

Wallenpaupack Area School District

Wallenpaupack Area North Primary and South Elementary

Course Title: Grade Five Elementary Science

Length of Course: 120 minutes per week

District Policies:

Academic Integrity:

Academic integrity is essential to the success of an educational community. Students are responsible for learning and upholding professional standards of research, writing, assessment, and ethics in their areas of study. Written or other work which students submit must be the product of their own efforts and must be consistent with appropriate standards of professional ethics. Academic dishonesty, which includes cheating, plagiarism, multiple submissions and other forms of dishonest or unethical behavior, is prohibited.

Assessment:

The goal of grading is to report student progress and achievement to the parents to strengthen the home-school connection. The grade should accurately reflect the student's performance in mastering the PA Standards and the WASD curriculum.

Attendance:

Regular school attendance is vitally important to academic success. Not only does attendance reinforce and enrich the learning process; it also establishes patterns and attitudes that will carry forward into adult work habits. Regular, consistent attendance is a prerequisite to successful school life. Children should be absent only in cases of illness or emergency.

Special Education:

Our commitment to each student is to ensure a free appropriate public education which begins with the general education setting, with the use of Supplementary Aids and Services. Inclusive education describes the successful education of all students with the appropriate supports and services to participate in and benefit from the general classroom settings and other educational environments.

Course Description:

The elementary science curriculum provides opportunities for students to develop understanding and skills to become problem solvers in a scientific world. Students will be able to describe, discuss, identify and compare the following concepts: Earth features and processes that change it, Earth history, Earth resources, environment and ecology, pollution, cells, photosynthesis, ecology and ecosystems.

Pennsylvania State Standards:

Life Science: Cells and
Photosynthesis, Ecology and
Ecosystems

3.1.5.A2

Describe how life on earth depends on energy from the sun.

3.1.6.A2

Describe how energy derived from the sun is used by plants to produce sugars (**photosynthesis**) and is transferred within a food chain from producers (plants) to consumers to decomposers.

3.1.6.A8

SCALE

Explain why the details of most cells are visible only through a microscope.

3.1.7.A2

Describes how organisms obtain and use energy throughout their lives.

3.1.3.C2

Describe animal characteristics that are necessary for survival.

3.1.5.C1

Describe how organisms meet some of their needs in an environment by using behaviors (patterns of activities) in response to information (stimuli) received from the environment.

3.2.3.B6

ENERGY 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.

3.2.5.B3

Demonstrate how heat energy is usually a byproduct of an energy transformation.

4.1.3.E

Identify changes in the **environment** over time.

4.1.4.A

Explain how living things are dependent upon other living and nonliving things for survival.

- Explain what happens to an **organism** when its food supply, access to water, shelter or space (**niche / habitat**) is changed.
- Identify similarities and differences between living **organisms**, ranging from single-celled to multi-cellular **organisms** through the use of microscopes, video, and other media.

4.1.4.B

Identify how **matter** cycles through an **ecosystem**.

- Trace how death, growth, and decay cycle **matter** through an **ecosystem**

4.1.4.E

Explain that **ecosystems** change over time due to natural and/ or human influences.

4.1.5.A

Describe the roles of **producers, consumers, and decomposers** within a local **ecosystem**.

4.1.5.C

Describe different **food webs** including a **food web** containing humans.

4.1.7.A

Describe the relationships between **biotic** and **abiotic** components of an **ecosystem**.

- Compare and contrast different **biomes** and their characteristics
- Describe **symbiotic** and **predator/prey** relationships

4.4.3.D

Identify **technology** used in **agriculture**.

- Identify tools and machinery used in agricultural processes.

4.4.5.A

Explain why animal production is dependent upon plant production.

4.5.3.D

Describe how waste is generated.

- Identify and propose a solution for a waste issue in the school setting (e.g., litter in the hallway).

4.5.4.D

Describe a **waste stream**.

- Identify sources of waste derived from the use of **natural resources**.
- Identify those items that can be **recycled** and those that can not.

- Describe how everyday activities may affect the **environment**

[S3.A.1.1.1](#)

Distinguish between fact and opinion.

[S3.A.1.1.2](#)

Identify examples of common technological changes, past and present, in the community (e.g., energy production, transportation, communication, recycling).

[S3.B.1.1.1](#)

Identify and describe the functions of basic structures of animals and plants (e.g., animals [skeleton, heart, lungs]; plants [roots, stem, and leaves]).

