

**TUNKHANNOCK AREA SCHOOL DISTRICT
SCIENCE CURRIULUM
GRADE 1**

Unit: A Life Science Chapter 1 (Living and Nonliving)

- 4.1.1.A – Identify and describe the basic needs of living things in a terrestrial habitat.
- 3.1.1.A.1 – Categorize living and nonliving things.
- 3.1.1.A.2. – Importance of sun, energy, water, food, nutrients, air, shelter.

- Students will be able to use their learning independently to:***
- Identify words and construct meaning from the text, illustrations, graphics, and charts using the strategies of phonics, word structure, and context clues.
 - Use knowledge of appropriate grade-age-, and student developmental-level vocabulary in reading.
 - Know how to classify things as living and nonliving.
 - Know that environments have living and nonliving parts.
 - Understands that living things need food, water, space and shelter to survive.
 - Understands why living things must have food, water, shelter and space to survive.
 - Use simple graphs, pictures, written statements, and numbers to observe, describe, record, and compare data.

Big Idea(s)	Essential Questions
<ul style="list-style-type: none"> • Living things need food to grow and reproduce. An object that cannot eat or make food, move or respond on its own, grow, and reproduce is not called a living thing. 	<ul style="list-style-type: none"> • What do living things need? • What do plants need? • What do animals need? • What are nonliving things?
Knowledge	Skills
<ul style="list-style-type: none"> • Living • Shelter • Non-living 	<ul style="list-style-type: none"> • Classify living and nonliving objects. • Classify plants and animals. • Identify what living organisms need for survival.

Unit: A Life Science Chapter 2 (Habitats)

- 4.1.1.A – Identify and describe the basic needs of living things in a terrestrial habitat.

Students will be able to use their learning independently to:

- Identify words and construct meaning from text, illustrations, graphics, and charts using the strategies of phonics, word structure, and context clues.
- Know that animals and plants can be associated with their environment by an examination of their structural characteristics.
- Know that plant and animals live in a particular habitat.
- Know some characteristics of different environments and some plants and animals found there.
- Know the characteristics of the climate in different habitats.
- Use information gathered to identify patterns in nature to make predictions.

Big Idea(s)	Essential Questions
<ul style="list-style-type: none">• Plants and animals live in habitats. Habitats are places where living things live and grow. A habitat includes physical features, climate, and all the organisms that live there. A habitat is a place where plants and animals get everything they need to live.	<ul style="list-style-type: none">• Where do plants and animals live?• What is a forest habitat?• What is a wetland habitat?• What is an ocean habitat?• What is a desert habitat?
Knowledge	Skills
<ul style="list-style-type: none">• Habitat• Forest• Wetland• Ocean• Desert	<ul style="list-style-type: none">• Identify types of habitats.• Identify which animals coexist in each habitat.• Describe what occurs to an organism when its habitat is altered.

Unit: B Earth Science Chapter 7 (Weather)

- 3.3.1.A.5 Become familiar with weather instruments. Collect basic weather data over time.
- 4.1.1.E. Describe the seasons and how the change of seasons affects living things.
- 4.2.1.A. Explain the path water takes as it moves through the water cycle.

Students will be able to use their learning independently to:

- Identify words and construct meaning from text, illustrations, graphs, and charts using the strategies of phonics, word structure, and context clues.
- Work collaboratively to solve a problem or complete an experiment.
- Use the senses, tools, and instruments to obtain information from his or her surroundings.
- Recognize patterns in weather.
- Know that most natural events occur in patterns.
- Use simple graphs, pictures, written statements, and numbers to observe, describe, record, and compare data.
- Use a variety of tools to identify characteristics of objects.

