DELAWARE VALLEY SCHOOL DISTRICT

PLANNED INSTRUCTION

A PLANNED COURSE FOR:

Science

Grade Level: First

Date of Board Approval: _____2019_____

DELAWARE VALLEY SCHOOL DISTRICT

Planned Instruction

Title of Planned Instruction: First Grade Science Curriculum

Subject Area: Science **Grade:** First

Course Description: Through hands-on investigation and informational literature, students will develop an elementary understanding of the areas of biology, physical science, chemistry, physics, Earth Science, technology, engineering, the environment, ecology, and agriculture.

Time/Credit for the Course: One Year

Curriculum Writing Committee: Terri Christensen, Tammy Curtis, Patrick Hopkins, Stephanie Osborn

Curriculum Map

One Marking Period-Life Science: Animals **Range in days: 45**

Overview:

Students will investigate and communicate observations made about animals and their basic needs.

Goals:

Through hands-on investigations, students will observe, compare, and document the basic structures of common animals, discover different ways to propagate each species, create classroom terrariums using plants and outside animals, and identify and provide for the needs of these living organisms in the classroom.

Understanding of:

Through informational literature and systematic investigation of animals found in our world, students will develop a heightened awareness, curiosity, and understanding of the biological sciences while engaging in scientific practices.

One Marking Period-Life Science: **Range in days: 45**
Plants

Overview:

Students will investigate and communicate observations made about plants and their basic needs.

Goals:

Through hands-on investigations, students will observe, compare, and document the basic structures of common plants, discover different ways to propagate each species, create classroom terrariums using these plants and outside animals, and identify and provide for the needs of these living organisms in the classroom.

Understanding of:

Through informational literature and systematic investigation of common plants and animals found in our world, students will develop a heightened awareness, curiosity, and understanding of the biological sciences while engaging in scientific practices.

One Marking Period –Physical Science: Range in days: 45
Solids and Liquids/ Water Cycle

Overview:

Students will investigate and communicate observations made about solids and liquids.

Goals:

Through hands-on investigations of different types of physical matter, students will observe, describe, and compare properties and behaviors of solids and liquids and will record their observations with pictures, numbers, and words.

Understanding of:

Through informational literature and the systematic investigation of solids and liquids, students will develop a heightened awareness, curiosity, and understanding of matter in the physical world.

One Marking Period-Earth Science: **Time range in days: 45**
Pebbles, Sand, and Silt (Earth Science)

Overview:

Students will investigate and communicate observations made about pebbles, sand, and silt.

Goals:

Through hands-on investigations of pebbles, sand, and silt, students will observe, describe, and compare properties and behaviors of different Earth materials and will record their observations with pictures, numbers, and words.

Understanding of:

Through informational literature and the systematic investigation of pebbles, sand, and silt, students will develop a heightened awareness, curiosity, and understanding of Earth science concepts.

UNIT: Plants and Animals

Big Idea # 1: Aquatic, terrestrial, and human made ecosystems consist of diverse, living and nonliving components that change over time and across geographic areas.

Essential Questions:

- What are the living and nonliving parts of ecosystems that exist within our community (or our school?), and what can cause them to change over time?

Concepts:

- PA experiences four seasonal climate changes: spring, summer, fall, winter.
- Organisms (plants and animals) respond to seasonal changes (i.e. growth patterns, dormancy and hibernation, migration).
- Plants and animals develop according to the species' life cycle.

- After a living organism dies it decomposes and becomes a nutrient source or natural resource
- Living and nonliving components of an ecosystem are interdependent.
- Change in an ecosystem may cause organisms to become extinct when one or more of their needs can no longer be met.

Competencies:

- Identify an animal or plant and list the effects of seasonal change on that organism.
- Describe the life cycle of a given plant and a given animal.
- Create a graphic representation of a food chain in a local ecosystem.
- Create a graphic representation of how an organism depends on living and nonliving components in its environment.

Big Idea #2: Living things depend on their habitat to meet their basic needs.

Essential Questions:

- What is the role of the habitat in providing the basic needs of an organism?

Concepts:

- All living things have basic needs: food, space, shelter and water in an arrangement suitable for survival.
- Living things find their basic needs in their habitat.
- Living things are associated with specific habitats. (i.e. rabbits live in fields but could not survive in an ocean) habitat.
- Living livings depend on other living and nonliving components within a habitat.

Competencies:

- Identify the basic needs of living things in a habitat.
- Given a plant or animal, identify its preferred food, water source, shelter, space and how its habitat provides these needs in a suitable arrangement
- Describe one major habitat in PA (e.g. wetland, forest, field, river/lake/creek, urban/suburban) and identify many of the associated living and nonliving components.

Big Idea #3: The survival of living things is dependent upon their adaptations and ability to respond to natural changes and human influences on the environment.

Essential Questions:

- How does an adaptation help an organism survive and what happens when it cannot adapt to changes in its environment?

Concepts:

- Animals and plants have physical adaptations that enable them to survive in their habitat (e.g., physical: shape of beak, position of eyes on head, thickness of fur or fat, flat leaf vs. needle).
- When habitat changes it affects living things.

Competencies:

- Explain how the adaptations of three different animal and/or plant species help the organisms to survive in their habitat(s) (e.g. fur, feathers, web feet; butterfly proboscis; camouflage; seed dispersal).
- Describe how living things are affected when their habitat changes. (e.g., changes occur in food, water, shelter, space).

Big Idea #4: Sustainable use of natural resources is essential to provide for the needs and wants of all living things now and in the future.

Essential Questions:

- Why is it important to conserve both renewable and non-renewable resources?

Concepts:

- All living things rely on natural resources for survival (including people)
- All living things survive by meeting their needs: needs are necessary for survival; wants are not.
- Humans use and consume the Earth's natural resources daily.
- Humans can conserve some natural resources, so that these resources can be sustained for the future. There are laws that help to conserve natural resources.

Competencies:

- Explain how plants and animals use natural resources for their survival.
- Explain how you and others in your class use natural resources in your daily lives.
- Explain why it is important to conserve natural resources.
- Explain the difference between needs and wants and give examples of each.
- List ways that you and others can conserve natural resources.

Big Idea #5: The Health of all living things is directly related to the quality of the environment

Essential Questions:

- How does the environment affect the health of living things?

Concepts:

- Plants, animals and humans need air and water to survive.
- Living and nonliving components of the ecosystem affect each other.
- Health can be affected by things in air, water or soil.
- Humans may have a positive or negative impact on environmental health (e.g. pollution; cleanup programs).

