

DELAWARE VALLEY SCHOOL DISTRICT

PLANNED INSTRUCTION

A PLANNED COURSE FOR:

Science

Grade Level: Second

Date of Board Approval: _____

Planned Instruction

Title of Planned Instruction: Second Grade Science Curriculum

Subject Area: Science

Grade: Second

Course Description: Through hands-on investigation and informational literature, students will develop an elementary understanding of the areas of Ecology, Watersheds and Wetlands, Physical Sources for Living Things, Natural Resources, Agriculture and Society, Humans and the Environment, Chemistry, Physical Science, Physics, and the Origin and Evolution of the Universe.

Time/Credit for the Course: One Year

Curriculum Writing Committee: Amy Ross, Al McElroy, Pauline Garde

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Curriculum Map

Unit 1: Ecosystems/Watersheds and Wetlands/Physical Sources for Living Things

Time Range in Days: 45 Days

Standard(s):

PA Academic Standards Science, PA Core Standards Math, PA Core Standards ELA

Standards Addressed:

PA Academic Standards for Science and Technology and Engineering Education

https://static.pdesas.org/content/documents/PreK-2_Science_and_Technology_Standards.pdf

http://static.pdesas.org/content/documents/CF-Science_Grade2.pdf

Overview: Students will identify living and nonliving things, sources of energy, and the basic needs of plants and animals in an aquatic ecosystem. They will also identify differences in living things and how they adapt and change in their environment for survival. They will recognize and describe how different forms of energy cause changes and how light from the sun is an important source of energy that is needed for all living and nonliving systems and organisms to stay alive and grow.

Goal #1: Students will identify living and nonliving things, sources of energy, and the basic needs of plants and animals in an aquatic ecosystem.

Objectives:

4.1.2.A Describe how a plant or an animal is dependent on living and nonliving things in an aquatic habitat

4.1.2.C Identify sources of energy in an aquatic habitat

4.3.3.C Identify and describe the basic needs of plants and animals in an aquatic ecosystem.

Activities:

- Mystery Science- Why do you have to clean a fish tank but not a pond?
- Ecosystem for Kids- Living and Nonliving Things
- Gynzy-Food Chains
- Generation Genius- What is Science?
Extra: Dancing Raisins DIY Activity
- Generation Genius- Living vs Nonliving Things
Extra: Nature Walk DIY Activity
- Generation Genius- Animals Need Food
Extra: Bird Feeders
- Generation Genius- Habitats
Extra: Habitat Diorama
- Better Lesson- Aquatic Living vs Nonliving
Extra: Use play-doh to create a living and a nonliving thing.

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Resources:

- <https://betterlesson.com/lesson/630879/water-habitats>
- www.generationgenius.com
- www.mysteryscience.com
- www.ecosystemforkids.com
- www.gynzy.com

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Assessments:

- Students will identify and draw an animal and its habitat that is found in a water source in Pennsylvania. They will write a short story describing this animal and habitat.
- Science Journal

Goal #2: Students will identify differences in living things and how they adapt and change in their environment for survival.

Objectives:

3.2.2.B2 Explore and describe how different forms of energy cause changes (e.g. sunlight, heat, wind).

3.2.2.B6 Recognize that 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.

Activities:

- FOSS Kit- Insects and Plants- Investigation #2
- Mystery Science- How Do Plants Grow?
- Brain Pop Jr.: Parts of a Plant/Plant Adaptations/Plant Life Cycle
- Ecosystem for Kids- Parts of a Plant
- Gynzy- Predator and Prey
- Generation Genius: External Plant Parts
Extra: Color Changing Celery
- Generation Genius: Plant Growth Conditions
Extra: Comparing Soil
- Generation Genius: Plants Need Water and Light
Extra: Grow Plants in a Jar

Resources:

- FOSS Kit- Insects and Plants
- www.mysteryscience.com
- www.brainpopjr.com
- www.Gynzy.com
- www.getepic.com
- www.discoveryed.com
- www.ecosystemforkids.com
- www.generationgenius.com

Assessments:

- Identifying and labeling the parts of a plant
- Identify that plants need soil, water, and sun to grow
- Define predator and prey and match animals to their roles
- Generation Genius quiz
- Science Journal

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Goal #3: Students will recognize and describe how different forms of energy cause changes and how light from the sun is an important source of energy that is needed for all living and nonliving systems and organisms to stay alive and grow.

Objectives:

3.2.2.B2 Explore and describe how different forms of energy cause changes (e.g. sunlight, heat, wind).

