Life Science- Animals Two by Two

Content Area: **Science**
Course(s): **Kindergarten**
Time Period: **Second Trimester**
Length: **12 Weeks**
Status: **Published**

Unit Overview

This unit provides early-childhood students with close and personal interaction with some common land and water animals. Students observe and describe the structures of fish, birds, snails, earthworms, and isopods. Appropriate classroom habitats are established, and students learn to care for animals. In four investigations, animals are studied in pairs. Students observe and care for one animal over time, and then they are introduced to another animal similar to the first but with differences in structure and behavior.

Students learn what animals need to survive and the relationship between their needs and where they live. The firsthand experiences are enriched with close-up photos of animals, some related to animals that students have observed in class and some to animals that are new. This process enhances observation, communication, and comparison.

Throughout this unit, students engage in science and engineering practices by asking questions, participating in collaborative investigations, observing, recording, and interpreting data to build explanations, and obtaining information from photographs. Students gain experiences that will contribute to an understanding of the crosscutting concepts of patterns; cause and effect; systems and system models; and structure and function.

STAGE 1- DESIRED RESULTS

Educational Standards

2020 New Jersey Student Learning Standards- Science

Performance Expectations

Physical Sciences

SCI.K-PS2-1	Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.
SCI.K-PS3-2	Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.
SCI.K-PS2	Motion and Stability: Forces and Interactions
SCI.K-PS3-1	Make observations to determine the effect of sunlight on Earth's surface.
SCI.K-PS3	Energy
SCI.K-PS2-2	Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.

Life Sciences

SCI.K-LS1-1	Use observations to describe patterns of what plants and animals (including humans) need to survive.
SCI.K-LS1	From Molecules to Organisms: Structures and Processes

Earth and Space Sciences

SCI.K-ESS2-1	Use and share observations of local weather conditions to describe patterns over time.
SCI.K-ESS2	Earth's Systems
SCI.K-ESS3-1	Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.
SCI.K-ESS3-2	Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.
SCI.K-ESS2-2	Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.
SCI.K-ESS3	Earth and Human Activity
SCI.K-ESS3-3	Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

Engineering Design

SCI.K-2-ETS1-1	Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
SCI.K-2-ETS1-2	Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
SCI.K-2-ETS1-3	Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

Science and Engineering Practices

- Practice #1: Asking Questions and Defining Problems
- Practice #2: Developing and Using Models
- Practice #3: Planning and Carrying Out Investigations
- Practice #4: Analyzing and Interpreting Data
- Practice #5: Using Mathematics and Computational Thinking
- Practice #6: Constructing Explanations and Designing Solutions
- Practice #7: Obtaining, Evaluating, and Communicating Information
- Practice #8: Engaging in Argument from Evidence

Cross Cutting Concepts

- Cause and Effect
- Energy and Matter
- Influence of Engineering, Technology, and Science on Society and the Natural World
- Interdependence of Science, Engineering, and Technology
- Patterns
- Scale, Proportion, and Quantity
- Stability and Change
- Structure and Functions
- Systems and System Models

Disciplinary Core Ideas

Life Sciences

- LS1.A- Structure and function
- LS1.C- Growth and development of organisms

Earth and Space Sciences

- ESS2.E- Biogeology
- ESS3.A- Natural resources

Essential Questions

Investigation 1: Goldfish and Guppies

Part 1: What are the parts of a goldfish?

Part2: What do goldfish need to live?

Part 3: What do goldfish do?

Part 4: How are guppies and goldfish different?

How are they the same?

Part 5: What birds visit our schoolyard?

Investigation 2: Water and Land Snails

Part 1: What are the parts of a water snail?

Part 2: How can shells be grouped?

Part3: What do land snails do?

Investigation 3: Big and Little Worms

Part 1: What are the parts of a redworm?

Part 2: What do redworms need to live?

Part 3: How are redworms and night crawlers different?

How are they the same?

Investigation 4: Pill Bugs and Sow Bugs

Part1: What are isopods?

Part 2: How are pill bugs and sow bugs different?

How are they the same?

Part 3: How do isopods move?

Part 4: What do animals need to live?

