

Oakview Preparatory School

Long Range Plans

Teacher: *Karen Austin*

Curriculum: North American Division of SDA and New York State

Other Resources: videos, hands on interactive experiments, supplemental resource books

Assessments: quizzes, tests, research reports, projects, class participation, cooperative group work, classwork and homework

Grading Policy: homework **10%** classwork **20%** projects **20%** quizzes **5%** tests **40 %** Misc. **5%** late work will have a **5% deduction**

The students will master the following topics with 90% accuracy and score 85% or better on tests and given activities by the end of the stated time period.

adjustments may be made at the teacher's discretion

Science Grade: 5

Text: By Design Science 5

First Marking Period

September Lab/Projects: cell models, folding paper, lab safety sort

Scientific Method

Lab safety procedures

Scientific method review

Project assignment

Chapter 1 Living Things

- What are living things
- How are living systems organized
- How do cells divide and reproduce

MAP Tests of Basic Skills

Objectives

NYSSLS Standard 1: Students will use scientific inquiry to pose questions, seek answers, and develop solutions.

NYSSLS Standard 4: Students will demonstrate the ability to design and carry out investigations using scientific processes.

NYSSLS Standard 6: Students will demonstrate understanding of the interrelationships among science, technology, and society.

3-LS1-1 (Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death)

MS-LS1-3 (Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells)

October Lab: Classification (new text p 48), taste perception (internet)

Chapter 2 Classification of Organisms

- How do we classify organisms
- What are the domains of life
- What are fish, amphibians and reptiles
- What are birds and mammals

Objectives

MS-LS4-2: This standard focuses on analyzing and interpreting data for patterns in the similarities and differences among anatomical and embryological structures of modern organisms and between modern and fossil organisms. It directly supports the understanding of how organisms are classified based on these similarities and differences.

MS-LS4-1: This standard asks students to analyze and interpret data to provide evidence for the patterns of change in species over time. Understanding the domains of life—Archaea, Bacteria, and Eukarya—relates to recognizing how life has diversified and evolved over time.

MS-LS4-2: This also relates to identifying characteristics that are common among groups of organisms, which is crucial for classifying vertebrates like fish, amphibians, and reptiles.

MS-LS1-4: This standard involves using evidence to explain the structure and function of different body systems across various organisms. This includes understanding the unique adaptations and characteristics of birds and mammals.

Second Marking Period

November Lab/Project: lift off bird wings BFEK p. 134,

Chapter 3 Adaptation

- What is adaptation
- What are physical adaptations
- What are behavioral adaptations
- What are some plant adaptations

Objectives

Performance Expectation (PE): 4-LS1-Standard: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

Performance Expectation (PE): 4-LS1-2 Standard: Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

Performance Expectation (PE): 5-LS1-1 Standard: Support an argument that plants get the materials they need for growth chiefly from air and water.

Performance Expectation (PE): 5-LS2-1 Standard: Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

Performance Expectation (PE): MS-LS1-4 Standard: Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants.

Performance Expectation (PE): MS-LS1-5 Standard: Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.

December

Chapter 4 Organisms Interact

- What is an ecosystem
- How does energy flow in an ecosystem
- How do organisms interact

Objectives

Ecosystems (LS2) Understanding Ecosystems: Explore what constitutes an ecosystem, including the relationships between living organisms and their environments.

Energy Flow: Examine how energy flows through ecosystems, from producers (plants) to consumers (animals) and decomposers.

Interactions and Interdependence (LS2.A)

Organism Interactions: Investigate how organisms interact with one another and their environment, including predation, competition, and symbiosis.

Energy Transfer: Understand how energy is transferred through different levels of an ecosystem (e.g., food chains and food webs).

Biodiversity and Adaptations (LS4)

Adaptations and Survival: Study how adaptations help organisms survive in their specific ecosystems and how biodiversity contributes to ecosystem health.

Science and Engineering Practices (PS2)

Conducting Investigations: Encourage students to observe and investigate ecosystems, examining how energy flows and how organisms interact within them.

Systems and System Models: Use models to represent and understand ecosystems and the interactions between organisms and their environment.

January

Review for midterms

Midterms January

Third Marking Period

February

Labs/projects: lights out plants p 58 BFEK, water pressure ESFE p203

Chapter 7 Common Diseases and Disorders

- How do we fight viruses and microorganisms
- What are diseases
- Why do we care about health

Objectives

Interdependence of Organisms (LS1) Understand how organisms rely on one another and their environment. Explore the role of microorganisms in health and disease.

Structure and Function (LS1.A) Investigate how the structure of organisms, including humans, supports their functions and how this relates to health.

Microorganisms and Disease Ecosystems and Interactions (LS2) Examine how microorganisms interact with their environments and with other organisms. Discuss the role of microorganisms in ecosystems and their impact on health.

Health and Disease (LS4) Explore what diseases are, how they are transmitted, and how the body defends itself against them. Understand basic ways to prevent and control the spread of diseases.

Science and Technology (ETS1) Investigate how scientific knowledge and technology are used to address health issues, including the development of vaccines and antibiotics.

Science in Personal and Social Perspectives (ESS3) Discuss the importance of health and hygiene practices in everyday life and their impact on community health.

Scientific Inquiry (PS2) Encourage students to ask questions about health, disease, and microorganisms, and conduct investigations to find answers.

March **Lab: divers buoyancy p 204 ESFEK, sink or swim internet**

Chapter 9 Earth's Ocean

- What is the ocean floor like
- How does ocean water move
- What are ocean ecosystems

Objectives

Earth's Systems (ESS2)

Ocean Floor: Investigate the features of the ocean floor, including its topography and the processes that shape it (e.g., seafloor spreading, underwater mountains, and trenches).