Big Idea(s)	Essential Questions
<ul style="list-style-type: none">• A season is a time of year. The four seasons are spring, summer, fall and winter. The weather may be very different from season to season in some places. In the spring, the temperature shown on a thermometer may be warm and there may be lots of rain. The summer may be hot and sunny. Temperatures are cooler in the fall than in the summer. During the fall, windy days may help leaves drop from some trees. Winter is the coldest season. It may snow in some places during winter.	<ul style="list-style-type: none">• What are the four seasons?• How can you measure weather?• How do clouds form?• What are some kinds of wet weather?• What are the four seasons?
Knowledge	Skills
<ul style="list-style-type: none">• Weather• Thermometer• Temperature• Water vapor• Clouds• Sleet• Season	<ul style="list-style-type: none">• Observe patterns in weather.• Make predictions of upcoming weather based on clouds seen.• Read a thermometer.• Identify characteristics of each season.

Unit: C Physical Science Chapter 8 (Observing Matter)

- 3.2.1.A.1. Observe and describe the properties of liquids and solids. Investigate what happens when solids are mixed with water and other liquids are mixed with water.
- 3.2.1.A.3. Identify how heating, melting, cooling, etc., may cause changes in properties of materials.
- 3.2.1.A.4. Observe and describe what happens when substances are heated or cooled. Distinguish between changes that are reversible.
- 3.2.1.A.5. Recognize that everything is made of matter.

Students will be able to use their learning independently to:

- Identify words and construct meaning from text, illustration, graphics, and charts using the strategies of phonics, word structure, and context clues.
- Work with others to complete an experiment or to solve a problem.
- Know that objects are composed of parts that are too small to be seen without magnification.
- Know that objects can be grouped according to their physical characteristics.
- Know the effects of heating and cooling on solids, liquids, and gases.
- Know the physical properties of ice, water, and steam.
- Recognize systems of matter and energy.

Big Idea(s)	Essential Questions
<ul style="list-style-type: none"> • All objects are made up of matter. Matter is anything that takes up space. Matter has mass. Matter exists as solids, liquids, and gases. The form of matter can change. One change is when solid matter dissolves, or spreads throughout a liquid. Another change is when liquid matter evaporates, or changes into a gas. All objects can be described by what type of matter they are made of. 	<ul style="list-style-type: none"> • How can objects be classified? • What is matter? • What are solids, liquids, and gases? • How does matter change? • How can water change? • What are other ways matter changes?
Knowledge	Skills
<ul style="list-style-type: none"> • Matter • Mass • Solid • Liquid • Gas • Dissolve • Evaporate 	<ul style="list-style-type: none"> • Identify the physical properties of ice, water, and steam. • Recognize the effects of heating and cooling on solids, liquids, and gases. • Group objects according to their physical characteristics.

Unit: A Life Science Chapter 3 (How Plants and Animals Live)

- 3.1.1.A.1 – Categorize living and nonliving things.
- 3.1.1.A.2. – Importance of sun, energy, water, food, nutrients, air, shelter.
- 3.1.1.A.5. – Identify and describe plant parts and their function.
- 3.1.1.B.1. – Grow plants from seed and describe how they grow and change. Compare to adult plants.

Students will be able to use their learning independently to:

- Use knowledge of appropriate grade-age, and developmental level vocabulary in reading.
- Use a variety of tools to identify characteristics of objects.
- Know that plants and animals have adaptations that help them survive in their environment.
- Know some ways in which animals and plants are adapted to living in different environments.
- Know that animals and plants can be associated with their environment by an examination of their structural characteristics.
- Compare and describe the structural characteristics of plants and animals.
- Know some ways in which animals and plants are adapted to living in different environments.

Big Idea(s)	Essential Questions
<ul style="list-style-type: none">• A living thing has parts and habits that may help it survive in its habitat. Structures, such as beaks, whiskers, fur, claws, and eye, help animals get food, protect themselves, and hide from predators. Plants use thorns or spines to stay safe, while the leaf makes food.	<ul style="list-style-type: none">• How do parts help living things?• What helps animals live in their habitat?• How do animals get food?• What can help protect animals?• What are some parts of plants?• What helps protect plants?
Knowledge	Skills
<ul style="list-style-type: none">• Antennae• Camouflage• Root• Stem• Leaf• Flower	<ul style="list-style-type: none">• Grow plants from seed and describe how they grow and change.• Compare the characteristics of plants and animals.• Describe the characteristics of plants and animals.• Identify the parts of plants and their functions.

