| Curriculum Design | |
|---|---|
| **Content Area: Science** | |
| **Course Title: General Science** | **Grade Level: Kindergarten** |

| | |
|---|---|
| **Unit 1: Weather** | **8 Weeks** |
| **Unit 2: Living and Nonliving Things** | **8 Weeks** |
| **Unit 3: Habitats** | **8 Weeks** |
| **Unit 4: Motion** | **8 Weeks** |
| **Unit 5: Water** | **8 Weeks** |

| | |
|---|---|
| **Date Created:** | **July 2011** |
| **Board Approved on:** | **August 25, 2011** |

## Unit 1 Overview

**Content Area: Earth Science**

**Unit 1 Title: Weather**

**Grade Level: Kindergarten**

**Unit Summary**

Earth's weather is the result of interactions between the Sun, land, water, and atmosphere. Current weather conditions include wind, clouds, and precipitation. Water can be observed disappearing (evaporating) and collecting (condensing).

**Primary interdisciplinary connections:** Math, Language Arts, and Technology

**21st century themes: 9.1-** This unit infuses the 21st Century Life & Careers standard 9.1, strands A-D. These strands include: Critical Thinking and Problem Solving; Creativity and Innovation; Collaboration, Teamwork and Leadership and Cross Cultural Understanding and Interpersonal Communication.

## Learning Targets

**Standards:**

**5.2 Physical Science:** Physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.

**5.4 Earth Systems Science**: All students will understand that Earth operates as a set of complex, dynamic, and interconnected systems, and is a part of the all-encompassing system of the universe.

**5.1.A.B.C.D. Science Practices** This unit will infuse the four strands of the Science Practices standard. These focus on understanding scientific explanations; generating scientific evidence through active investigation; reflecting on scientific knowledge; and participating productively in science.

**Content Statements**

- The Sun warms the land, air, and water.
- Current weather conditions include air movement, clouds, and precipitation. Weather conditions affect our daily lives.
- Water can disappear (evaporate) and collect (condense) on surfaces.

| CPI # | Cumulative Progress Indicator (CPI) |
|---|---|
| 5.2.2.C.1 | Compare, citing evidence, the heating of different colored objects placed in full sunlight. |

| | |
|---|---|
| **5.4.2.F.1** | Observe and document daily weather conditions and discuss how the weather influences your activities for the day. |
| **5.4.2.G.1** | Observe and discuss evaporation and condensation. |

| **Unit Essential Questions** | **Unit Enduring Understandings** |
|---|---|
| • How does the Sun affect weather on Earth?<br>• In what ways does weather affect our daily lives?<br>• When might you observe water disappearing (evaporating) or collecting (condensing)? | • The Sun heats the Earth and causes weather.<br>• Weather conditions such as clouds, wind and precipitation can be observed.<br>• Weather impacts our daily lives.<br>• Water can be observed disappearing (evaporating) and collecting (condensing) on surfaces. |

**Evidence of Learning**

**Suggested Summative Assessment**

Chapter Tests

**Formative Assessments**

- www.njcccs.org Classroom Application Docs
- Hands-on activities
- Performance based assessments
- Labs
- Projects
- Teacher observation

## Unit 2 Overview

**Content Area: Life Science**

**Unit 2 Title: Living and Nonliving Things**

**Grade Level: Kindergarten**

**Unit Summary**

- Differentiate between living & non-living.
- Sort characteristics of living & non-living things.
- Explore systems (in the context of parts and wholes) to understand that when parts are put together, they can do things that they couldn't do by themselves.

**Primary interdisciplinary connections:** Math, Language Arts, and Technology

**21st century themes: 9.1-** This unit infuses the 21st Century Life & Careers standard 9.1, strands A-D. These strands include: Critical Thinking and Problem Solving; Creativity and Innovation; Collaboration, Teamwork and Leadership and Cross Cultural Understanding and Interpersonal Communication.

## Learning Targets

**Standards:**

**5.2 Physical Science:** Physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.

**5.3 Life Science**: All students will understand that life science principles are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics.

**5.1. A.B.C.D. Science Practices** This unit will infuse the four strands of the Science Practices standard. These focus on understanding scientific explanations; generating scientific evidence through active investigation; reflecting on scientific knowledge; and participating productively in science.