Competencies:

- Explain how living and nonliving things affect one another.
- Describe how water, air and soil affect living things.
- Describe how the health of living things is affected by the quality of water, air and soil.
- Describe positive and negative impacts of humans on the ecosystem.

Big Ideal #6: All living things are made of parts that have specific functions.

Essential Questions:

- How do the structures and functions of living things allow them to meet their needs?

Concepts:

- Parts of living things work together to carry out life functions.
- Each plant or animal has different structures that serve different functions in growth, survival, and reproduction.
- Most living things need food, water, light, air, and a way to dispose of wastes.
- Energy is needed for all organisms to stay alive and grow.
- Living things can be grouped based on their similarities and differences.
- Tools make it possible to observe living things or the parts of living things that are too small to be seen with the naked eye.

Competencies:

- Describe relationships among parts of a natural or human-made system.

Big Idea #7: Different characteristics of plants and animals help some populations survive and reproduce in greater numbers.

Essential Question:

- How does the variation among individuals affect their survival?

Concepts:

- Individuals of the same kind differ in their characteristics, and sometimes the differences give individuals an advantage in surviving and reproducing, creating a population with survival and reproductive advantages.
- Organisms inherit characteristics from their parents.
- Some organisms that lived long ago are similar to existing organisms, but some are quite different.

Competencies:

- Measure, describe, or classify organisms, objects and/or materials by basic characteristics, their changes, and their uses.

- Describe relationships among parts of a natural or human-made system.

Big Idea #8: Each area of technology has a set of characteristics that separates it from others; however, many areas overlap in order to meet human needs and wants

Essential Question:

- What are different areas of technology?

Concepts:

- Technology is designed to have an impact on a living being's health.
- Ecosystems can be controlled by technology.
- Many processes and tools are used to make products.

Competencies:

- Design and construct a mini-ecosystem (i.e. terrarium, aquarium etc.).
- List and describe the purpose of several different types of structures.
- List and describe several alternative energy sources.

Big Idea #9: A technological world requires that humans develop capabilities to solve technological challenges and improve products for the way we live.

Essential Question:

- How do human wants and needs affect the products you use?

Concepts:

- A technological world requires an understanding of how things are made and can be improved.
- Safety is a major concern for all technological development and use.

Competencies:

- Investigate and explain how things work and how they may be maintained.
- Select and safely use a tool for a specific purpose.
- Communicate how technology influences individuals, families, communities, or the environment.

Big Idea #10: Technology is created, used, and modified by humans

Essential Question:

- In what ways do humans create, use, or modify technologies?

Concepts:

- A difference exists between the natural and the human-made world.
- Humans use tools, technology, and devices to help them to do a variety of things.

- Humans must plan, use materials and select appropriate tools to complete a task.

Competencies:

- Explain and provide examples of the differences between the human-made, and the natural world, including how they interact.
- Describe how a variety of tools/instruments can be used to adapt the world based on a need or want.
- Demonstrate the ability to plan and create things using a set of problem solving steps.

DELAWARE VALLEY SCHOOL DISTRICT

Unit: Animals **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_Grade1.pdf

Overview:
Through hands-on investigations, students will observe, compare, and document the basic structures of common animals, discover different ways to propagate each species, create classroom terrariums using plants and outside animals, and will identify and provide for the needs of these living organisms in the classroom.

Goals/Objectives:

Students will….

- Identify and describe the basic needs of animals in a terrestrial habitat
- Identify different habitats on the Earth and their predominant animal species
- Describe basic external structures of animals
- Describe a simple food chain in a terrestrial habitat
- Describe the life cycle of frogs
- Explain why some people consider some insects, plants, and other living things to be pests
- Identify ways to control the population of pests
- Document and discuss living and nonliving things in a habitat
- Record observations of animals, using drawing and writing
- Categorize animals by their external characteristics
- Investigate the dependence of an animal on the sun's energy, food/nutrients, air, living space, and shelter

Core Activities and Corresponding Instructional Methods:
Throughout all investigations, expose students to academic vocabulary.

- Animal Atlas Videos
  - Feathered Friends
  - Surviving in the Wild
  - Aquatic Mammals
  - The Life Aquatic
  - Going Amphibious
  - Animal Senses
  - Amphibian Adventures

    - Pests, Parks, Pets, and People
- National Geographic Kids (Habitats) https://kids.nationalgeographic.com/explore/nature/habitats/
- Science A-Z
    - Animal Cards
    - Animal Videos
    - Animal Process Activities-Animals and You, Pet or Not, Sow Bugs
    - Foss Modulation Correlation Activities: Animals
    - Science Fair Experiments: Short Experiments for K-2
    - Scientist Inventor Cards
    - Career Files
- FOSS Science Kit:
    - Plants and Animals Materials
    - Plants and Animals Big Book
- Generation Genius- Plant and Animal Life Cycle Video
- Turtlediary.com: Science Videos for First Grade
    - Food Chains
    - Animal Videos
    - Life Cycle of a Frog
- Mystery Science Resource:
    - Where Do Animals Live?
    - How Can You Find Animals in the Woods?
    - How Do Animals Make Their Homes In The Forest?
    - Where Can You Find Whales in the Desert?
    - Why Do Animals Come Back After Going to Warm Places?
    - Do Worms Really Eat Dirt?
- Brainpopjr.com Resources - Animals
    - Classifying Animals
    - Food Chain
    - Camouflage
    - Hibernation
    - Migration
    - Frogs
    - Fish
    - Mammals
- Brainpopjr.com Resources- Animal Habitats:
    - Desert
    - Forests
    - Rainforests
    - Freshwater Habitats
    - Arctic Habitats
    - Ocean Habitats
- Animal Research Project- Culminating Activity at the end of the Animal Unit
- Bookflix:

  - Animals and Nature (Nonfiction and Fiction paired texts)
- TrueFlix (Nonfiction text with paired video):
  - From Farm to Table
  - Classifying Animals
- Read Alouds:
  - Hops Home: Magic School Bus
  - Animal Habitats (Judy Press)
  - In the Small, Small Pond (Judy Fleming)
- Animal YouTube VIdeos:
  - From Egg to Frog (https://www.youtube.com/watch?v=wAcwjWi6I9Y)

Assessments:

Diagnostic: Observation, question and answers

Formative: Observation, question and answers, documentation

- Mystery Science--End of Lesson Assessments

Summative: Observation, question and answers, documentation, and completed student notebook