Unit: B Earth Science Chapter 6 (Land, Air, and Water)

- 3.3.1.A.4. – Identify and describe types of fresh and salt-water bodies.

- 4.4.1.A. – Describe the role of soil in agricultural systems.
- 4.5.1.A. – Identify resources humans use from the environment.
- 4.5.1.C. – Describe how pollution affects the health of a habitat.
- 4.5.1.D. – Identify where waste from the home, school and community goes for disposal.

Students will be able to use their learning independently to:

- Use models as representations of real things.
- Extend and refine knowledge that the surface of the Earth is composed of different types of solid materials.
- Know that erosion and weathering change land and that organisms cause changes in the environment where they live.
- Know some kinds of organisms that live on or near the surface of the Earth in land, water, and air.
- Extend and refines knowledge of ways to care for the Earth at home and in school.

Big Idea(s)	Essential Questions
<ul style="list-style-type: none"> • Land, water, and air are important because they are natural resources, parts of Earth used by living things. People grow food in soil and make things out of rock. Plants, such as trees, grow in land and need water to survive. People and animals drink water, and some animals live in water. Plants need clean air to grow, and people and animals breathe air. It is important that people try to save Earth's land, water, and air by reducing, reusing, and recycling. 	<ul style="list-style-type: none"> • How are land, water, and air important? • What makes up Earth? • What are rocks and soil? • What changes land? • How do living things use natural resources? • How can you reduce, reuse, and recycle?
Knowledge	Skills
<ul style="list-style-type: none"> • Rocks • Sand • Natural Resource • Clay • Humus • Weathering • Erosion • Minerals 	<ul style="list-style-type: none"> • Classify where animals live. • Make a model of the Earth. • Observe ways in which people around you help the Earth. • Make a model to demonstrate weathering.

Unit: A Life Science Chapter 5 (Food Chains)

- 4.1.1.C. – Describe a simple food chain within a terrestrial habitat.

Students will be able to use their learning independently to:

- Know that plants and animals are dependent upon each other for survival.
- Use prior knowledge, illustrations, and text to make predictions.
- Know that plants produce oxygen and food for animals.
- Understand that animals can be grouped according to what they eat.
- Know the basic needs of all living things.
- Understand that living things are part of a food chain.

Big Idea(s)	Essential Questions
<ul style="list-style-type: none">• Living things are connected through food chains. A food chain shows how each living thing gets the food it needs. Plants are able to make food by using air, light, and water. Animals get food by eating plants and other animals.	<ul style="list-style-type: none">• How are living things connected?• How do plants and animals get food?• How do living things get food in a rain forest?• How do living things get food in a marsh?
Knowledge	Skills
<ul style="list-style-type: none">• Oxygen• Rain forest• Food chain• Marsh	<ul style="list-style-type: none">• Identify the basic needs that living things have.• Describe a food chain.• Create a model of a food chain.

Unit: C Physical Science Chapter 9 (Movement and Sound)

- 3.2.1.B.1. Demonstrate various types of motion. Observe and describe how pushes and pulls change the motion of objects.

Students will be able to use their learning independently to:

- Listen, records, and compares the ideas and observations of others.
- Understand various ways gravity affects the motion of objects.
- Know that various things move at different speeds when different forces are applied.
- Investigate by observing and then describing how things move in many different ways, such as straight, zigzag, around and around, and back and forth.
- Observe the effects some objects have on others even when the two objects might not touch.
- Know that magnetism is a force that may attract or repel certain materials.
- Know that vibrations of objects cause sounds.
- Describe sounds from common sources.