3.2.2.B6 Recognize that 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.

Activities:

- Mystery Science - How could you warm up a frozen playground?
- Gynzy - "The Sun"
- Gynzy- "The Wind"
- Gynzy- "Photosynthesis"
- Generation Genius- "Sunlight Warms the Earth"
Extra: Ice Melting Race
- Generation Genius- "Heating and Cooling"
Extra: Rainbow Crayons

Resources:

- www.mysteryscience.com
- www.gynzy.com
- www.generationgenius.com

Assessments:

- Gynzy- "The Sun" quiz
- Gynzy- "The Wind" quiz
- Gynzy- "Photosynthesis" quiz
- Generation Genius quiz
- Science Journal

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Unit 2: Natural Resources/Agriculture and Society/Humans and the Environment

Time Range in Days: 45 days

Standard(s):

PA Academic Standards Science, PA Common Core Standards Math, PA Common Core Standards ELA

Standards Addressed:

PA Academic Standards for Science and Technology and Engineering Education

https://static.pdesas.org/content/documents/PreK-2_Science_and_Technology_Standards.pdf

http://static.pdesas.org/content/documents/CF-Science_Grade2.pdf

Overview: Students will describe, identify, and explain natural resources and the jobs/hobbies people have to make various products. They will also describe how people can reduce pollution and create products by reducing, reusing, recycling, and composting.

Goal #1 The students will describe, identify and explain natural resources and the jobs/hobbies people have to make various products.

Objectives:

4.4.2.A Identify agriculture as a living system and that food and fiber originate from plants and animals

4.4.2.B Explain how agriculture supports jobs in Pennsylvania

4.3.2.A Describe the jobs/hobbies people have in the community that relate to natural resources

4.5.2.A Identify the natural resources used to make various products

Activities:

- Mystery Science- "Where Does Energy Come from?"
- Get Epic- "Farmers"
- Generation Genius- "Natural Resources"
Extra: Make Your Own Paper
- Generation Genius- "Changing the Shape of the Land"
Extra: Water Erosion Model

Resources:

- www.mysteryscience.com
- www.getepic.com
- www.generationgenius.com

Assessments:

- Mystery Science Worksheets- "Sun, Wind, and Water Energy"
- Get Epic- End of book quizzes
- Generation Genius Quiz
- Science Journal

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Goal #2 The students will describe how people can reduce pollution and create products by reducing, reusing, recycling, and composting.

Objectives:

4.3.2.B Identify products and by-products derived from renewable resources

4.5.2.C Identify how people can reduce pollution

4.5.2.D Describe how people can help the environment by reducing, reusing, recycling and composting

Activities:

- Gynzy- “Reduce, Recycle, Reuse”
- Discovery Ed- “Magic School Bus”
- Mystery Science- “How is plastic made?”
- Generation Genius- “Reducing Our Impact on Earth”
Extra: Paper Mache

Resources:

- www.gynzy.com
- www.discoveryed.com
- www.mysteryscience.com
- www.generationgenius.com

Assessments:

- Gynzy quiz
- Generation Genius Quiz
- Science Journal

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Unit 3: Chemistry/ Physical Science/Physics

Time Range in Days: 45 Days

Standard(s):

PA Academic Standards Science, PA Core Standards Math, PA Core Standards ELA

Standards Addressed:

PA Academic Standards for Science and Technology and Engineering Education

Links to SAS:

https://static.pdesas.org/content/documents/PreK-2_Science_and_Technology_Standards.pdf

http://static.pdesas.org/content/documents/CF-Science_Grade2.pdf

Overview: Students will recognize everything is made of matter and demonstrate how heating and cooling may cause changes in the properties and materials. They will also be able to explain how substances combine and separate.

Goal #1: The students will recognize everything is made of matter and demonstrate how heating and cooling may cause changes in the properties of materials.

Objectives:

3.2.2.A5 Constancy and change: Recognize that everything is made of matter.

3.3.2.A4 Explore and describe that water exists in solid (ice) and liquid (water) form. Explain and illustrate evaporation and condensation.

3.2.2.A3 Demonstrate how heating and cooling may cause changes in the properties of materials.