Enduring Understanding

This life science unit develops students' understanding of how: 1) Organisms live, grow, respond to their environment, and reproduce; 2) And why Earth is constantly changing; and 3) Earth's surface processes and human activities affect each other.

Students will know…

VOCABULARY

Investigation 1: Goldfish and Guppies

above, animal, aquarium, backward, behind, below, bill, bird, bottom, color, compare, different, dirty, eye, feather, female, fin, fish, fly, food, forward, fresh water, gill, goldfish, guppy, head, in front of, male, middle, mouth, next to, plant, prefer, same, scale, surface, swim, tail, through, tunnel, water, wing

Investigation 2: Water and Land Snails

dark, float, foot, land snail, large, light, rough, sea animal, shell, sideways, small, smooth, snail, tentacle, terrarium, upside down, vial, water snail

Investigation 3: Big and Little Worms

body, bristle, clitellum, earthworm, moist, night crawler, redworm, segment, soil, swollen, top

Investigation 4: Pill Bugs and Sow Bugs

antenna, ball, carapace, flat, isopod, jagged, living, moisture, nonliving, pill bug, protect, race, roll up, round, section, sow bug, turn over

Students will be able to...

Investigation 1: Goldfish and Guppies

- Ask questions about different kinds of fish and birds and the places where they live and get resources.
- Develop and use a model of a fish aquarium to show the relationship between the animals and their environment.
- Plan and carry out investigations in collaboration with peers and with adult guidance involving fish and birds to observe their structures and study their environmental needs; make predictions based on prior experiences.
- Analyze and interpret data by describing observations of the fish over time, recording information, using and sharing notebook entries, including writing and labeled pictures. Students use their firsthand observations and those of others in the classroom to describe the patterns they observe in fish aquaria to answer scientific questions. Students compare their predictions to actual outcomes.
- Construct explanations by making firsthand observations of fish and birds and using this as evidence to answer questions about the needs of animals, including food; support arguments with evidence.
- Obtain, evaluate, and communicate information about structures of fish and birds, their needs, and where they live by reading grade-appropriate text and communicating in oral and written formats.

Investigation 2: Water and Land Snails

- Ask questions about snail structures, behaviors, what they eat, and where they live.
- Plan and carry out investigations with water snails to observe their structures and study their needs.
- Analyze and interpret data by describing observations of snails over time, recording information, using and sharing notebook entries, including writing and labeled pictures. Students use their firsthand observations and those of others in the classroom to describe the patterns they observe in snail aquaria.
- Construct explanations by making firsthand observations of water snails and using this as evidence to answer questions about the needs of animals, including food.
- Obtain, evaluate, and communicate information about structures of water snails and land snails, their needs, and where they live.

Investigation 3: Big and Little Worms

- Ask questions about redworm habitats.
- Develop and use models by drawing the redworm habitat over time to represent patterns in the natural world.
- Plan and carry out investigations with redworms to observe their structures and study their environmental needs.
- Analyze and interpret data by describing observations of the redworms over time, recording information, using and sharing notebook entries, including writing and labeled pictures. Students use their firsthand observations and those of others in the classroom to describe the patterns they observe in the redworms' habitats.
- Construct explanations by making firsthand observations of redworms and night crawlers and using this as evidence to answer questions about the needs of animals, including food.
- Engage in argument from evidence to support a claim about worms and their importance to soil.
- Obtain, evaluate, and communicate information about structures of two kinds of worms, their needs, and where they live.

Investigation 4: Pill Bugs and Sow Bugs

- Ask questions about isopod habitats.
- Plan and carry out investigations with isopods of several kinds to observe their structures and study their environmental needs; look at the relationship between the structures and how fast they move.

- Analyze and interpret data by describing observations of the isopods over time, recording information, using and sharing notebook entries, including writing and labeled pictures. Students use their firsthand observations and those of others in the classroom to describe the patterns they observe in isopod movement.
- Construct explanations by making firsthand observations of isopods in the classrooms and those collected outdoors and using this as evidence to answer questions about the needs of animals, including food.
- Obtain, evaluate, and communicate information about structures of isopods, their needs, and where they live.