Extensions:
Match parents with the offspring animal.
Investigate the animals in the classroom terrarium
Set up an aquarium in the classroom
Investigate the plants and animals in the aquarium
Make a worm bin
Observe squirrels in nature
View a video on the Foss website: *All about Plant and Animal Interdependency* or *All about Animal Life Cycles*
See youtube and schoolhouse rock for additional videos.
Animal Atlas
Create habitat dioramas
Animal Research Poster Projects

Correctives:
Remodel and review activities and procedures
Revisit vocabulary, use picture cards, diagrams, photos, videos
Write sentences and/or vocabulary to be copied by student
Student share notebooks and explanations

Links to Hands On Activities and Experiments:

1. **Animal Habitat Murals**
   https://www.scholastic.com/teachers/lesson-plans/teaching-content/animal-habitats/
2. **Animal Senses**
   https://education.lego.com/en-us/lessons/wedo-2-computational-thinking/animal-senses

DELAWARE VALLEY SCHOOL DISTRICT

Unit: Plants **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_Grade1.pdf

Overview:
Students will investigate and communicate observations made about plants and their basic needs. Through hands-on investigations, students will observe, compare, and document the basic structures of common plants, discover different ways to prorogate each species, create classroom terrariums using these plants and outside animals, and will identify and provide for the needs of these living organisms in the classroom.

Goals/Objectives:
Students will...

- Describe the basic needs of plants
- Describe the role of soil in an agricultural system
- Describe the basic external structures of plants
- Grow plants from seed and investigate how they change and grow
- Draw, compare and record growth of two plants over time
- Create bar graphs to compare plant growth
- Make observations of different parts of plants to determine if new growth occurs
- Design a terrarium with soil, seeds, plants, and playground animals. Plant newly propagated plants into soil, observe continuing growth, and provide for the needs of all plants and animals
- Describe the basic life cycle of an apple
- Simulate food storage habits of red and gray squirrels
- Document observations and discuss living and nonliving things in their habitat
- Observe and document what happens when young ryegrass and alfalfa plants are cut near the soil surface
- Cut plant stems, place them in water or soil, and observe changes over time
- Initiate the growth of a new plant from a bulb and a root and observe changes

Core Activities and Corresponding Instructional Methods:
Throughout all investigations, expose students to academic vocabulary.

- FOSS Science Kit:
    - Plants and Animals Resources
    - Plants and Animals Big Book

- Science A-Z:
    - Foss Module Correlation: Plants, Plant Life
    - Process Activities: Fruits and Seeds, Plants Water & Sunlight, Sow Bugs
    - Science Fair Projects: Experiments for K-2
    - Scientist and Inventor Cards
    - Career Files
    - Printable Leveled Booklets
- Mystery Science Resource:
    - How Do Plants Grow?
    - Why Would You Want An Old Log In Your Backyard?
    - Why Don't Trees Blow Down In The Wind?
    - What Do Sunflowers Do When You Are Not Looking?
    - Where Do Fallen Leaves Go?
    - What Do Plants Eat?
    - Plant and Animal Superpowers
- Brainpopjr.com - Plants:
    - Parts of a Plant
    - Plant Life Cycle
    - Plant Adaptations
    - Trees
    - Forests
    - George Washington Carver
    - Johnny Appleseed (Apples)
- Wonders Units that parallel with our Plants Unit:
    - Wonders Unit 3 Week 2 (Plants)
    - Wonders Unit 3 Week 5 (From Farm to Table)
- Generation Genius- Plant and Animal Life Cycle Video
- Turtlediary.com-First Grade Videos:
    - Plant Parts and Their Function
    - Life Cycle of a Plant
    - What is Soil?
- Bookflix:
    - The Tiny Seed (Eric Carle)
- Science Read Alouds:
    - Plant the Tiny Seed (Christie Matheson)
    - From Seed to Plant (Gail Gibbons)
    - Olivia Plants a Garden (Emily Sollinger)

- Plant Videos (Youtube):
    - What is a plant? All About Plants for kids https://www.google.com/search?q=plant+videos+youtube&rlz=1CAPQVW_enUS851&oq=plant+videos+you&aqs=chrome.1.69i57j0l5.3811j0j7&sourceid=chrome&ie=UTF-8&safe=active&ssui=on

- How Does a Seed Become a Plant?
  https://www.youtube.com/watch?reload=9&v=tkFPyue5X3Q

Links to Hands On Activities and Experiments:

1. **The Beginning of a Plant Inquiry**
   https://adayinfirstgrade.com/2017/03/the-beginning-of-a-plant-inquiry.html
2. **Let's Plant: A Unit About Plant Anatomy, Growth, and Care**
   https://www.scholastic.com/teachers/unit-plans/teaching-content/lets-plant-unit-about-plant-anatomy-growth-and-care/
3. **Make Your Own Recycled Paper**
   https://www.teachengineering.org/activities/view/make_recycled_paper
4. **Let's Plan an Experiment: What Do Plants Need?**
   https://www.teachengineering.org/lessons/view/duk_sunflower_mary_less
5. **Light Plants and Dark Plants, Wet Plants and Dry Ones**
   https://www.teachengineering.org/activities/view/duk_sunflower_mary_act

Assessments:

Diagnostic: Observation, question and answers

Formative: Observation, question and answers, documentation

- Mystery Science--End of Lesson Assessments

Summative: Observation, question and answers, documentation, and completed student notebook

Extensions:
Grow plants in the dark
Create a garden outside and plant radishes, potatoes, carrots, oats, etc
Provide edible roots and bulbs for students to eat.
Force bulbs such as tulips and Narcissus in the classroom.
Grow flowers from seeds or leaf cuttings
Turn cuttings into gifts
Make newspaper pots for seedlings
Write about life in a terrarium or create a poster
Review and demonstrate symmetry of objects in nature.
Match parents with the offspring animal.
Investigate the animals in the classroom terrarium
Set up an aquarium in the classroom
Investigate the plants and animals in the aquarium

Correctives:

Remodel and review activities and procedures
Revisit vocabulary, use picture cards, diagrams, photos, videos
Write sentences and/or vocabulary to be copied by student
Student share notebooks and explanations

UNIT: Solids and Liquids

Big Idea #1: The earth system changes constantly as air, water, soil and rock interact, and earth is a part of a larger sun, earth, moon system.

