, 3.1.5.C.
http://static.pdesas.org/content/documents/Grade_5_Science_Assessment_Anchors.pdf

Overview: Biology concerns living things, their appearance, different types of life, the scope of their 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 to understand how life has changed over a long period of time. 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: Describe how the cell is the basic unit of structure and function for all living things.

Objectives:

- recognize that all organisms are composed of cells
- explain the concept of the cell as the basic structural unit of all living things
- compare the structure and function of basic cell parts in organisms (i.e., plants and animals)

Core Activities and Corresponding Instructional Methods:

FOSS Living Systems

- Investigation 3, - Transport Systems

Science Text - A Closer Look: Life Science, Chapter 1 - Cells and Kingdoms

- Lesson 1 Cells pgs. 20-29

Assessments:

- **Diagnostic:** FOSS Module pretest/survey, teacher observation, question and answer, KWL
- **Formative:** FOSS I -Checks for each inv embedded assessments, observation, Macmillan study guide entries and quizzes
- **Summative:** FOSS Module posttest/survey, teacher-made tests, journal, projects, Macmillan chapter test

Extensions: Small group collaboration, reciprocal teaching (peer, pair, share), fossweb.com activities, independent research, vocabulary

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

Materials and Resources:

- Textbook A Closer Look: Life Science
- FOSS Kit Living System
- Computer, and Internet
- Journals/ Science Notebooks
- FOSS Web Technology
- Macmillan McGraw Hill Website
- Worksheets

Goal #2: Explain how certain inherited traits and/or behaviors allow some organisms to survive and reproduce more successfully than others.

Objectives:

- differentiate between inherited and acquired traits (e.g., scars, injuries)
- explain how inherited traits help organisms survive and reproduce in different environments
- explain how certain behaviors help organisms survive and reproduce in different environments
- identify changes in environmental conditions that can affect the survival of populations and entire species

Core Activities and Corresponding Instructional Methods:

Science Text - A Closer Look: Life Science, Chapter 2 - Parents and Offspring

- Lesson 4 Traits and Heredity pgs. 122-131

GenerationGenius.com

- Variation of Traits
- Adaptations and the Environment
- Animal Group Behavior

Assessments:

- **Diagnostic:** teacher observation, question and answer, KWL, Generation Genius Exit Ticket
- **Formative:** journal, embedded assessments, observation, Macmillan study guide entries and quizzes, Generation Genius Kahoot Quiz
- **Summative:** teacher-made tests, journal, projects, Macmillan chapter test, Generation Genius Paper test

Extensions: small group collaboration, reciprocal teaching (peer, pair, share), independent research, vocabulary

Correctives: peer tutors, small group collaboration, reciprocal teaching (peer, pair, share), journal sentence frames, gallery walk to observe others' journal entries

Materials and Resources:

- Textbook A Closer Look: Life Science
- Computer, and Internet
- Journals/ Science Notebooks
- Macmillan McGraw Hill Website
- Worksheets
- Generation Genius Links

Variation of Traits
https://www.generationgenius.com/videolessons/variation-of-traits-video-for-kids/
Adaptations and the Environment
https://www.generationgenius.com/videolessons/adaptations-video-for-kids/
Animal Group Behaviors
https://www.generationgenius.com/videolessons/animal-group-behavior-video-for-kids/

Goal #3: Describe the relationships between organisms in different ecosystems.

Objectives:

- describe the roles of producers, consumers, and decomposers within a local ecosystem
- describe the relationships between organisms in different food webs

Core Activities and Corresponding Instructional Methods:

FOSS Living Systems

- Investigation 1 - Red Worm Food Web
- Investigation 2 - Nutrient Systems
- Investigation 4 - North Atlantic Ocean Ecosystem

Science Text - A Closer Look: Life Science, Chapter 3 - Interactions in Ecosystems

- Lesson 1 Energy Flow in Ecosystems pgs. 140-151

Science Text - A Closer Look: Life Science, Chapter 4 - Ecosystems and Biomes

- Lesson 1 Cycles in Ecosystems pgs. 189-191

GenerationGenuis.com

- Food Webs
- Ecosystems

Assessments:

- **Diagnostic:** FOSS Module pretest/survey, teacher observation, question and answer, KWL, Generation Genius Exit Ticket
- **Formative:** FOSS I-Checks, journal, embedded assessments, observation, Macmillan study guide entries and quizzes, Generation Genius Kahoot Quiz
- **Summative:** FOSS Module posttest/survey, teacher-made tests, journal, projects, Macmillan chapter test, Generation Genius paper test

Extensions: small group collaboration, reciprocal teaching (peer, pair, share), independent research, vocabulary

Correctives: Peer tutors, small group collaboration, reciprocal teaching (peer, pair, share), journal sentence frames, gallery walk to observe others' journal entries

Materials and Resources:

- Textbook A Closer Look: Life Science
- Computer, and Internet
- Journals/ Science Notebooks
- Macmillan McGraw Hill Website
- Worksheets
- FOSS Kit Living Systems
- FOSS Web Technology
- Generation Genius Links

Food Webs
https://www.generationgenius.com/videolessons/food-webs-video-for-kids/

Ecosystems
https://www.generationgenius.com/videolessons/ecosystems-video-for-kids/

Goal #4: Explain how renewable and nonrenewable resources provide for human needs.

Objectives:

- identify fossil fuels and alternative fuels used by humans
- describe the usefulness of Earth's physical resources as raw materials for the human-made world
- explain how different items are recycled and reused

Core Activities and Corresponding Instructional Methods:

Science Text - A Closer Look: Earth Science, Chapter 6 - Protecting Earth's Resources

- Lesson 3 Fossils and Energy pgs. 324-337

GenerationGenius.com

- Renewable vs. Nonrenewable Resources

Assessments:

- **Diagnostic:** teacher observation, question and answer, KWL, Generation Genius Exit Ticket
- **Formative:** journal, embedded assessments, observation, Macmillan study guide entries and quizzes, Generation Genius Kahoots Quiz
- **Summative:** teacher-made tests, journal, projects, Macmillan chapter test, Generation Genius Paper Test

Extensions: small group collaboration, reciprocal teaching (peer, pair, share), independent research, vocabulary

Correctives: Peer tutors, small group collaboration, reciprocal teaching (peer, pair, share), journal sentence frames, gallery walk to observe others' journal entries

Materials and Resources:

- Textbook A Closer Look: Life Science
- Computer, and Internet
- Journals/ Science Notebooks
- Macmillan McGraw Hill Website
- Worksheets
- Generation Genius Links

Renewable vs. Nonrenewable Resources

https://www.generationgenius.com/videolessons/renewable-vs-nonrenewable-energy-for-kids/

Unit 3: Physical Science **Time Range: 45 days**

Standard(s): Pa Academic Standards: 3.2.5.A, 3.2.5B
http://static.pdesas.org/content/documents/Grade_5_Science_Assessment_Anchors.pdf

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 relationship between matter, atomic structure and its activity. Laboratory investigations of the properties of substances and their changes through a range of chemical interactions provide a basis for students to understand atomic theory and a variety of reaction types 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 the observable physical properties of matter.

Objectives:

- identify characteristic properties of matter that are independent of mass and volume
- differentiate between volume and mass

Core Activities and Corresponding Instructional Methods:

FOSS Mixtures and Solutions

- Investigation 2 - Concentration

FOSS Weather on Earth

- Investigation 3 - Water Planet

Science Text - A Closer Look: Physical Science - Chapter 9

- Lesson 1 - Properties of Matter - pgs. 478 - 486

GenerationGenius.com

- Properties of Matter
- Particle Nature of Matter
- Water Cycle

Assessments:

- **Diagnostic:** FOSS Module pretest/survey, teacher observation, question and answer, KWL, Generation Genius Exit Ticket
- **Formative:** FOSS I-checks, journal, embedded assessments, observation, Macmillan study guide entries and quizzes, Generation Genius Kahoot Quiz
- **Summative:** FOSS Module posttest/survey, teacher-made tests, journal, projects, Macmillan chapter test, Generation Genius paper test

Extensions: Small group collaboration, reciprocal teaching (peer, pair, share), independent research, vocabulary

Correctives: Peer tutors, small group collaboration, reciprocal teaching (peer, pair, share), journal sentence frames, gallery walk to observe others' journal entries

Materials and Resources:

- Textbook A Closer Look: Life Science
- Computer, and Internet
- Journals/ Science Notebooks
- Macmillan McGraw Hill Website
- Worksheets
- Generation Genius Links

Properties of Matter

https://www.generationgenius.com/videolessons/properties-of-matter-video-for-kids/

Particle Nature of Matter

https://www.generationgenius.com/videolessons/particle-nature-of-matter-video-for-kids/

Water Cycle

https://www.generationgenius.com/videolessons/water-cycle-video-for-kids/

Goal #2: Describe that matter can undergo chemical and physical changes.