STAGE 2- EVIDENCE OF LEARNING

Formative Assessment Suggestions

- 3- Minute Pause
- A-B-C Summaries
- Analogy Prompt
- Choral Response
- Debriefing
- Exit Card / Ticket
- Hand Signals
- Idea Spinner
- Index Card Summaries
- Inside-Outside Circle Discussion (Fishbowl)
- Journal Entry
- Misconception Check
- Observation
- One Minute Essay
- One Word Summary
- Portfolio Check
- Questions & Answers
- Quiz
- Self-Assessment
- Student Conference
- Think-Pair-Share
- Web or Concept Map

Authentic Assessments Suggestions

Investigation 1: Goldfish and Guppies

- Teacher observations
- Science notebook entries

Investigation 2: Water and Land Snails

- Teacher observations
- Science notebook entries

Investigation 3: Big and Little Worms

- Teacher observations
- Science notebook entries

Investigation 4: Pill Bugs and Sow Bugs

- Teacher observations
- Science notebook entries

Benchmark Assessments

Assessment Checklists

STAGE 3- LEARNING PLAN

Instructional Map

Investigation 1: Goldfish and Guppies

Investigation 2: Water and Land Snails

Investigation 3: Big and Little Worms

Investigation 4: Pill Bugs and Sow Bugs

Investigation 1: Goldfish and Guppies

Investigation 1: Part 1- The Structure of Goldfish

Students observe goldfish living in a simple aquarium. They look for and name different parts of the fish, such as fins, tail, mouth, and gills. They look to see if all the fish are alike, or if there are differences such as color and size. They draw a picture and dictate a sentence to record what they see.

Content:

- Fish have structures that help them live and grow-to find food, sense their habitat, and move from place to place.
- All animals deserve respect and gentle care.

Investigation1: Part 2- Caring for Goldfish

Students learn how to care for goldfish, giving them food and fresh water, and adding plants to the aquarium. With each addition, students describe the fish behavior they observe.

Content:

- Fish are animals and have basic needs-water with oxygen, food, and space with shelter.
- Fish have structures that help them live and grow-to find food, sense their habitat, and move from place to place.

Investigation 1: Part 3- Goldfish Behavior

Students add a tunnel to the aquarium to observe how the fish respond. They make their own paper aquariums to model the fish behavior they have observed.

Content:

- Fish have structures that help them live and grow-to find food, sense their habitat, and move from place to place.

Investigation 1: Part 4- Comparing Guppies to Goldfish

Students compare the structures and behaviors of guppies to those of goldfish, and identify the guppies by gender.

Content:

- Different kinds of fish have similar but different structures and behaviors.

Investigation 1: Part 5- Comparing Schoolyard Birds

Students go bird watching to observe and compare the structures and behaviors of two types of common schoolyard birds.

Content:

- Birds are animals that have basic needs.
- Different kinds of birds have similar but different structures and behaviors.

Investigation 2: Water and Land Snails

Investigation 2: Part 1- Observing Water Snails

Students are introduced to two kinds of aquatic snails. They investigate their physical characteristics and behavior for similarities and differences.

Content:

- Snails are animals and have basic needs-water, air, food, and space with shelter.

- Different kinds of snails have some structures and behaviors that are the same and some that are different.

Investigation 2: Part 2- Shells

Students observe seashells. Using their experience with living snails, they look for shells that they think might have belonged to relatives of the water snail they observed. They organize the shells into pairs or groups and give rationales for their decisions.

Content:

- There is great diversity among snails.
- Shells differ in size, shape, pattern, and texture.

Investigation 2: Part 3- Land Snails

Students observe diagrams of land snails. They compare their structures to water snails.

Content:

- Different kinds of snails have some structures and behaviors that are the same and some that are different.
- Snails have senses.
- Snails are animals and have basic needs-water, air, food, and space with shelter.

Investigation 3: Big and Little Worms

Investigation 3: Part 1- The Structure of Redworms

Students dig through a terrarium to discover that there are redworms living in the soil. They look for some of the structures they have seen on other animals they have studied so far. They rinse the worms in water to remove the soil and to get a better view.