Essential Questions:

- What predictable patterns of change can be observed on and from earth?
- What is the evidence that the earth's systems change?

Concepts:

- A system is made of parts, and the parts can interact.
- When liquid water disappears, it turns into a gas (water vapor) in the air.
- It can reappear as a liquid when cooled or as a solid when cooled further.
- Clouds and fog are made up of tiny water droplets or ice crystals. When such droplets or crystals get large enough, they fall as precipitation.
- Water from precipitation can seep into the ground, run off, or evaporate.
- Most groundwater eventually flows through streams, rivers and lakes and returns to the ocean.

Competencies:

- Construct and use models to explain natural phenomena and make predictions and conduct investigations.
- Communicate through speaking, writing, or drawing predictions, observations, and conclusions.

Big Idea # 2: Matter has observable and measurable physical properties.

Essential Questions:

- How can physical properties be used to describe matter?

Concepts:

- Matter exists in three fundamental states: solid, liquid, and gas.
- Solids and liquids have distinct properties that can be observed and compared.
- Technology and tools can be used to separate solids of different particle sizes.
- Mixtures are created with solids and liquids
- Structures can be created using different materials
- Unknown materials can be investigated for composition
- Technology and tools can be used to investigate matter

Competencies:

- Construct and use models to explain properties of liquids and solids, make predictions, and conduct investigations.
- Communicate through speaking, writing, or drawing predictions, observations, and conclusions.
- Use tools and technology to examine and compare matter

- Conduct an investigation to determine the composition of an unknown material

Big Idea #3: A technological world requires that humans develop capabilities to solve technological challenges and improve products for the way we live.

Essential Questions:

- How do human wants and needs affect the products you use?

Concepts:

- A technological world requires an understanding of how things are made and can be improved.
- Safety is a major concern for all technological development and use.
- Technology may have an effect and influence on society and the environment.

Competencies:

- Investigate and explain how things work and how they may be maintained.
- Select and safely use a tool for a specific purpose.
- Communicate how technology influences individuals, families, communities, or the environment.

Big Idea #4: Each area of technology has a set of characteristics that separates it from others; however, many areas overlap in order to meet human needs and wants.

Essential Questions:

- What are different areas of technology?

Concepts:

- Technology is designed to have an impact on a living being's health.
- Many processes and tools are used to make products.
- Each structure is designed for a purpose.

Competencies:

- List and describe the purpose of several different types of structures.
- Demonstrate the ability to use a number of tools to make a product.

Big Idea #5: Technology is created and modified by humans

Essential Questions:

- In what way do humans create, use, and modify technologies?

Concepts:

- A difference exists between the natural and the human-made world.
- Humans use tools, technology, and devices to help them to do a variety of things.
- Humans must plan, use materials, and select appropriate tools to complete tasks.

Competencies:

- Explain and provide examples of the differences between the human-made and the natural world, including how they interact.
- Describe how a variety of tools/instruments can be used to adapt the world based on a need or want.
- Identify and describe materials found in technological areas.
- Demonstrate the ability to plan and create things using a set of problem solving steps.

Big Idea #6: Technological design is a creative process that anyone can do which may result in new inventions and innovations.

Essential Questions:

- How does technological design help create inventions and innovations?

Concepts:

- Technological design process involves problem solving and designing solutions to problems.
- The design process includes identifying and investigating a problem, generating ideas, developing objects, testing/evaluating, and sharing findings with others.

Competencies:

- Describe each step in the engineering design process used to solve technological problems.
- Explain the reason(s) why a design may not be perfect.
- Demonstrate the ability to communicate (i.e. written, oral, or visual) a solution to a problem.
- Communicate (i.e. written, oral or visual) an understanding of how something works after observing and asking questions of a problem.

Big Idea # 7: Technological literacy is the ability to use, assess, and manage technology around us

Essential Questions:

- What is technology?

Concepts:

- The technology around us may be good or bad.
- The technology we use affects the environment in a number of different ways.
- Throughout history technology has changed according to people's needs.

Competencies:

- List the good and/or bad characteristics of a technology.
- Explain how technology affects the environment.
- Describe how a technology in history has affected human needs.

DELAWARE VALLEY SCHOOL DISTRICT

Unit: Solids and Liquids **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_Grade1.pdf

Overview: Students will investigate and communicate observations made about solids and liquids. Through hands-on investigations of different types of physical matter, students will observe, describe, and compare properties and behaviors of solids and liquids, and will record their observations with pictures and words.

Goals/Objectives:
Students will…

- Observe, describe, and compare the properties and behaviors of solids and liquids
- Investigate and sort objects based on their properties
- Record observations with pictures and words
- Observe, describe, and record what happens when solids and water are mixed and when liquids and water are mixed
- Observe and describe changes when solids and liquids are heated and cooled
- Recognize that everything is made of matter
- Identify the three states of matter of water: solid, liquid, and gas
- Distinguish between changes that are reversible (melting, freezing) and non-reversible (baking a cake, burning fuel)
- Compare and contrast how light travels through different materials
- Recognize the properties of solid materials that make them appropriate for tower construction; build towers
- Use knowledge to conduct an investigation on an unknown material (i.e.- toothpaste/oobleck)

Core Activities and Corresponding Instructional Methods:
Throughout all investigations, expose students to academic vocabulary
Foss Investigations: Solids and Liquids
Investigation 1: Solids
1.1 Identify three states of matter (solid, liquid, and gas) and observe a variety of solid objects to describe their properties
1.2 Examine objects to determine their materials of composition
1.3 Group objects by similar attributes to determine properties and composition
1.4 Use materials to build towers evaluating the best objects and materials for providing stability to tall structures
1.5 Discover solid objects in the schoolyard environment. Sort the found objects into natural

and man-made categories.

Investigation 2: Liquids

2.1 Investigate seven different liquids in bottles to develop the concept of liquid
2.2 Students observe seven liquids and describe their properties using their own words
2.3 Pour one vial of liquid into different containers and observe that liquids always have a flat, level surface and fill the containers to different heights
2.4 Students search their schoolyard for puddles and observe the water closely and describe its properties. Students try to make a puddle by choosing a likely site and pouring water.

Investigation 3: Bits and Pieces

3.1 Students work with solid materials representing five particle sizes and investigate the properties of the materials, one at a time, by pouring them from one container to another.
3.2 Use three different sizes of screens to separate a mixture of five particle materials
3.3 Use funnels to pour solid materials into clear bottles. Shake and roll the bottles and observe the materials and compare their properties to liquids
3.4 Use representations of different mesh size screens to determine which screens can be used to separate mixtures of beads of two sizes.
3.5 Students go outdoors to search for particulate solid materials. They compare the behaviors of the particulate materials with water and observe differences in their appearances when poured on a flat surface.