3.2.2.B2 Explore and describe how different forms of energy cause changes. (sunlight, heat, wind)

Activities:

- Ecosystem for Kids- "Solids, Liquids, Gases"
- Get Epic- "Solid or Liquid"
- Mystery Science- "Material Magic"- "Why are so many toys made out of plastic?"
- Get Epic- "Where did the water go?"
- Mystery Science- "Can we make it rain?"
- Gynzy- "The Water Cycle"
- Generation Genius- "Solids, Liquids, Gases"
Extra: Oobleck
- Generation Genius- "Water Cycle"
Extra: Solar Bowl

Resources:

- www.ecosystemforkids.com
- www.getepic.com
- www.mysteryscience.com
- www.generationgenius.com

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Assessments:

- Get Epic- End of book quizzes
- Mystery Science- "Make it Rain" experiment
- Label objects as solids, liquids, or gases
- Gynzy- Water Cycle quiz
- Science Journal

Goal #2: Students will explain how substances combine and separate.

Objectives:

3.2.2 A4 Experiment and explain what happens when two or more substances are combined (e.g. mixing, dissolving) and separated (e.g. filtering, evaporation).

Activities:

- Mystery Science- "Are magic potions real?"
- Get Epic- "Fun Experiments with Matter"
- Generation Genius- "Heating and Cooling"
Extra: Rainbow Crayons
- Brain Pop Jr- "Changing States of Matter"
- Brain Pop Jr- "Physical and Chemical Changes"

Resources:

- www.mysteryscience.com
- www.getepic.com
- www.generationgenius.com
- www.brainpopjr.com

Assessments:

- Science Journal
- Get Epic Experiments
- Generation Genius Quiz

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Unit 4: Motion/Sun and Moo

Time Range in Days: 45 Days

Standard(s):

PA Academic Standards Science, PA Core Standards Math, PA Core Standards ELA

Standards Addressed:

PA Academic Standards for Science and Technology and Engineering Education

Links to SAS:

https://static.pdesas.org/content/documents/PreK-2_Science_and_Technology_Standards.pdf

http://static.pdesas.org/content/documents/CF-Science_Grade2.pdf

Overview: Students will describe an object's position and motion. They will also observe and record the movement of the sun and the moon.

Goal #1: The students will describe an object's position and motion.

Objectives:

3.C.3.1: Observe and identify changes in an object's motion

3.C.3.1.1 Identify and describe an object's motion (e.g. start/stop, up/down, left/right, faster/slower, spinning)

3.C.1.2 Describe an object's position in terms of its relationship to another object or stationary background (e.g. behind, beside, on top of, above, below)

3.2.1.B1 Observe pushes and pulls

Activities:

- FOSS Balance and Motion- Investigation #2 Part 1- Tops
- FOSS Balance and Motion- Investigation #2 Part 2- Zoomers
- FOSS Balance and Motion- Investigation #3 Part 1- Rolling Wheels
- FOSS Balance and Motion- Investigation #3 Part 2- Rolling Cups
- FOSS Balance and Motion- Investigation #3 Part 3- Rolling Spheres
- FOSS Balance and Motion- Investigation #3 Part 4- Rolling Outdoors
- Gynzy- Changing Motion
- Generation Genius- "Pushes and Pulls"
Mini Golf

Resources:

- FOSS Balance and Motion Kit
- www.gynzy.com
- www.generationgenius.com

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Assessments:

- Science Journal
- FOSS Investigation Journal
- Generation Genius Quiz

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Goal #2: Students will observe and record the movement of the sun and the moon.

Objectives:

3.3.2.B1

Observe and record location of the sun and moon in the sky over one day.

Observe and record changes in the appearance of the Moon over a month.

Observe, describe, and predict seasonal patterns of sunrise and sunset.

Activities:

- Mystery Science- "How can the Sun help you if you are lost?"
- Gynzy- "Moon Phases"
Extra: Oreo Moon Phases
- Gynzy- "Day and Night"
- Get Epic- "The Moon"
- Get Epic- "Day and Night"
- Better Lesson- "Magnificent Moon"
- Better Lesson- "Moon Phases"
- Better Lesson- "Shadows on the Move"
- Generation Genius- "Gravity Pulls Things Down"
Extra: Gravity Beads
- Generation Genius- "Patterns in the Sky"
Extra: Shadow Tracing

Resources:

- <https://mysteryscience.com/sky/sun-moon-stars>
- www.gynzy.com
- www.getepic.com
- <https://betterlesson.com/lesson/634494/magnificent-moon>
- <https://betterlesson.com/lesson/634552/moon-phases>
- <https://betterlesson.com/lesson/634454/shadows-on-the-move>
- www.generationgenius.com

Assessments:

- Gynzy quiz
- Get Epic quiz
- Science Moon Journal
- Generation Genius Quiz

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