Content:

- Worms have identifiable structures.
- Worms are animals and have basic needs-water, food, air, and space with shelter.

Investigation 3: Part 2- Redworm Behavior

Students focus on the movement and behavior of redworms. They notice how the worm's body contracts and stretches to move forward. They observe the worm to see if it can move in other directions. They try blocking the worm's path to see what it does. Students consider what redworms need to live and set up a worm-jar habitat. Students observe how redworms change leftover food and other plant materials into soil.

Content:

- Worms are animals and have basic needs-water, food, air, and space with shelter.
- Worm behavior is influenced by conditions in the environment.
- Worms change plant material into soil.

Investigation 3: Part 3- Comparing Redworms to Night Crawlers

Students discover a new kind of worm in their terrarium-night crawlers. The new worms are much longer and fatter than the redworms. Students observe the two kinds of worms and compare the structures and behaviors of the two animals.

Content:

- Different kinds of worms have similar structures and behaviors; they also have differences (size, color).

<u>Investigation 4: Pill Bugs and Sow Bugs</u>

Investigation 4: Part 1- Isopod Observations

Students begin by investigating two kinds of isopods (sow bugs and pill bugs). They draw upon knowledge and experience gained from the previous activities to investigate the structures and behaviors of isopods.

Content:

- Isopods are animals and have basic needs-water, air, food, and space with shelter.
- Different kinds of isopods have some structures and behaviors that are the same and some that are different.

Investigation 4: Part 2- Identifying Isopods

Students compare the isopods and sort them into two groups, based on the different structures and behaviors they observe.

Content:

- Different kinds of isopods have some structures and behaviors that are the same and some that are different.
- There is great diversity among isopods.

Investigation 4: Part 3- Isopod Movement

Students go to the schoolyard to find isopods. They discover where sow bugs and pill bugs live and observe their movement. In the classroom, students conduct isopod races as a way to focus observation on isopod movement.

Content:

- Isopod behavior is influenced by conditions in the environment.

Investigation 4: Part 4- Animals Living Together

Students build a class terrarium to observe how several animals live together. They put the isopods into the earthworm terrarium, then add objects from the natural environment to create an appropriate habitat for the animals.

Content:

Isopods are animals and have basic needs-water, air, food, and space with shelter.

Modifications/Differentiation of Instruction

Differentiation Strategies for Special Education Students

- Remove unnecessary material, words, etc., that can distract from the content
- Use of off-grade level materials
- Provide appropriate scaffolding
- Limit the number of steps required for completion
- Time allowed
- Level of independence required
- Tiered centers, assignments, lessons, or products
- Provide appropriate leveled reading materials
- Deliver the content in "chunks"
- Varied texts and supplementary materials
- Use technology, if available and appropriate
- Varied homework and products
- Varied questioning strategies
- Provide background knowledge
- Define key vocabulary, multiple-meaning words, and figurative language.
- Use audio and visual supports, if available and appropriate
- Provide multiple learning opportunities to reinforce key concepts and vocabulary
- Meet with small groups to reteach idea/skill
- Provide cross-content application of concepts
- Ability to work at their own pace
- Present ideas using auditory, visual, kinesthetic, & tactile means
- Provide graphic organizers and/or highlighted materials
- Strategy and flexible groups based on formative assessment
- Differentiated checklists and rubrics, if available and appropriate

Differentiation Strategies for Gifted and Talented Students

- Increase the level of complexity
- Decrease scaffolding
- Variety of finished products
- Allow for greater independence
- Learning stations, interest groups
- Varied texts and supplementary materials
- Use of technology

- Flexibility in assignments
- Varied questioning strategies
- Encourage research
- Strategy and flexible groups based on formative assessment or student choice
- Acceleration within a unit of study
- Exposure to more advanced or complex concepts, abstractions, and materials
- Encourage students to move through content areas at their own pace
- After mastery of a unit, provide students with more advanced learning activities, not more of the same activity
- Present information using a thematic, broad-based, and integrative content, rather than just single-subject areas