Investigation 4: Solids, Liquids, and Water

4.1 Students investigate mixtures made of water and familiar materials. They observe, discuss, and graph changes. Students attempt to return the solids to their starting condition by drying.
4.2 Students add water to bottles of familiar liquids. They observe changes that occur immediately, then tip the bottles gently, and finally shake vigorously. Students observe and record the results of the mixing after a day of settling.
4.3 - Students apply their knowledge of solids and liquids to determine if toothpaste is solid or liquid. Students observe its behavior in water before and after shaking.
4.4 Student use a hot-water bath to see if they can change small samples of ice, margarine and chocolate.

Additional Core Resources:

- Brainpopjr.com Video Resources-
  - Matter
- Science A-Z
  - Foss Module Correlation Activities-Solids and Liquids
  - Process Activities: Properties-Classifying Objects
  - Solids, Liquids, and Gases
  - Changing States of Matter
  - Physical and Chemical Changes
- Mystery Science Resources:

  - Where Do Clouds Come from?
  - Can We Make It Rain?
  - Why Are So Many Toys Made from Plastic?
- Generation Genius:
  - Water Cycle Video
- Turtlediary.com-First Grade Science Videos
  - What is Matter?
  - States of Matter
- Discovery Education
- Solids and Liquids YouTube Videos
  - Homeschool Pop Solids and Liquids https://www.youtube.com/watch?v=qYzjg5nRMOg

Links to Hands On Activities and Experiments:

1. A Unit on States of Matter https://www.playdoughtoplato.com/states-of-matter-activities/
2. Solid, Liquid, or Gas https://www.crayola.com/lesson-plans/solid-liquid-or-gas-lesson-plan/
3. Solids and Liquids (FOSS Inspired) http://www.mrreguinho.com/home/science/solids-and-liquids
3. YouTube Video States of Matter Lesson Tutorial https://www.youtube.com/watch?time_continue=2&v=s-KvoVzukHo

Assessments:

Diagnostic: Observation, question and answers

Formative: Observation, question and answers, documentation

- Mystery Science: End of Lesson Assessments

Summative: Observation, question and answers, documentation, and completed student notebook

Extensions to Investigations:

Provide for ongoing construction
Build a paper bridge
Make a solid collage
Make a liquid museum
Evaporate liquids
Separate mixtures with magnets
Mix solids to make layers
Melt wax crayons
Make an ocean in a bottle
Make oobleck and discuss changes in the states of matter
Make ice-cream to discuss changes in phases of matter
Use cheerios to model molecules in a solid, liquid, and gas
Solid/liquid/gas sorts

Correctives:
Remodel and review activities and procedures
Revisit vocabulary, use picture cards, diagrams, photos, videos
Write sentences and/or vocabulary to be copied by student
Student share notebooks and explanations

UNIT: Earth Science (Pebbles, Sand, and Silt)

Big Idea #1: The earth system changes constantly as air, water, soil and rock interact, and earth is a part of a larger sun, earth, moon system.

Essential Questions:

- What predictable patterns of change can be observed on and from earth?
- What is the evidence that the earth's systems change?

Concepts:

- A system is made of parts, and the parts can interact.
- When liquid water disappears, it turns into a gas (water vapor) in the air.
- It can reappear as a liquid when cooled or as a solid when cooled further.
- Clouds and fog are made up of tiny water droplets or ice crystals. When such droplets or crystals get large enough, they fall as precipitation.
- Water from precipitation can seep into the ground, run off, or evaporate.
- Most groundwater eventually flows through streams, rivers and lakes and returns to the ocean.
- Basic weather conditions change in predictable patterns.
- Rock is composed of different combinations of minerals.
- Soils develop by the breakdown of rocks by weathering and the addition of organic material. Soil also contains many living organisms.
- Earth processes occur over such long time spans and such large areas that maps and models are used to help understand them.

Competencies:

- Construct and use models to explain natural phenomena and make predictions and conduct investigations.
- Communicate through speaking, writing, or drawing predictions, observations, and conclusions.

Big Idea #2: Matter has observable and measurable physical properties

Essential Question:

- How can physical properties be used to describe matter?

Concepts:

- Rocks are the solid material of Earth.
- Size is a physical property that can be used to describe rocks.
- Smaller rocks result from the weathering of larger rocks.
- Technology can be used to separate and group rocks by sizes.
- The properties of Earth materials make them suitable for different uses.
- Earth materials can be used for building and creating.
- Soils vary from place to place.
- Some Earth materials can sustain and provide for plant growth, and thus provide for the needs of humans and animals

Competencies:

- Construct and use models to explain natural phenomena and make predictions and conduct investigations.
- Communicate through speaking, writing, or drawing predictions, observations, and conclusions.
- Separate rock samples and classify by size
- Use Earth materials to construct sculptures, structures, and/or jewelry
- Determine which Earth materials are suitable for plant growth.

Big Idea #3: The health of all living things is directly related to the quality of the environment.

Essential Questions:

- How does the quality of the environment affect the health of living things?

Concepts:

- Plants, animals and humans need air and water to survive.
- Living and nonliving components of the ecosystem affect each other.
- Health can be affected by things in air, water or soil.
- Humans may have a positive or negative impact on environmental health (e.g. pollution, cleanup programs).

Competencies:

- Explain how living and nonliving things affect one another.
- Describe how water, air, and soil affect living things.
- Describe how the health of living things is affected by the quality of water, air, and soil.
- Describe positive and negative impacts of humans on the ecosystem.

Big Idea #4: Sustainable use of natural resources is essential to provide for the needs and wants of all living things now and in the future.

Essential Questions:

- Why is it important to conserve both renewable and non-renewable resources?

Concepts:

- All living things rely on natural resources for survival (including people)
- Humans use and consume the Earth's natural resources daily.
- Humans can conserve some natural resources, so that these resources can be sustained for the future.
- There are laws that help to conserve natural resources.

Competencies:

- Explain how plants and animals use natural resources for their survival.
- Explain how you and others in your class use natural resources in your daily lives.
- Explain why it is important to conserve natural resources.
- List ways that you and others can conserve natural resources

Big Idea #5: Aquatic, terrestrial, and human-made ecosystems consist of diverse living and nonliving components that change over time and among geographic areas.