Objectives:

- Describe how water changes from one state to another
- Identify differences between chemical and physical changes of matter

Core Activities and Corresponding Instructional Methods:

FOSS Mixtures and Solutions

- Investigation 4 - Fizz Quiz

Science Text - A Closer Look: Physical Science - Chapter 10

- Lesson 1 - Changes of State - pgs. 518 - 526
- Lesson 3 - Compounds and Chemical Changes - pgs. 540 - 550

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- Chemical vs. Physical Changes

Assessments:

- **Diagnostic:** FOSS Module pretest/survey, teacher observation, question and answer, KWL, Generation Genius Exit Ticket
- **Formative:** FOSS Module I-Checks, Journal, embedded assessments, observation, Macmillan study guide entries and quizzes, Generation Genius Kahoot Quiz
- **Summative:** Teacher-made tests, journal, projects, Macmillan chapter test, Generation Genius paper test

Extensions: Small group collaboration, reciprocal teaching (peer, pair, share), independent research, vocabulary

Correctives: Peer tutors, small group collaboration, reciprocal teaching (peer, pair, share), journal sentence frames, gallery walk to observe others' journal entries

Materials and Resources:

- Textbook A Closer Look: Life Science
- Computer, and Internet
- Journals/ Science Notebooks
- Macmillan McGraw Hill Website
- Worksheets
- Generation Genius Links

Chemical vs. Physical Changes

https://www.generationgenius.com/videolessons/chemical-vs-physical-changes-video-for-kids/

Goal #3: Describe basic energy types and sources, and how energy can be changed from one form to another.

Objectives:

- describe how energy exists in many forms (e.g.), electrical, mechanical, chemical, heat, light, sounds) and can be transformed within a system.
- describe how heat energy is usually a byproduct of an energy transformation
- distinguish between kinetic and potential energy
- explain how energy is conserved

Core Activities and Corresponding Instructional Methods:

FOSS Weather on Earth Investigation 2

- Heating the Earth

Science Text - A Closer Look: Physical Science - Chapter 11

- Lesson 3 - Work and Energy - pgs 596 - 604

Science Text - A Closer Look: Physical Science - Chapter 12

- Lesson 1 - Heat - pgs. 624 - 634
- Lesson 2 - Sound - pgs. 636 - 648
- Lesson 3 - Light - pgs. 650 - 662

GenerationGenius.com

- Energy Transfer
- Collisions
- Renewable vs. Nonrenewable Resources

Assessments:

- **Diagnostic:** FOSS Module pretest/survey, teacher observation, question and answer, KWL, Generation Genius Exit Ticket
- **Formative:** FOSS I-checks, Journal, embedded assessments, observation, Macmillan study guide entries and quizzes, Generation Genius Kahoot Quiz
- **Summative:** FOSS Module posttest/survey, teacher-made tests, journal, projects, Macmillan chapter test, Generation Genius paper test

Extensions: Small group collaboration, reciprocal teaching (peer, pair, share), independent research, vocabulary

Correctives: Peer tutors, small group collaboration, reciprocal teaching (peer, pair, share), journal sentence frames, gallery walk to observe others' journal entries

Materials and Resources:

- Textbook A Closer Look: Life Science
- Computer, and Internet
- Journals/ Science Notebooks
- Macmillan McGraw Hill Website
- Worksheets
- Generation Genius Links

Energy Transfer

https://www.generationgenius.com/videolessons/energy-transfer-video-for-kids/

Collisions

https://www.generationgenius.com/videolessons/collisions-video-for-kids/

Renewable vs. Nonrenewable

https://www.generationgenius.com/videolessons/renewable-vs-nonrenewable-energy-for-kids/

Goal #4: Explain the relationships between mass, force, and movement.