Big Idea(s)	Essential Questions
<ul style="list-style-type: none"> • Forces make objects move. A force is a push or a pull. Gravity is a force that pulls matter toward Earth's surface. A magnet creates a force that attracts or repels certain metals. A force can also make an object vibrate to produce sound. 	<ul style="list-style-type: none"> • What makes objects move? • What makes things move? • What is speed? • How do things move? • What do magnets do? • How are sounds made? • What sounds are around us?
Knowledge	Skills
<ul style="list-style-type: none"> • Force • Gravity • Speed • Magnet • Attract • Pole • Repel • Vibrate 	<ul style="list-style-type: none"> • Identify what makes things move. • Demonstrate the effect two magnets have on one another. • Identify and compare examples of pitch.

Unit: D Space and Technology Chapter 12 (Science in Our World)

- 4.4.1.B. – Identify products and byproducts of the agricultural system.
- 4.4.1.C. – Describe the life cycles of different plants and animals in terrestrial habitat.
- 4.4.1.D. – Identify tools used by native Americans and early settlers in agriculture.

Students will be able to use their learning independently to:

- Use simple graphs, pictures, written statements, and numbers to observe, describe, record, and compare data.
- Know that the activities of humans affect plants and animals in many ways.
- Investigate that tools are used to help make things and some things cannot be made without tools.
- Know that humans depend on their constructed environment.
- Investigate that when parts are put together they can do things that they could not do by themselves.
- Recognize the impact of information technology on their daily lives.

Big Idea(s)	Essential Questions
<ul style="list-style-type: none"> • Our food comes from lakes, oceans, forests, animals, and crops. Technology is the use of knowledge to solve problems. Technology helps farmers grow crops, harvest crops, and transport crops to stores. We use tools to help us make our work easier. We use tools to help us cook our food and to cut down wood to build our houses. A simple machine is a tool with few or no moving parts. Types of simple machines include the wedge, wheel and axle, screw, lever, pulley, and inclined plane. Technology can be used by people to communicate with others. 	<ul style="list-style-type: none"> • How does technology help people? • How do farmers use technology to grow food? • How does food get from the farm to the store? • What tools can you use to make dinner? • How do builders get wood for a house? • What are simple machines? • What can you use to communicate?
Knowledge	Skills
<ul style="list-style-type: none"> • Technology • Simple machines • Wheel and axle • Pulley • Inclined plane • Wedge • Screw • Level 	<ul style="list-style-type: none"> • Identify examples of simple machines. • Understand how simple machines changed the development of man. • Identify a simple machine that you use every day. • Compare technology past to present.

Unit: A Life Cycle Chapter 4 (Life Cycles)

- 3.1.1.A.2. Investigate the dependence of living things on the sun’s energy, water, food/nutrients, air, living space, and shelter.
- 3.1.1.A.5. Identify and describe plant parts and their function.
- 3.1.1.B.1. Grow plants from seed and describe how they grow and change. Compare to adult plants.

Students will be able to use their learning independently to:

- Know ways organisms change as they grow and mature.
- Know that living things grow and change in different ways and in different lengths of time.
- Know that plants and animals are similar but not identical to their parents.
- Know that in order to learn, it is important to observe the same things often and compare them.

Big Idea(s)	Essential Questions
<ul style="list-style-type: none"> • Each kind of living thing goes through a predictable series of changes as it grows that are repeated generation after generation. The changes are called a life cycle. The life cycles of animals are often mysterious to children. Comparing and contrasting life cycles can help children see the similarities and difference among living things. 	<ul style="list-style-type: none"> • How do animals and plants grow and change? • How does a frog grow? • How does a butterfly grow? • How do animals grow and change? • How does a daisy grow? • How do trees grow? • How do plants grow and change?
Knowledge	Skills
<ul style="list-style-type: none"> • Tadpole • Life cycle • Larva • Pupa • Seed coat • Seedling 	<ul style="list-style-type: none"> • Identify the growth process of different organisms. • Compare the growth patterns of different organisms. • Recognize that organisms are similar to their parents but not identical.