Essential Questions:

- What are the living and nonliving parts of ecosystems that exist within our community (or our school?), and what can cause them to change over time?

Concepts:

- Water can be flowing or still within an ecosystem.
- Water moves through an ecosystem in a dynamic manner (i.e. water cycle).
- Living and nonliving components of an ecosystem are interdependent.

Competencies:

- Locate three bodies of water within your community, categorize each as flowing or still, and identify the purpose of each within the ecosystem.
- Describe the three phases of water and give an example of each within a local ecosystem.
- Create a graphic representation of how an organism depends on living and nonliving components in its environment.

Big Idea #6: Humans depend upon the management and practices of agricultural systems.

Essential Question:

- How does agriculture play a role in our everyday lives?

Concepts:

- Agriculture provides for many of the basic needs of humans and animals.
- Without sound agricultural practices, we would not be able to feed people.
- Food, clothing, and some shelter are provided through agricultural practices.

Competencies:

- Identify the basic needs of humans and animals that are met by agricultural industry.
- Identify methods farmers may use to protect waterways and land.

Big Idea #7: A technological world requires that humans develop capabilities to solve technical challenges and improve products for the way we live.

Essential Questions:

- How do human wants and needs affect the products you use?

Concepts:

- A technological world requires an understanding of how things are made and can be improved.
- Safety is a major concern for all technological development and use.
- Technology may have an effect and influence on society and the environment.

Competencies:

- Investigate and explain how things work and how they may be maintained.
- Select and safely use a tool for a specific purpose.
- Communicate how technology influences individuals, families, communities, or the environment.

Big Idea # 8: Each area of technology has a set of characteristics that separates it from others; however, many areas overlap in order to meet human needs and wants.

Essential Questions:

- What are different areas of technology?

Concepts:

- Technology is designed to have an impact on a living being's health.
- Ecosystems can be controlled by technology.
- Many processes and tools are used to make products.
- Each structure is designed for a purpose.

Competences:

- Demonstrate the ability to use a number of tools to make a product.
- List and describe the purpose of several different types of structures.

Big Idea #9: Technology design is a creative process that anyone can do which may result in new inventions and innovations.

Essential Questions:

- How does technology design help create inventions and innovations?

Concepts:

- Technological design process involves problem solving and designing solutions to problems.
- The design process includes identifying and investigating a problem, generating ideas, developing objects, testing/evaluating, and sharing findings with others.
- Asking questions and making observations help a person understand how technology works and may be modified.

Competencies:

- Describe each step in the engineering design process used to solve technological problems.
- Utilize the engineering design process to solve a problem.
- Explain the reason(s) why a design may not be perfect.
- Demonstrate the ability to communicate (i.e. written, oral, or visual) a solution to a problem.
- Communicate (i.e. written, oral or visual) an understanding of how something works after observing and asking questions of a problem.

Big Idea #10: Technology is created, used, and modified by humans.

Essential Questions:

- In what ways do humans create, use, and modify technologies?

Concepts:

- A difference exists between the natural and the human-made world.
- Humans use tools, technology, and devices to help them to do a variety of things.
- Humans must plan, use materials, and select appropriate tools to complete a task.

Competencies:

- Explain and provide examples of the differences between the human-made, and the natural world, including how they interact.
- Describe how a variety of tools/instruments can be used to adapt the world based on a need or want.
- List technologies that are needed to do a variety of jobs (i.e. teacher, fireperson, baker, doctor etc.).
- Identify and describe materials found in technological areas.
- Demonstrate the ability to plan and create things using a set of problem solving steps.

Big Idea #11: Technological literacy is the ability to use, assess, and manage technology around us.

Essential Questions:

- What is technology?

Concepts:

- The technology around us may be good or bad.
- The technology we use affects the environment in a number of different ways.
- Throughout history technology has changed according to people's needs.

Competencies:

- List the good and/or bad characteristics of a technology.
- Explain how technology affects the environment.
- Describe how a technology in history has affected human needs.

Unit: Earth Science **(**Pebbles, Sand, and Silt) **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_Grade1.pdf

Overview:
Students will investigate and communicate observations made about pebbles, sand, and silt. Through hands-on investigations of pebbles, sand, and silt, students will observe, describe, and compare properties and behaviors of different Earth materials and will record their observations with pictures, numbers, and words

Goals/Objectives:
Students will be able to…

- Observe and compare physical properties of rocks and soils using various tools
- Rub rocks together and observe that they break into smaller pieces
- Understand that weathering is a natural process that creates smaller particles from larger rock pieces
- Use screens to separate and group river rocks by particle size and investigate properties of pebbles, gravel, sand, silt, and clay particles
- Compare and sort rocks in different ways using two or more physical properties
- Use tools to observe and compare physical properties of rocks
  Observe and record how rocks interact with water
- Separate sand and silt using water
- Explore the properties of dry and wet clay particles
- Explore places where earth materials are naturally found and ways that earth materials are used
- Understand that Earth materials are natural resources with specific properties that make them suitable for specific uses
- Describe soil by the properties of particle size, color, texture, and ability to support plant growth
- Understand that soil is made partly from weathered rock and partly from organic material, and it will vary from place to place
- Find, collect, identify, record, compare, and analyze samples of soil outside the classroom
- Use sand to create and construct sculptures and clay to make beads, jewelry, and bricks
- Recognize that natural sources of water includes streams, rivers, ponds, lakes, marshes and the ocean and identify sources in our immediate PA community
- Distinguish between freshwater and saltwater

- Recognize the difference between renewable and non-renewable resources
- Identify where waste from home, school, and community goes for disposal
- Identify resources humans use from the environment
- Recognize that everything is made of matter
- Explain why shadows fall in different places at different times
- Become familiar with weather instruments
- Collect, describe, and record basic information about weather over time
- Observe and record daily temperatures
- Draw conclusions from temperature data related to heating and cooling

Core Activities and Corresponding Instructional Methods:
Throughout all investigations, expose students to academic vocabulary
Foss Investigations: Pebbles, Sand, and Silt

Investigation 1: First Rocks

1.1 Three Rocks- Students gather information about a set of six collected rocks as they rub them together to simulate weathering.
1.2 Washing Three Rocks- Students wash rocks and observe changes when they are wet as well as changes to the wash water.
1.3 First Sorting- Students describe and compare river rocks as they are sorted into groups based on one property at a time.
1.4 Start a Rock Collection- Students collect, observe, and describe the properties of various school yard rocks.
1.5 Sorting Activities- Students use sorting mats to compare and sort their river rocks.