**Content Statements**

- Living and non-living things are made of parts and can be described in terms of the materials they're made of and their physical properties.
- Living organisms need and get food and water from the environment, reproduce (make more of their own) and grow & develop in a predictable way.
- Plants and animals often resemble their parents.
- Organisms have predictable characteristics at different stages of development.

| CPI # | Cumulative Progress Indicator (CPI) |
|---|---|
| **5.2.2.A.1** | Sort and describe objects based on the materials of which they are made and their physical properties. |
| **5.3.2.A.1** | Group living and nonliving things according to the characteristics that they share. |
| **5.3.2.D.1** | Record the observable characteristics of plants and animals to determine the similarities and differences between parents and their offspring. |
| **5.3.2.D.2** | Determine the characteristic changes that occur during the life cycle of plants and animals by examining a variety of species, and distinguish between growth and development. |

| **Unit Essential Questions** | **Unit Enduring Understandings** |
|---|---|
| • How do the properties of materials determine living or non-living?<br>• What do all living things have in common?<br>• How the parts of living and non-living things interact to form a whole? | • Living things have a variety of observable features that enable them to obtain food to eat, move, grow and reproduce (make more of themselves).<br>• The make up of materials determines their properties.<br>• Parts are put together to form a whole. |

**Evidence of Learning**

**Suggested Summative Assessment**

Chapter Tests

**Formative Assessments**

- www.njcccs.org Classroom Application Docs
- Hands-on activities
- Performance based assessments
- Labs
- Projects
- Teacher observation

## Unit 3 Overview

**Content Area: Life Science**

**Unit 3 Title: Habitats**

**Grade Level: Kindergarten**

**Unit Summary**

- All animals and most plants depend on both other organisms and their environment to meet their basic needs.

**Primary interdisciplinary connections:** Math, Language Arts, and Technology

**21st century themes: 9.1-** This unit infuses the 21st Century Life & Careers standard 9.1, strands A-D. These strands include: Critical Thinking and Problem Solving; Creativity and Innovation; Collaboration, Teamwork and Leadership and Cross Cultural Understanding and Interpersonal Communication.

## Learning Targets

**Standards:**

**5.3 Life Science**: All students will understand that life science principles are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics.

**5.1. A.B.C.D. Science Practices** This unit will infuse the four strands of the Science Practices standard. These focus on understanding scientific explanations; generating scientific evidence through active investigation; reflecting on scientific knowledge; and participating productively in science.

**Content Statements**

- Organisms interact and are interdependent in various ways; for example, they provide food and shelter to one another.
- A habitat supports the growth of many different plants and animals by meeting their basic needs of food, water, and shelter.
- Humans can change natural habitats in ways that can be harmful or helpful for the plants and animals that live there.

| CPI # | Cumulative Progress Indicator (CPI) |
|---|---|
| **5.3.2.C.1** | Organisms interact and are interdependent in various ways; for example, they provide food and shelter to one another. |
| **5.3.2.C.2** | A habitat supports the growth of many different plants and animals by meeting their basic needs of food, water, and shelter. |
| **5.3.2.C.3** | Humans can change natural habitats in ways that can be helpful or harmful for the plants and animals that live there. |

| | |
|---|---|
| **5.3.2.E.2** | Plants and animals have special features that help them survive in different environments. |

| **Unit Essential Questions** | **Unit Enduring Understandings** |
|---|---|
| • In what ways do organisms interact within ecosystems?<br>• In what ways are organisms of the same kind different from each other? How does this help them reproduce and survive?<br>• What effect do humans have on the habitats of animals? | • All animals and most plants depend on both other organisms and their environments for their basic needs.<br>• Sometimes differences between organisms of the same kind give advantages in surviving and reproducing in different environments.<br>• Human actions can protect or harm the balance of ecosystems |

**Evidence of Learning**

**Suggested Summative Assessment**

Chapter Tests

**Formative Assessments**

- www.njcccs.org Classroom Application Docs
- Hands-on activities
- Performance based assessments
- Labs
- Projects
- Teacher observation

## Unit 4 Overview

**Content Area: Physical Science**

**Unit 4 Title: Motion**

**Grade Level: Kindergarten**

**Unit Summary:**

- Objects move in many different ways.
- Forces, pushes and pulls, can cause objects to move.
- The speed that an object moves is related to the how strongly it was pushed or pulled.