[S3.B.2.1.1](#)

Identify adaptations of plants and animals that have helped them to survive.

[S3.B.2.1.3](#)

Identify characteristics for plant and animal survival in different environments (e.g., desert, forest, and ocean).

[S3.B.3.1.1](#)

Identify the living and nonliving components of an ecosystem (e.g., living [plants, animals]; nonliving [water, soil, air]).

[S3.B.3.1.2](#)

Describe the interactions between living and nonliving components of an ecosystem (e.g., plants [water, sunlight]; animals [air, shelter]).

[S3.B.3.2.1](#)

Describe what happens to an animal when its habitat is changed.

[S3.B.3.2.2](#)

Describe how changes in the environment (e.g., fire, flood) can affect an ecosystem.

[S3.B.3.2.3](#)

Describe how human interactions with the environment impact an ecosystem (e.g., road construction, pollution, urban development, dam building).

[S4.A.1.1.1](#)

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).

[S4.A.1.1.2](#)

Identify and describe examples of common technological changes past to present in the community (e.g., energy production, transportation, communications, agriculture, and packaging materials) that have either positive or negative impacts on society or the environment.

[S4.A.3.1.1](#)

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

[S4.A.3.1.2](#)

Explain a relationship between the living and nonliving components in a system (e.g., food web, terrarium).

[S4.A.3.1.3](#)

Categorize the parts of an ecosystem as either living or nonliving and describe their roles in the system.

[S4.B.1.1.1](#)

Identify life processes of living things (e.g., growth, digestion, respiration).

[S4.B.1.1.4](#)

Describe how different parts of a living thing work together to provide what the organism needs (e.g., parts of plants: roots, stems, leaves).

[S4.B.2.1.1](#)

Identify characteristics for plant and animal survival in different environments (e.g., wetland, tundra, desert, prairie, deep ocean, forest).

[S4.B.2.1.2](#)

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).

[S4.B.3.1.2](#)

Describe interactions between living and nonliving components (e.g. plants – water, soil, sunlight, carbon dioxide, temperature; animals – food, water, shelter, oxygen, and temperature) of a local ecosystem.

[S4.B.3.2.1](#)

Describe what happens to a living thing when its habitat is changed.

[S4.B.3.2.2](#)

Describe and predict how changes in the environment (e.g., fire, pollution, flood, building dams) can affect systems.

[S5.B.1.1.1](#)

Recognize that all organisms are composed of cells.

[S5.B.1.1.2](#)

Explain the concept of the cell as the basic structural unit of all living things.

[S5.B.1.1.3](#)

Compare the structure and function of basic cell parts in organisms (i.e., plants and animals).

[S5.B.2.1.4](#)

Identify changes in environmental conditions that can affect the survival of populations and entire species.

[S5.B.3.1.1](#)

Describe the roles of producers, consumers, and decomposers within a local ecosystem.

[S5.B.3.1.2](#)

Describe the relationships between organisms in different food webs.

[S5.B.3.2.1](#)

Identify fossil fuels and alternative fuels used by humans.

[S5.B.3.2.2](#)

Describe the usefulness of Earth's physical resources as raw materials for the human-made world.

[S5.B.3.2.3](#)

Explain how different items are recycled and reused.

[S6.A.1.1.3](#)

Predict the outcome of an experiment based on previously collected data.

[S6.A.1.2.1](#)

Use evidence, observations, or explanations to make inferences about changes in systems over time.

[S6.A.1.2.2](#)

Identify variables that cause changes in natural or human-made systems.

[S6.A.2.1.1](#)

Use evidence, observations, or a variety of scales to describe relationships.

[S6.A.2.1.2](#)

Identify variables that cause changes in natural or human-made systems.

[S6.B.1.1.1](#)

Describe how cells carry out the many functions needed to sustain life.

[S7.A.1.1.1](#)

Distinguish between a scientific theory and a general opinion, explaining how a theory is supported with evidence.

[S7.A.1.1.3](#)

Use evidence such as observations or experimental results to support inferences.

[S7.A.1.1.4](#)

Use evidence to develop descriptions, explanations, and models.

[S7.A.1.3.2](#)

Use evidence, observations, or explanations to make inferences about changes in systems over time (e.g., carrying capacity, succession, fossil evidence in the geologic time scale).

[S7.A.2.1.1](#)

Use evidence from investigations to clearly describe relationships and communicate and support conclusions.

[S7.B.1.2.1](#)

Explain how cells arise from the division of a pre-existing cell.