Unit: C Physical Science Chapter 10 (Learning About Energy)

- 3.2.1.B.1. Demonstrate various types of motion. Observe and describe how pushes and pulls change the motion of objects.
- 3.2.1.B.5. Compare and contrast how light travels through different materials. Explore how mirrors and prisms can be used to redirect a

light beam.

- 3.2.1.B.6. 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.
- 3.3.1.B.1. Explain why shadows fall in different places at different times of the day.

Students will be able to use their learning independently to:

- Know that the Sun supplies heat and light energy to Earth.
- Know that heat can be produced in many ways.
- Know that heat from the Sun has varying effects depending on the surface it strikes.
- Know that light can pass through some objects and not others.
- Recognize systems of matter and energy.
- Know ways that human activities require and release energy.
- Understand that people need food for energy.
- Know the nutritional value of various foods.
- Predict which materials will allow light to pass through and which will not.
- Work with others to complete an experiment or solve a problem.

Big Idea(s)	Essential Questions
<ul style="list-style-type: none"> • Energy can change things. Light is a form of energy. Light from the Sun heats the land, water, and air. Electricity can provide energy. Electricity can travel through power lines. Food and fuel can also provide energy. People and animals use the energy in food for all of their activities. 	<ul style="list-style-type: none"> • Where does energy come from? • What gives off heat? • What can energy do? • What makes light and shadows? • What uses energy around us? • How do you get energy?
Knowledge	Skills
<ul style="list-style-type: none"> • Heat • Energy • Shadow • Fuel • Electricity • Battery 	<ul style="list-style-type: none"> • Recognize that the Sun supplies heat and light energy to the Earth. • Identify systems of matter and energy. • Predict which materials will allow light to pass through and which will not. • Works collaboratively with others to solve problems.

Unit: D Day and Night Sky Chapter 11 (Day and Night Sky)

- 3.2.1.B.1. Demonstrate various types of motion. Observe and describe how pushes and pulls change the motion of objects.
- 3.2.1.B.5. Compare and contrast how light travels through different materials. Explore how mirrors and prisms can be used to redirect a light beam.
- 3.2.1.B.6. 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.
- 3.3.1.B.1. Explain why shadows fall in different places at different times of the day.

- Students will be able to use their learning independently to:**
- Use standard and nonstandard units to measure organisms and objects and parts of organisms and objects.
 - Know and differentiate objects seen in the day and night sky.
 - Know that the Sun supplies heat and light energy to Earth.
 - Know that night and day are caused by the rotation of the Earth.
 - Know that the amount of light reflected by the Moon is a little different every day, but the Moon appears the same again.
 - Use a variety of tools to identify characteristics of objects.

Big Idea(s)	Essential Questions
<ul style="list-style-type: none"> • The Sun is a hot ball of gas that provides heat and light to Earth and allows living things to live and grow. Earth makes one rotation every day. Earth’s rotation causes day and night. When we are facing the Sun, we see a day sky and when we are not facing the Sun, we see a night sky. Earth is a planet. Stars give off their own light but planets do not. Planets reflect sunlight. A telescope can be used to see planets in the night sky. 	<ul style="list-style-type: none"> • What is in the sky? • What is in the day sky? • What causes day and night? • What is in the night sky?
Knowledge	Skills
<ul style="list-style-type: none"> • Sun • Star • Rotation • Planet • Telescope • Moon 	<ul style="list-style-type: none"> • Identify objects seen in the day and night sky. • Know that night and day are caused by the rotation of Earth. • Use a variety of tools including thermometers, magnifiers, rulers, scales, computers, to identify characteristics of objects.