**Primary Interdisciplinary Connections:** Math, Language Arts, and Technology

**21st century themes: 9.1-** This unit infuses the 21st Century Life & Careers standard 9.1, strands A-D. These strands include: Critical Thinking and Problem Solving; Creativity and Innovation; Collaboration, Teamwork and Leadership and Cross Cultural Understanding and Interpersonal Communication.

## Learning Targets

**Standards:**
**5.2 Physical Science:** Physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.

**5.1. A.B.C.D. Science Practices** This unit will infuse the four strands of the Science Practices standard. These focus on understanding scientific explanations; generating scientific evidence through active investigation; reflecting on scientific knowledge; and participating productively in science.

**Content Statements**

- Objects can move in many different ways (fast and slow, in a straight line, in a circular path, zigzag, and back and forth).
- A force is a push or a pull. Pushing or pulling can move an object.
- The speed an object moves is related to how strongly it is pushed or pulled. When an object does not move in response to a push or a pull, friction is being applied by the environment.

| CPI # | Cumulative Progress Indicator (CPI) |
|---|---|
| **5.2.2.E.1** | Investigate and model the various ways that inanimate objects can move. |
| **5.2.2.E.2** | Predict an object's relative speed, path, or how far it will travel using various forces and surfaces. |

| **Unit Essential Questions** | **Unit Enduring Understandings** |
|---|---|
| • In what ways can objects move?<br>• What is a force?<br>• What affects the speed at which an object moves? | • Objects can move in many different ways.<br>• A force is a push or a pull.<br>• Pushing or pulling can move an object.<br>• Speed of movement is related to the strength of the push or pull that imitated the movement. |

**Evidence of Learning**

**Suggested Summative Assessment**

Chapter Tests

**Formative Assessments**

- www.njcccs.org Classroom Application Docs
- Hands-on activities
- Performance based assessments
- Labs
- Projects
- Teacher observation

## Unit 5 Overview

**Content Area: Life Science**

**Unit 5 Title: Water**

**Grade Level: Kindergarten**

**Unit Summary**

- All objects and substances in the natural world are composed of matter.
- Water can condense and evaporate.
- There are many sources and uses of water.

**Primary interdisciplinary connections:** Math, Language Arts, and Technology

**21st century themes: 9.1-** This unit infuses the 21st Century Life & Careers standard 9.1, strands A-D. These strands include: Critical Thinking and Problem Solving; Creativity and Innovation; Collaboration, Teamwork and Leadership and Cross Cultural Understanding and Interpersonal Communication.

## Learning Targets

**Standards:**

**5.2 Physical Science:** Physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.

**5.4 Earth Systems Science:** Earth operates as a set of complex, dynamic, and interconnected systems, and is part of the all-encompassing system of the universe.

**5.1. A.B.C.D. Science Practices** This unit will infuse the four strands of the Science Practices standard. These focus on understanding scientific explanations; generating scientific evidence through active investigation; reflecting on scientific knowledge; and participating productively in science.

**Content Statements**

- Matter exists in several different states; the most commonly encountered are solids, liquids, and gases. Liquids take the shape of the container they occupy.
- Water can disappear (evaporate) and collect (condense) on surfaces.
- There are many sources and uses of water.

| CPI # | Cumulative Progress Indicator (CPI) |
|---|---|
| **5.2.2.A.2** | Identify common objects as solids, liquids, or gases. |
| **5.4.2.G.1** | Observe and discuss evaporation and condensation. |
| **5.4.2.G.2** | Identify and use water conservation practices. |

| **Unit Essential Questions** | **Unit Enduring Understandings** |
|---|---|
| • What are the different forms of water?<br>• How does water change?<br>• What happens when water is heated and cooled?<br>• How can we conserve water? | • Water can take many forms including liquid, ice, and water vapor.<br>• Water changes based on heating and cooling.<br>• Our water supply is essential for animal and plant survival. Water is a resource we must protect. |

**Evidence of Learning**

**Suggested Summative Assessment**

Chapter Tests

**Formative Assessments**

- www.njcccs.org Classroom Application Docs
- Hands-on activities
- Performance based assessments
- Labs
- Projects
- Teacher observation