Objectives:

- differentiate between the mass and weight of an object
- explain how the mass of an object resists change to motion (inertia)

Core Activities and Corresponding Instructional Methods:

Science Text - A Closer Look: Physical Science - Chapter 11

- Lesson 1 - Motion pgs. 570 - 580

Science Text - A Closer Look: Physical Science - Chapter 9

- Lesson 1 - Properties of Matter pgs. 478 - 486

GenerationGenius.com

- Magnets and Static Electricity

Assessments:

- **Diagnostic:** Teacher observation, question and answer, KWL, Generation Genius Exit Ticket
- **Formative:** Journal, embedded assessments, observation, Macmillan study guide entries and quizzes, Generation Genius Kahoot Quiz
- **Summative:** Teacher-made tests, journal, projects, Macmillan chapter test, Generation Genius paper test

Extensions: Small group collaboration, reciprocal teaching (peer, pair, share), independent research, vocabulary

Correctives: Peer tutors, small group collaboration, reciprocal teaching (peer, pair, share), journal sentence frames, gallery walk to observe others' journal entries

Materials and Resources:

- Textbook A Closer Look: Life Science
- Computer, and Internet
- Journals/ Science Notebooks
- Macmillan McGraw Hill Website
- Worksheets
- Generation Genius Links

  Renewable vs. Nonrenewable Resources

  https://www.generationgenius.com/videolessons/renewable-vs-nonrenewable-energy-for-kids/

Goal #5: Observe and recognize how magnets and electricity produce related forces.

Objectives:

- Recognize that moving electric charges produce magnetic forces and moving magnets produce electric forces (electromagnetism)
- Identify the variables within an electric current (i.e., voltage, current, and resistance)

Core Activities and Corresponding Instructional Methods:

Science Text - A Closer Look: Physical Science - Chapter 12

- Lesson 5 - Magnetism - pgs. 676 - 686
- Lesson 4 - Electricity - pgs. 664 - 674

Assessments:

- **Diagnostic:** Teacher observation, question and answer, KWL, Generation Genius Exit Ticket
- **Formative:** Journal, embedded assessments, observation, Macmillan study guide entries and quizzes, Generation Genius Kahoot Quiz
- **Summative:** Teacher-made tests, journal, projects, Macmillan chapter test, Generation Genius paper test

Extensions: Small group collaboration, reciprocal teaching (peer, pair, share), independent research, vocabulary

Correctives: Peer tutors, small group collaboration, reciprocal teaching (peer, pair, share), journal sentence frames, gallery walk to observe others' journal entries

Materials and Resources:

- Textbook A Closer Look: Life Science
- Computer, and Internet
- Journals/ Science Notebooks
- Macmillan McGraw Hill Website
- Worksheets
- Generation Genius Links

  Renewable vs. Nonrenewable Resources

  https://www.generationgenius.com/videolessons/renewable-vs-nonrenewable-energy-for-kids/

Unit 4: Earth and Space Sciences **Time Range: 45 Days**

Standard(s): PA Academic Standards S.5D.1.1, S.5.D.1.2, S.5.D.2.1, S.5.D.3.1
http://static.pdesas.org/content/documents/Grade_5_Science_Assessment_Anchors.pdf

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 constructive and destructive natural processes that form different geologic structures and resources.

Objectives:

- differentiate between abrupt changes in Earth's surface (e.g., earthquakes, volcanoes, meteor impacts, landslides and gradual changes in Earth's surface (e.g., lifting up of mountains, wearing away by erosion)
- explain how geological processes observed today (e.g., erosion, changes in the composition of the atmosphere, volcanic eruptions, earthquakes) are similar to those in the past

Core Activities and Corresponding Instructional Methods:

FOSS Living Systems

- Investigation 1 Systems, Part 1 Is Earth a System

FOSS Weather on Earth

- Investigation 3 Water Planet

Science Text - A Closer Look: Life Science, Chapter 5 - Our Dynamic Earth

- Lesson 1 Landforms, pgs. 238-249
- Lesson 2 Plate Tectonics, pgs. 250-259
- Lesson 3 Volcanoes, pgs. 260-269
- Lesson 4 Earthquakes, pgs. 270-281
- Lesson 5 Shaping Earth's Surface, pgs. 282-295