Investigation 2: River Rocks

2.1 Screening River Rocks – Students use screens to separate river rock mixture finding five sizes of materials: large pebbles, small pebbles, large gravel, small gravel, and sand.
2.2 River Rocks by Size – Students use screens to seriate rock particles into sand, gravel, and pebbles.
2.3 Sand and Silt – Having mixed sand and water, students observe the separation of sand and silt particles noticing sand settles to the bottom and silt rises to the top.
2.4 Exploring Clay- Students investigate the properties of the smallest rock particles, clay.

Investigation 3: Using Rocks

3.1 Rocks in Use - Students look outside for places where they earth materials can be found naturally or as building materials to and learn how people use rocks as natural resources to construct objects and make useful materials.
3.2 Observing Sandpaper-Students compare sandpaper to sand and then make and compare rubbings of three grades of sandpaper.
3.3 Sand Sculptures - Students mix sand with a cornstarch matrix to make durable sand sculptures.
3.4 Clay Beads – Students use clay to make a decorative memento of their investigation.
3.5 Making Bricks – Students make adobe clay bricks with a mixture of clay, soil, dry grass or

weeds, and construct a class wall with the dried, finished bricks.

Investigation 4: Soil and Water

4.1 Homemade Soil - Students put together and take apart soils using screens. Students discover humus as a component of soil. Students mix together homemade soil containing sand, gravel, pebbles, and humus. Students shake soil and water together in a vial and draw what they observe

4.2 Local Soil – Students go on a schoolyard field trip to collect soil samples. Students try to find soil in as many places as possible and study their samples. Students shake soil and water together in a vial and draw what they observe. Compare and contrast homemade soil versus schoolyard soils.

4.3 Natural Sources of Water – Students research sources of natural water, sort images of water sources, both fresh and salt, and discuss where water is found in their community.

Additional Resources:

- Mystery Science Resources
  - Have You Watched A Storm?
  - Can A Statue Shadow Move?
  - Why Do Stars Come Out At Night?
  - How Can Stars Help You If You Get Lost?
  - Why Is There Sand At The Beach?
  - What Is Strong Enough To Make A Canyon?
  - How Much Water Is In The World?
- Brainpopjr.com
  - Rocks and Minerals
  - Soil
  - Water Cycle
  - Natural Resources
- Discovery Education
- Turtlediary.com- First Grade Science Videos
  - The Water Cycle
  - Force and Motion
  - Natural Resources of the Earth
  - What is Matter?
  - What is Soil?
- Science A-Z
  - Foss Correlations Activities for Pebbles, Sand and Silt
  - Process Activities:
  - Modeling the Earth, Moon and Sun
  - Measuring Wind with a Cup Anemometer
  - Weather Journal
  - Erosion Control
  - Hypothesis Skills

- Data Sheets
- Diagrams
- Draw Conclusions
- Observations vs Inferences
- Identify and Control Variables
- Using Graphs
- Thermometers
- Balance Scales
- Length and Measurement
- Hand Lenses
- Science Fair Experiments: K-2 Earth and Space Science
- Science Fair Experiments: K-2 Physical Science
- Scientist and Inventor Cards
- Career Files

Links to Hands On Activities and Experiments:

1. Mason Jar Soil Test
   https://preparednessmama.com/jar-soil-test/#_a5y_p=1400786
2. Shaving Cream Clouds
   https://onelittleproject.com/shaving-cream-rain-clouds/
3. Rock Scratch Test
   https://lemonlimeadventures.com/rocks-minerals-scratch-test/

Assessments:

Diagnostic: Observation, question and answers
Formative: Observation, question and answers, documentation

- Mystery Science End of Lesson Assessments

Summative: Observation, question and answers, documentation, and completed student notebook

Extensions to Investigations
Make a rock record book
Set up a rock store
Make stone soup
Write about magic pebbles
Read about special rocks
Graph rock sorts
Build rock towers
Make rock people or pets
Assemble a rock aquarium
Make rock checkers
Start a personal rock collection
Write the journey of your rock

Write rock stories
Set up a rock weighing station
Create music with rocks, pebbles, sand, and plastic bottles for shakers
Set up a sand exploration center
Find out about pottery
Make sand paintings
Layer sand, gravel, and pebbles in bottles
Make sandpaper prints
Research earth materials
Compare soil habitats
Draw pictures of soil profiles (dessert, ocean beach, mountains)
Plant seeds in sand and soil
Take a field trip to a natural source of water

Correctives:
Remodel and review activities and procedures
Revisit vocabulary, use picture cards, diagrams, photos, videos
Write sentences and/or vocabulary to be copied by student
Student share notebooks and explanations

Primary Textbook(s) Used for this Course of Instruction

Name of Textbook: ***Animals and Plants,*** Foss Full Option Science System, 3rd Ed.

Textbook ISBN #: 978-1-60902-674-5

Textbook Publisher & Year of Publication: Delta Education: 2012
Curriculum Textbook is utilized in: First Grade Science

Name of Textbook: ***Solids and Liquids,*** Foss Full Option Science System, 3rd Ed.

Textbook ISBN #: 978-1-60902-670-7

Textbook Publisher & Year of Publication: Delta Education: 2012

Curriculum Textbook is utilized in: First Grade Science

Name of Textbook: ***Pebbles, Sand, and Silt,*** Foss Full Option Science System, 3rd Ed.

Textbook ISBN #: 978-1-60902-671-4

Textbook Publisher & Year of Publication: Delta Education: 2012

Curriculum Textbook is utilized in: First Grade Science

Appendix

PA Science Standards

Biological Science

3.1.1.A1 Categorize living and nonliving things by external characteristics.

3.1.1.A2 Investigate the dependence of living things on the sun's energy, water, food/nutrients, air, living space, and shelter.

3.1.1.A5 Identify and describe plant parts and their function.

Genetics

3.1.1.B1 Grow plants from seed and describe how they grow and change. Compare to adult plants.

Evolution

3.1.1.C3 Constancy and Change: Describe changes that occur as a result of habitat

Chemistry

3.2.1.A1 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.A3 Identify how heating, melting, cooling, etc., may cause changes in the properties of materials.

3.2.1.A4 Observe and describe what happens when substances are heated or cooled. Distinguish between changes that are reversible (melting, freezing) and not reversible (e.g. baking a cake, burning fuel).