Differentiated Strategies for ELL Students

- Remove unnecessary materials, words, etc., that can distract from the content
- Provide appropriate scaffolding
- Limit the number of steps required for completion
- Gradually increase the level of independence required
- Tiered centers, assignments, lessons, or products
- Provide appropriate leveled reading materials
- Deliver the content in "chunks"
- Varied texts and supplementary materials, including visuals
- Use technology, if available and appropriate
- Differentiate homework and products
- Varied questioning strategies
- Provide background knowledge
- Define key vocabulary, multiple-meaning words, and figurative language.
- Use audio and visual supports, if available and appropriate
- Provide multiple learning opportunities to reinforce key concepts and vocabulary
- Meet with small groups to reteach idea/skill
- Provide cross-content application of concepts
- Allow students to work at their own pace
- Presenting ideas through auditory, visual, kinesthetic, & tactile means
- Role play
- Provide graphic organizers, highlighted materials
- Strategy and flexible groups based on formative assessment

Differentiation Strategies for At Risk Students

- Remove unnecessary materials, words, etc., that can distract from the content
- Provide appropriate scaffolding

- Limit the number of steps required for completion
- Gradually increase the level of independence required
- Tiered centers, assignments, lessons, or products
- Provide appropriate leveled reading materials
- Deliver the content in “chunks”
- Varied texts and supplementary materials
- Use technology, if available and appropriate
- Differentiate homework and products
- Varied questioning strategies
- Provide background knowledge
- Define key vocabulary, multiple-meaning words, and figurative language
- Use audio and visual supports, if available and appropriate
- Provide multiple learning opportunities to reinforce key concepts and vocabulary
- Meet with small groups to reteach idea/skill
- Provide cross-content application of concepts
- Presenting ideas through auditory, visual, kinesthetic, & tactile means
- Provide graphic organizers and/or highlighted materials
- Strategy and flexible groups based on formative assessment

504 Plans

Students can qualify for 504 plans if they have physical or mental impairments that affect or limit any of their abilities to:

- walk, breathe, eat, or sleep
- communicate, see, hear, or speak
- read, concentrate, think, or learn
- stand, bend, lift, or work

Examples of accommodations in 504 plans include:

- preferential seating
- extended time on tests and assignments
- reduced homework or classwork
- verbal, visual, or technology aids
- modified textbooks or audio-video materials
- behavior management support
- adjusted class schedules or grading
- verbal testing
- excused lateness, absence, or missed classwork
- pre-approved nurse's office visits and accompaniment to visits

- occupational or physical therapy

Modification Strategies

- Extended Time
- Frequent Breaks
- Highlighted Text
- Interactive Notebook
- Modified Test
- Oral Directions
- Peer Tutoring
- Preferential Seating
- Re-Direct
- Repeated Drill / Practice
- Shortened Assignments
- Teacher Notes
- Tutorials
- Use of Additional Reference Material
- Use of Audio Resources

High Preparation Differentiation

- Alternative Assessments
- Choice Boards
- Games and Tournaments
- Group Investigations
- Guided Reading
- Independent Research / Project
- Interest Groups
- Learning Contracts
- Leveled Rubrics
- Literature Circles
- Menu Assignments
- Multiple Intelligence Options
- Multiple Texts
- Personal Agendas

- Project Based Learning (PBL)
- Stations / Centers
- Think-Tac-Toe
- Tiered Activities / Assignments
- Varying Graphic Organizers

Low Preparation Differentiation

- Choice of Book / Activity
- Cubing Activities
- Exploration by Interest (using interest inventories)
- Flexible Grouping
- Goal Setting With Student
- Homework Options
- Jigsaw
- Mini Workshops to Extend Skills
- Mini Workshops to Re-teach
- Open-ended Activities
- Think-Pair-Share by Interest
- Think-Pair-Share by Learning Style
- Think-Pair-Share by Learning Style
- Think-Pair-Share by Readiness
- Use of Collaboration
- Use of Reading Buddies
- Varied Journal Prompts
- Varied Product Choice
- Varied Supplemental Materials
- Work Alone / Together

Horizontal Integration- Interdisciplinary Connections

New Jersey Student Learning Standards for Mathematics

N-Q.A.Reason quantitatively and use units to solve problems.

1. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; chose and interpret the scale and the origin in graphs and data displays
2. Define appropriate quantities for the purpose of descriptive modeling.

3. Choose the level of accuracy appropriate to limitations on measurement when reporting quantities.

N-CN.A. Perform arithmetic operations with complex numbers.

1. Know there is a complex number.
2. Use the commutative, associative, and distributive properties.

A-SSE.A. Interpret the structure of expressions

1. Interpret expressions that represent a quantity in terms of its context.

A-SSE.B. Write expressions in equivalent forms to solve problems.

1. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.

F-IF.A. Understand the concept of a function and use functional notation.

1. Understand that a function from one set to another set.

F-IF.B Interpret functions that arise in applications in terms of the context.

F-IF.C. Analyze functions using different representations

S-ID.A. Summarize, represent, and interpret data on a single count or measurement variable

1. Represent data with plots on a real number line.

S-ID.B. Summarize, represent, and interpret data on two categorical and quantitative variables.

S-ID.C. Interpret linear models.

S-IC.A. Understand and evaluate random processes underlying statistical experiments.

S-IC.B. Make inferences and justify conclusions from surveys, experiments, and observational studies.

Kindergarten English Language Arts Standards

RF 1: Demonstrate understanding of the organization and basic features of print.

RF 2: Demonstrate understanding of spoken words, syllables, and sounds.

RF 4: Read text with purpose and understanding.

RI 1: Ask and answer questions about key details.

RI 2: Identify main topic and retell key details.

RI 3: Describe the connection between two ideas.

RI 4: Ask and answer questions about unknown words.

RI 5: Identify the front cover, back cover, and title page of a book.

RI 7: Describe the relationship between illustrations and the text.

RI 8: Identify the reasons an author gives to support points.

RI 9: Identify similarities in and differences between text on the same topic.

RI 10: Actively engage in group reading activities with purpose and understanding.

W 2: Write informative/explanatory text.

W 5: Respond to questions and suggestions from peers.

W 5: Strengthen writing by revising and editing.

W 7: Participate in shared research and writing projects.

W 8: Gather information to answer a question.

SL 1: Participate in collaborative conversations.

SL 2: Ask and answer questions about key details and request clarification.

SL 3: Ask and answer questions to seek help, information, or to clarify.

SL 4: Describe with details.

SL 6: Speak audibly, express clearly.

L 1: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

L 4: Determine or clarify the meaning of unknown or multiple meaning words and phrases.

L 5: Demonstrate understanding of word relationships and nuances in word meanings.

L 5a: Sort words and objects into categories.

L 6: Use acquired words and phrases.

RL 1: Ask and answer questions about key details in a text.

RL 2: Retell stories, including key details.

RL 6: Name and define the role of the author and illustrator.

RL 10: Actively engage in group reading activities with purpose and understanding.

2020 New Jersey Student Learning Standards- Computer Science and Design Thinking

Computer Science and Design Thinking Practices

CSDT.K-12.CSDTP1	Fostering an Inclusive Computing and Design Culture
CSDT.K-12.CSDTP2	Collaborating Around Computing and Design
CSDT.K-12.CSDTP3	Recognizing and Defining Computational Problems
CSDT.K-12.CSDTP4	Developing and Using Abstractions
CSDT.K-12.CSDTP5	Creating Computational Artifacts
CSDT.K-12.CSDTP6	Testing and Refining Computational Artifacts
CSDT.K-12.CSDTP7	Communicating About Computing and Design

8.2 Design Thinking

8.2.2.ED.1: Communicate the function of a product or device. 8.2.2.ED.2: Collaborate to solve a simple problem, or to illustrate how to build a product using the design process. 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process. 8.2.2.ED.4: Identify constraints and their role in the engineering design process.
8.2.2.ITH.1: Identify products that are designed to meet human wants or needs. 8.2.2.ITH.2: Explain the purpose of a product and its value. 8.2.2.ITH.3: Identify how technology impacts or improves life. 8.2.2.ITH.4: Identify how various tools reduce work and improve daily tasks. 8.2.2.ITH.5: Design a solution to a problem affecting the community in a collaborative team and explain the intended impact of the solution.
8.2.2.NT.1: Model and explain how a product works after taking it apart, identifying the relationship of each part, and putting it back together. 8.2.2.NT.2: Brainstorm how to build a product, improve a designed product, fix a product that has stopped working, or solve a simple problem.