GenerationGenius.com

- Weathering and Erosion
- Earth's Landscapes

Assessments:

- **Diagnostic:** teacher observation, question and answer, KWL, FOSS Module pretest/survey, focus question prediction in journal, Generation Genius exit ticket
- **Formative:** FOSS I -Checks for each inv learning (LOL) in journals, embedded assessments, observation, Macmillan study guide entries and quizzes, argumentation, Generation Genius Kahoot Quiz
- **Summative:** FOSS Module Posttest/Survey, journal, written science claims, Macmillan chapter test**,** Generation Genius paper test

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

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:

- FOSS fossweb.com
- Textbook A Closer Look: Life Science
- Computer, and Internet
- Journals/ Science Notebooks
- Macmillan McGraw Hill Website
- Worksheets
- Generation Genius Links

  Weathering and Erosion

  https://www.generationgenius.com/videolessons/weathering-and-erosion-video -for-kids/

  Earth's Landscapes

  https://www.generationgenius.com/videolessons/weathering-and-erosion-video-for-kids/

Goal #2: Describe characteristic features of Earth's water systems and their impact on resources.

Objectives:

- identify physical, chemical, and biological factors that affect water quality
- describe the importance of wetlands in an ecosystem

Core Activities and Corresponding Instructional Methods:

Science Text - A Closer Look: Life Science, Chapter 3- Ecosystems

- Lesson 4 Water Ecosystems, pgs. 218-229

Science Text - A Closer Look: Life Science, Chapter 6- Protecting Earth's Resources

- Lesson 2 Soil, pgs. 314-323
- Lesson 4 Air and Water pgs. 340-353

GenerationGenius.com

- Interactions of Earth's Spheres
- Renewable and Nonrenewable Resources
- Water Quality and Distribution

Assessments:

- **Diagnostic:** FOSS Module pretest/survey, teacher observation, question and answer, KWL, FOSS Module pretest/survey, focus question prediction in journal, Generation Genius exit ticket
- **Formative:** FOSS I -Checks for each inv learning (LOL) in journals, embedded assessments, observation, Macmillan study guide entries and quizzes, argumentation, Generation Genius Kahoot Quiz
- **Summative:** FOSS Module Posttest/Survey, journal, written science claims, Macmillan chapter test**,** Generation Genius paper test

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

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:

- FOSS fossweb.com
- Textbook A Closer Look: Life Science

- Computer, and Internet
- Journals/ Science Notebooks
- Macmillan McGraw Hill Website
- Worksheets
- Generation Genius Links

  Interactions of Earth's Spheres

  https://www.generationgenius.com/videolessons/earths-spheres-video-for-kids/Interactions of Earth´s Spheres Renewable and Nonrenewable Resources Water Quality and Distribution

  Renewable and Nonrenewable Resources

  https://www.generationgenius.com/videolessons/earths-spheres-video-for-kids/Interactions of Earth´s Spheres Renewable and Nonrenewable Resources Water Quality and Distribution

  Water Quality and Distribution

  https://www.generationgenius.com/videolessons/water-quality-and-distribution-video-for-kids/

Goal #3: Differentiate between weather and climate.
Objectives:

- explain how the cycling of water into and out of the atmosphere impacts climatic patterns
- explain the effects of oceans and lakes on climate

Core Activities and Corresponding Instructional Methods:

FOSS Weather on Earth

- Investigation 1 What is Weather
- Investigation 3 Water Planet
- Investigation 4 Weather and Climate

Science Text - A Closer Look: Earth Science,Chapter 7 - Weather Patterns

- Lesson 1 The Atmosphere, pgs. 360-377
- Lesson 2 Clouds and Precipitation, pgs. 378-391
- Lesson 3 Severe Storms, pgs. 392-405
- Lesson 4 Climate, pgs. 406-417

GenerationGenius.com

- Weather vs. Climate
- Extreme Weather Solutions
- Renewable vs. Nonrenewable Resources
- Natural Disasters
- Water Cycle

Assessments:

- **Diagnostic:** FOSS Module pretest/survey, teacher observation, question and answer, KWL, focus question prediction in journal, Generation Genius exit ticket
- **Formative:** FOSS I -Checks for each inv learning (LOL) in journals, embedded assessments, observation, Macmillan study guide entries and quizzes, argumentation, Generation Genius Kahoot Quiz
- **Summative:** FOSS Module Posttest/Survey, journal, written science claims, Macmillan chapter test**,** Generation Genius paper test

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

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:

- FOSS fossweb.com
- Textbook A Closer Look: Life Science
- Computer, and Internet
- Journals/ Science Notebooks
- Macmillan McGraw Hill Website
- Worksheets
- Generation Genius Links

  Weather vs. Climate

  https://www.generationgenius.com/videolessons/weather-vs-climate-vide

  -for-kids/

Extreme Weather Solutions

https://www.generationgenius.com/videolessons/extreme-weather-for-kids/

Goal 4# Explain the relationships between objects in our solar system.

Objectives:

- describe the patterns of Earth's rotation and revolution in relation to the Sun and Moon (i.e., solar eclipse, phases of the Moon, and time)
- compare the general characteristics of the inner planets of our solar system (i.e., size, orbital path, surface characteristics, and moons)

Core Activities and Corresponding Instructional Methods:

FOSS Sun, Moon, and Planets (4th Grade Module)

- Investigation 1 Sun and Earth
- Investigation 2 Earthś Moon
- Investigation 3 Solar System
- Investigation 4 Patterns in the Sky

Science Text - A Closer Look: Earth Science, Chapter 8 - The Universe

- Lesson 1 Earth and Sun, pgs. 420-429
- Lesson 2 Earth and Moon, pgs. 430-439
- Lesson 3 The Solar System, pgs. 440-455
- Lesson 4 Stars and the Universe, pgs. 456-471

GenerationGenius.com

- Earth's Orbit and Rotation
- Phases of the Moon
- Sun and Other Stars

Assessments:

- **Diagnostic:** observation, question and answer, KWL, FOSS Module pretest/survey, focus question prediction in journal, Generation Genius exit ticket
- **Formative:** FOSS I -Checks for each inv
  learning (LOL) in journals, embedded assessments, observation, Macmillan study guide entries and quizzes, argumentation, Generation Genius Kahoot Quiz

- **Summative:** FOSS Module Posttest/Survey, journal, written science claims, Macmillan chapter test**,** Generation Genius paper test

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

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:

- FOSS fossweb.com
- Textbook A Closer Look: Life Science
- Computer, and Internet
- Journals/ Science Notebooks
- Macmillan McGraw Hill Website
- Worksheets
- Generation Genius Links

  Earth's Orbit and Rotation

  https://www.generationgenius.com/videolessons/earths-orbit-and-rotation-video-for-kids/

  Phases of the Moon

  https://www.generationgenius.com/videolessons/moon-phases-video-for-kids/

  Sun and Other Stars

  https://www.generationgenius.com/videolessons/sun-and-other-stars-video -for-kids/

Appendix

Unit 1 - Generation Genius DIY Activity Materials: What is Science?

- Eggs (uncooked) 2 per team
- Straws - 8-10 per team
- Tape
- Scissors
- Painter's plastic tarp
- Balloons
- Styrofoam and/or other construction and protection materials

Unit 2 - Generation Genius DIY Activity Materials: Variation of Traits

- Bean seeds
- Three small glass dishes
- Potting soil
- Dry dirt
- Cotton balls
- Water in spray bottle

Adaptations and the Environment

- Grilling or salad tongs
- Medium-sized tweezers
- Needle-nosed tweezers
- Peanuts still in shell
- Sunflower seeds still in the shell
- Sesame seeds

Animal Group Behaviors

- Two different-sized plastic containers with lids, the smaller should fit inside the larger
- Sand
- BBQ skewer
- Apple

- Water
- Tube of ants (order online from companies such as Ants Alive or Amazon for less than $5)
- Pin

Food Webs

- Twigs
- Dry leaves
- Food waste (such as egg shells, coffee grounds, tea bags, apple cores, orange and banana peels—no meat)
- Plastic gloves
- Large bowl or other container for mixing
- Large plant pot or other container with holes on the bottom Watering can

Ecosystems

- Large glass jar with a lid
- Mesh
- Scissors
- Rocks or gravel
- Activated carbon (available in the aquarium section of a pet store) Spray bottle of water
- Plants growing in soil (choose a type of plant that needs a lot of water)
- Moss growing in soil
- Extra soil
- Spoon