3.2.1.A5: CONSTANCY AND CHANGE: Recognize that everything is made of matter.

Physics

3.2.1.B1 Demonstrate various types of motion. Observe and describe how pushes and pulls change the motion of objects.

3.2.1.B3 Observe and record daily temperatures. Draw conclusions from daily temperature records as related to heating and cooling.

3.2.1.B5 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.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.

Earth and Space Sciences

3.3.1.A1 Observe, describe, and sort Earth materials. Compare the composition of different soils.

3.3.1.A4 Identify and describe the types of fresh and salt-water bodies (oceans, rivers, lakes, ponds).

3.3.1.A5 Become familiar with weather instruments. Collect, describe, and record basic information about weather over time.

Origin and Evolution of the Universe
3.3.1.B1 Explain why shadows fall in different places at different times of the day.

Ecology
4.1.1.A Identify and describe the basic needs of living things in a terrestrial habitat.
4.1.1.C Describe a simple food chain within a terrestrial habitat.
4.1.1.D Identify living things that are threatened, endangered, or extinct.
4.1.1.E Describe the seasons and describe how the change of the seasons affect living things.

Watersheds and Wetlands
4.2.1.A Explain the path water takes as it moves through the water cycle.

4.3: Natural Resources
4.3.1.A Identify some renewable resources used in the community.
4.3.1.B Recognize the difference between renewable and nonrenewable resources.

Agriculture and Society
4.4.1.A Describe the role of soil in agricultural systems.
4.4.1.B Identify products and by-products of the agricultural system.
4.4.1.C Describe the life cycles of different plants and animals in a terrestrial habitat.
4.4.1.D Identify tools used by native Americans and early settlers in agriculture.

Humans and the Environment
4.5.1.A Identify resources humans use from the environment.
4.5.1.B Describe why people consider some insects, plants and other living things to be pests, and ways to control their population numbers.
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.

The following standard is worded the same and appears in all subcategories, but the number of the standard varies.

3.1.1.A9 Biological Sciences
3.1.1.B6 Genetics
3.1.1.C4 Evolution
3.2.1.A6 Chemistry
3.2.1.B7 Physics
3.3.1.A7 Earth Structure, Processes, and Cycles
3.3.1.B3 Origin and Evolution of the Universe
4.1.1.F Environments and Ecology
4.2.1.D Watersheds and Wetlands
4.3.1.C Natural Resources
4.4.1.D Agriculture and Society
4.5.1.F Humans and the Environment

- Distinguish between scientific fact and opinion.
- Ask questions about objects, organisms, and events.
- Understand that all scientific investigations involve asking and answering questions and comparing the answer with what is already known.
- Plan and conduct a simple investigation and understand that different questions require different kinds of investigations.
- Use simple equipment (tools and other technologies) to gather data and understand that this allows scientists to collect more information than relying only on their senses to gather information.
- Use data/evidence to construct explanations and understand that scientists develop explanations based on their evidence and compare them with their current scientific knowledge.
- Communicate procedures and explanations giving priority to evidence and understanding that scientists make their results public, describe their investigations so they can be reproduced, and review and ask questions about the work of other scientists.

PA Common Core Standards for Math

CC.2.1.1.B.1 Extend the counting sequence to read and write numerals to represent objects.
CC.2.3.1.A.1 Compose and distinguish between two- and three-dimensional shapes based on their attributes.
CC.2.3.1.A.2 Use the understanding of fractions to partition shapes into halves and quarters.
CC.2.4.1.A.1 Order lengths and measure them both indirectly and by repeating length units.
CC.2.4.1.A.4 Represent and interpret data using tables/charts

PA Common Core Standards for ELA

CC.1.1.1.D Know and apply grade level phonics and word analysis skills in decoding words.
CC.1.1.1.E Read with accuracy and fluency to support comprehension
CC.1.2.1.A Identify the main idea and retell key details of text.
CC.1.2.1.B Ask and answer questions about key details in a text.
CC.1.2.1.C Describe the connection between two individuals, events, ideas, or pieces of information in a text.
CC.1.2.1.E Use various text features and search tools to locate key facts or information in a text.
CC.1.2.1.F Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.
CC.1.2.1.G Use the illustrations and details in a text to describe its key ideas.
CC.1.2.1.H Identify the reasons an author gives to support points in a text.
CC.1.2.1.I Identify basic similarities in and differences between the two texts on the same topic.
CC.1.2.1.J Use words and phrases acquired through conversations, reading, and being read to, and responding to texts, including words that signal connections and relationships between the words and phrases.
CC.1.2.1.K Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on grade level reading and content.
CC.1.2.1.L Read and comprehend literary nonfiction and informational text on grade level, reading independently and proficiently.

CC.1.4.1.A	Write informative/ explanatory texts to examine a topic and convey ideas and information.
CC.1.4.1.B	Identify and write about one specific topic.
CC.1.4.1.C	Develop the topic with two or more facts.
CC.1.4.1.D	Group information and provide some sense of closure.
CC.1.4.1.E	Choose words and phrases for effect.
CC.1.4.1.F	Demonstrate a grade appropriate command of the conventions of Standard English grammar and spelling
CC.1.4.1.J	Create an organizational structure that includes reasons and provides some sense of closure.
CC.1.4.1.K	Use a variety of words and phrases.
CC.1.4.1.L	Demonstrate a grade appropriate command of the conventions of Standard English grammar and spelling.
CC.1.4.1.T	With guidance and support from adults and peers, focus on a topic, respond to questions and suggestions from peers, and add details to strengthen writing as needed.
CC.1.4.1.U	With guidance and support, use a variety of digital tools to produce and publish writing including in collaboration with peers.
CC.1.4.1.V	Participate in individual or shared research and writing projects.
CC.1.4.1.W	With guidance and support, recall information from experiences or gather information from provided sources to answer a question.
CC.1.4.1.X	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes and audiences.
CC.1.5.1.A	Participate in collaborative conversations with peers and adults in small and larger groups.
CC.1.5.1.B	Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
CC.1.5.1.C	Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
CC.1.5.1.D	Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.
CC.1.5.1.E	Produce complete sentences when appropriate to task and situation.
CC.1.5.1.F	Add drawings or other visual displays when sharing aloud to clarify ideas, thoughts, and feelings.
CC.1.5.1.G	Demonstrate command of the conventions of Standard English when speaking based on grade 1 level and content.