[S7.C.2.1.1](#)

Describe how energy is obtained and used by organisms throughout their lives.

[S7.C.2.1.2](#)

Describe how energy is transferred and conserved in a closed system.

[S7.C.2.1.3](#)

Describe energy transformations within an ecosystem.

Earth Science: Earth's Features and Processes that Change it, Earth's

[3.3.4.A1](#)

Describe basic landforms.

History, Plate Tectonics

Identify the layers of the earth.

Recognize that the surface of the earth changes due to slow processes and rapid processes.

3.3.5.A1

Describe how landforms are the result of a combination of destructive forces such as erosion and constructive erosion, deposition of sediment, etc.

3.3.5.A3

Explain how geological processes observed today such as erosion, movement of lithospheric plates, and changes in the composition of the atmosphere are similar to those in the past.

S3.D.1.1.1

Recognize that rock is composed of different kinds of minerals.

S3.D.1.1.2

Describe the composition of soil as weathered rock and decomposed organic material.

S3.D.1.2.3

Describe the ways living things benefit from the uses of water resources.

S3.D.1.3.1

Identify ways that cause Earth's surface to be constantly changing (e.g., wind and water erosion, contraction and expansion of surfaces).

S3.D.1.3.2

Distinguish between ways that tear down the surface of Earth and those that build up the surface (e.g., erosion, weathering, volcanic activity, earthquakes).

S3.D.1.3.3

Distinguish between slow and rapid changes to Earth's surface (i.e., rapid [earthquakes, volcanic activity]; slow [weathering, erosion]).

S3.D.2.1.3

Identify appropriate instruments to study and measure weather elements (i.e., thermometer [temperature]; wind vane [wind direction]; anemometer [wind speed]; rain gauge [precipitation]).

S4.D.1.1.3

Describe the composition of soil as weathered rock and decomposed organic remains.

S4.D.1.2.2

Identify the types and uses of Earth materials for renewable, nonrenewable, and reusable products (e.g., human-made products: concrete, paper, plastics, fabrics).

S5.B.3.2.1

Identify fossil fuels and alternative fuels used by humans.

S5.B.3.2.2

Describe the usefulness of Earth's physical resources as raw materials for the human-made world.

S5.B.3.2.3

Explain how different items are recycled and reused.

[S5.C.1.2.1](#)

Describe how water changes from one state to another.

[S5.C.1.2.2](#)

Identify differences between chemical and physical changes of matter.

[S5.D.1.1.1](#)

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).

[S5.D.1.1.2](#)

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.

[S5.D.1.2.1](#)

Identify physical, chemical, and biological factors that affect water quality.

[S5.D.1.2.2](#)

Describe the importance of wetlands in an ecosystem.

[S5.D.2.1.1](#)

Explain how the cycling of water into and out of the atmosphere impacts climatic patterns.

[S5.D.2.1.2](#)

Explain the effects of oceans and lakes on climate.

Environment and Ecology: Pollution

[3.4.5.B2](#)

Describe how waste may be appropriately recycled or disposed of to prevent unnecessary harm to the environment.

[4.3.7.B](#)

Explain the distribution and management of **natural resources**.

- Differentiate between resource uses: **conservation, preservation, and exploitation**

[4.5.3.C](#)

Identify different types of pollution and their sources.

[4.5.4.C](#)

Describe how human activities affect the **environment**.

[4.5.5.C](#)

Explain the difference between point and **non-point source pollution**.

[S4.A.1.1.1](#)

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).

[S4.A.1.1.2](#)

Identify and describe examples of common technological changes past to present in the community (e.g., energy production, transportation, communications, agriculture, and packaging materials) that have either

positive or negative impacts on society or the environment.

[S4.B.3.2.1](#)

Describe what happens to a living thing when its habitat is changed.

Standards Incorporated in All Grade levels

[S3.A.1.1.1](#)

Distinguish between fact and opinion.

[S3.D.1.2.1](#)

Describe why certain resources are renewable and other resources are nonrenewable.

[S3.D.1.2.2](#)

Identify and describe examples of renewable and nonrenewable resources.

[S4.A.2.2.1](#)

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, and telescope).

[S4.A.3.1.2](#)

Explain a relationship between the living and nonliving components in a system (e.g., food web, terrarium).

[S4.A.3.1.3](#)

Categorize the parts of an ecosystem as either living or nonliving and describe their roles in the system.

[S4.B.3.3.5](#)

Describe the effects of pollution (e.g., litter) in the community.