Renewable vs. Nonrenewable Resources

- A mixing bowl or plastic container – deep enough for the water wheel to stand upright and not touch the bottom or sides, narrow enough that a skewer or dowel can span the bowl or container.
- Two rulers

- Two paper plates (Styrofoam plates can be used for durability; dessert or sandwich-sized may be fit into bowls or plastic containers more easily)
- Empty egg carton (again, Styrofoam for durability)
- Two rulers or paint sticks
- A dowel or bamboo barbecue skewer
- Two empty spools to slip on the ends of dowel/skewer
- Scissors, tape (duct, if possible), a stapler, and some putty
- A pitcher to pour water into the water wheel cups (the water will be caught in the mixing bowl/container)

Unit 3 - Generation Genius DIY Activity Materials:
Properties of Matter

- Measuring cup
- 1 cup water, divided
- ½ cup washable glue
- 1 tsp. borax powder
- 2 mixing bowls
- Silicone spatula
- Whisk
- Food coloring (optional)
- Iron powder (for magnetic slime--optional)

Particle Nature of Matter

- Film canisters or similar plastic containers with snap on lids
- Fizzy tablets, such as Alka-Seltzer®
- Water
- Clean up materials

Chemical vs. Physical Changes

- Cotton swabs
- Baking soda
- Water
- Measuring cup
- Measuring spoon

- Paper
- Blackberries
- Latex-free gloves

The Water Cycle

- A large bowl and a smaller bowl
- Glass of water • Small amount of grass and dirt
- Sheet of plastic wrap, enough to cover large bowl
- Big rubber band
- A few coins
- A sunny window

Energy Transfer

- Box
- Foil
- Box knife
- Plastic wrap
- Black construction paper
- Scissors
- Tape
- Sunny day
- Graham crackers
- Chocolate bar
- Marshmallows

Collisions

- Several books
- Two surfaces at different heights
- Ruler
- Marker
- Binder clip
- 2 pencils
- Books
- Highlighter
- Tape

- Cup
- Candy (or other non-liquid material)
- Bowl
- Battery or other small heavy object
- An additional variety of classroom objects

Magnets and Static Electricity

- Cotton towel
- Plastic produce bag
- Scissors
- Balloon

Unit 4 - Generation Genius DIY Activity Materials:

Weathering and Erosion

- Baking tray
- Sand
- Small rocks
- Funnel
- Small stick
- Large pitcher of water

Earth’s Landscapes

- Plastic container with lid
- Rocks
- Smaller rocks (pebbles or gravel)
- Sand
- Baby powder
- Water
- Spoon

Interactions of Earth's Spheres

- Piece of cardboard
- Wooden skewer (with tip cut off)
- Scissors

- Tape
- Two washers
- Two CDs
- Poster putty
- Large Rubber band

Renewable and Nonrenewable Resources

- See above

Water Quality and Distribution

- Plastic bottle
- Cotton ball
- Sand
- Gravel
- Plastic bag with activated charcoal
- Scissors
- Mallet
- Muddy water
- House plants

Weather vs. Climate

- One plastic straw per student
- Two paper plates per student
- Marker
- One pencil with a new eraser per student
- Scissors
- Tape
- Poster board
- One straight pin per student
- Ruler
- Modeling clay
- Table fan

Extreme Weather Solutions

- 1 styrofoam cooler per group
- 4 frozen water bottles per group
- 1 plastic 90 degree angled tube per group
- 1 small household fan per group • 1 marker per group • Serrated steak knife* (Adult use only!)
- Tape (optional)
- Streamers (optional)

Natural Disasters

- Box
- Scissors
- Rubber bands
- Marker
- Paper strip
- Ruler
- Cell phone or tablet

Water Cycle

- See above

Earth’s Orbit and Rotation

- Paper plate
- Glue stick
- A bendable straw
- Tape
- A compass
- Sundial face printout from www.generationgenius.com
- Sharpened pencil
- Watch

Phases of the Moon

- Science notebooks (1 per student)
- Pencils

- A light that can stand or clamp to a table
- A pencil
- A foam ball, white, ~3” in diameter
- A camera or phone with camera