Ocean Water Movement: Explore how ocean water moves, including surface currents, deep ocean currents, and their impact on climate and weather patterns.

Earth's Surface Processes (ESS2.A)

Ocean Floor Characteristics: Examine the structure and features of the ocean floor and how these affect marine environments.

Water Movement: Understand the role of ocean currents in distributing heat and nutrients throughout the ocean.

Ecosystems (LS2)

Ocean Ecosystems: Study different ocean ecosystems, such as coral reefs, kelp forests, and the deep sea, and understand the interactions between organisms and their environment.

Energy Flow and Organism Interactions: Explore how energy flows through ocean ecosystems and how organisms interact within these environments.

Biodiversity and Adaptations (LS4)

Adaptations to Marine Environments: Learn how marine organisms have adapted to their oceanic habitats and the importance of biodiversity in maintaining healthy ocean ecosystems.

Scientific Inquiry and Application

Science and Engineering Practices (PS2)

Conducting Investigations: Engage in hands-on activities and experiments to explore the features of the ocean floor, water movement, and ocean ecosystems.

Patterns and Systems: Use patterns and systems thinking to understand the interconnectedness of ocean features, water movement, and marine life.

Chapter 10 People and Earth

- Why is the ocean important
- What causes the ocean to change
- How have people changed earth's land and water
- What happens when ecosystems are changed

Objectives

Earth and Human Activity (ESS3) Modification of Environments: Study how human activities have altered Earth's land and water, including urban development, deforestation, and agriculture.

Environmental Consequences: Investigate the consequences of these changes for ecosystems and human communities.

Engineering and Technology (ETS1)

Design Solutions: Explore how engineering and technology can address environmental challenges and mitigate human impact on land and water.

Ecosystems (LS2)

Impact on Ecosystems: Understand how changes in ecosystems, whether from natural events or human activities, affect the balance of organisms and the health of the environment.

Adaptations and Responses: Explore how organisms adapt to changes in their ecosystems and the role of biodiversity in ecosystem resilience.

Biodiversity and Conservation (LS4)

Consequences of Ecosystem Changes: Study how changes in ecosystems can lead to shifts in biodiversity, species extinction, and impacts on ecosystem services.

Fourth Marking Period

April

Chapter 5 Puberty and the Reproduction System

- What is God's plan for sexuality
- How do boys and girls grow and change
- What is God's plan for reproduction

Objectives

structure and Function (LS1.A) Growth and Development: Understand the basic stages of human growth and development, including physical changes during puberty for both boys and girls.

Reproduction (LS1.B) Human Reproduction: Learn about the human reproductive system, including the basic functions of the male and female reproductive organs and the process of reproduction.

Organization for Matter and Energy Flow (LS1.C) Body Systems: Explore how various body systems work together to support human growth and development, including the reproductive system.

Science in Personal and Social Perspectives (ESS3) Health Education: Understand the importance of health education related to human development and reproductive health.

Ethics and Values While the New York State Science Standards focus on scientific understanding and do not delve into religious or ethical perspectives such as "God's plan," these topics might be addressed within the context of personal or family values in other educational settings. For a comprehensive approach to human growth and reproductive health that includes ethical or religious perspectives, it would be appropriate to integrate teachings from health education and family life education programs that align with the broader educational curriculum.

Chapter 6 Conception, Pregnancy, and Birth

- How does a baby develop throughout pregnancy
- How is a baby born

Objectives

Structure and Function (LS1.A) Development Throughout Pregnancy: Understand how a baby develops in the womb, including the stages of fetal development from conception to birth.

Reproduction (LS1.B) Pregnancy and Birth: Learn about the process of pregnancy and the birth process, including how the baby is delivered.

Organization for Matter and Energy Flow (LS1.C) Development and Birth: Explore how the reproductive system supports the development of a fetus and how the body prepares for childbirth.

Human Development Growth and Change (LS1.D) Fetal Development: Study the stages of human development from conception through pregnancy, and the physiological changes that occur during birth.

Science in Personal and Social Perspectives (ESS3) Educational Content: Discuss basic health education topics related to pregnancy and childbirth as part of understanding human growth and development.

May

Chapter 11 Forms of Energy

- What are potential and kinetic energy
- How do thermal energy and matter interact
- What are sound waves

Objectives

Energy and Matter (PS3) Potential and Kinetic Energy: Understand the concepts of potential energy (stored energy) and kinetic energy (energy of motion). Explore how these forms of energy are related and how they transform from one to another.

Thermal Energy: Investigate how thermal energy affects matter, including how heat transfers between objects and how it can change the state of matter (e.g., melting, boiling).

Heat and Temperature (PS3.B) Interaction of Thermal Energy and Matter: Explore how thermal energy interacts with matter, including how it flows from hotter to cooler areas and the impact of this on the physical state and temperature of objects.

Waves and Information Transfer (PS4) Sound Waves: Learn about sound waves, including how they travel through different materials and how they are produced and detected. Investigate the properties of sound waves such as pitch and volume.

Properties of Waves (PS4.A) Wave Behavior: Study how sound waves behave, including reflection, absorption, and transmission, and how these properties affect how we hear and use sound.

Science and Engineering Practices (PS2) Conducting Experiments: Engage in experiments and investigations to understand energy forms, including measuring and observing energy changes and interactions.

Crosscutting Concepts (CCC) Patterns and Systems: Use patterns and systems thinking to understand how energy forms interact and transform within different systems.

June

Review for finals

Final exams