8.2.2.ETW.1: Classify products as resulting from nature or produced as a result of technology. 8.2.2.ETW.2: Identify the natural resources needed to create a product. 8.2.2.ETW.3: Describe or model the system used for recycling technology. 8.2.2.ETW.4: Explain how the disposal of or reusing a product affects the local and global environment.
8.2.2.EC.1: Identify and compare technology used in different schools, communities, regions, and parts of the world.

2020 New Jersey Student Learning Standards- Career Readiness, Life Literacies, and Key Skills

Career Readiness, Life Literacies, and Key Skills Practices

CRP.K-12.CRP1	Act as responsible and contributing community members and employee.
CRP.K-12.CRP2	Attend to financial well-being.
CRP.K-12.CRP3	Consider the environmental, social and economic impacts of decisions.
CRP.K-12.CRP4	Demonstrate creativity and innovation.
CRP.K-12.CRP5	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP6	Model integrity, ethical leadership and effective management.
CRP.K-12.CRP7	Plan education and career paths aligned to personal goals.
CRP.K-12.CRP8	Use technology to enhance productivity, increase collaboration and communicate effectively.
CRP.K-12.CRP9	Work productively in teams while using cultural/global competence.

9.2 Career Awareness and Planning

9.1.2.CAP.1: Make a list of different types of jobs and describe the skills associated with each job.

9.4 Life Literacies and Key Skills

9.4.2.CI.1: Demonstrate openness to new ideas and perspectives. 9.4.2.CI.2: Demonstrate originality and inventiveness in work.
9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem. 9.4.2.CT.2: Identify possible approaches and resources to execute a plan. 9.4.2.CT.3: Use a variety of types of thinking to solve problems.
9.4.2.DC.1: Explain differences between ownership and sharing of information. 9.4.2.DC.2: Explain the importance of respecting digital content of others. 9.4.2.DC.3: Explain how to be safe online and follow safe practices when using the internet. 9.4.2.DC.4: Compare information that should be kept private to information that might be made public. 9.4.2.DC.5: Explain what a digital footprint is and how it is created. 9.4.2.DC.6: Identify respectful and responsible ways to communicate in digital environments. 9.4.2.DC.7: Describe actions peers can take to positively impact climate change.
9.4.2.IML.1: Identify a simple search term to find information in a search engine or digital resource. 9.4.2.IML.2: Represent data in a visual format to tell a story about the data. 9.4.2.IML.3: Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults. 9.4.2.IML.4: Compare and contrast the way information is shared in a variety of contexts.
9.4.2.TL.1: Identify the basic features of a digital tool and explain the purpose of the tool. 9.4.2.TL.2: Create a document using a word processing application. 9.4.2.TL.3: Enter information into a spreadsheet and sort the information. 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content. 9.4.2.TL.5: Describe the difference between real and virtual experiences. 9.4.2.TL.6: Illustrate and communicate ideas and stories using multiple digital tools.
9.4.2.TL.7: Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts.

Vertical Integration- Discipline Mapping

LS1: Grade 1: Plants and Animals

Grade 2: Insects and Plants

Grade 3: Structures of Life

Grade 4: Environments

Grade 5: Living Systems

Grade 6: Diversity of Life

Grade 7: Populations and Ecosystems

Grade 8: Human Systems Interactions

ESS2: Grade 1: Air and Weather

Grade 2: Pebbles, Sand, and Silt

Grade 3: Water and Climate

Grade 4: Soils, Rocks, and Landforms

Grade 5: Earth and Sun; Living Systems

Grade 6: Weather and Water

Grade 7: Planetary Science

Grade 8: Earth's History

ESS3: Grade 3: Water and Climate

Grade 4: Environments

Grade 6: Weather and Water

Grade 8: Earth's History

Additional Materials

Visit FOSSWEB.com for list of websites and additional readings.

Implement chick project (Quiver Farms-One per school).