



# Township of Ocean Schools

Assistant Superintendent  
Office of Teaching and Learning

## **SPARTAN MISSION:**

*Meeting the needs of all students with a proud tradition of academic excellence.*

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### **Curriculum Development Timeline**

**School:** Township of Ocean Elementary Schools

**Course:** Science, Grade 3

**Department:** Science

| <b>Board Approval</b> | <b>Supervisor</b> | <b>Notes</b> |
|-----------------------|-------------------|--------------|
| February 2009         | Jessica Shaw      | Born Date    |
| June 2011             | Christine Picerno | Revisions    |
| August 2017           | Christine Picerno | Revisions    |
| March 2019            | Christine Picerno | Review       |

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| <b>Marking Period 1</b> |                                                              | <b>Marking Period 2</b> |                                                                               |
|-------------------------|--------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------|
| 1                       | Earth Sciences:<br>Weather and Climate                       | 11                      | Life Sciences: Inheritance and Variation of Traits:<br>Life Cycles and Traits |
| 2                       | Earth Sciences:<br>Weather and Climate                       | 12                      | Life Sciences: Inheritance and Variation of Traits:<br>Life Cycles and Traits |
| 3                       | Earth Sciences:<br>Weather and Climate                       | 13                      | Life Sciences: Inheritance and Variation of Traits:<br>Life Cycles and Traits |
| 4                       | Earth Sciences:<br>Weather and Climate                       | 14                      | Life Sciences: Inheritance and Variation of Traits:<br>Life Cycles and Traits |
| 5                       | Earth Sciences:<br>Weather and Climate                       | 15                      | Life Sciences: Inheritance and Variation of Traits:<br>Life Cycles and Traits |
| 6                       | Earth Sciences:<br>Weather and Climate                       | 16                      | Life Sciences: Inheritance and Variation of Traits:<br>Life Cycles and Traits |
| 7                       | Earth Sciences:<br>Weather and Climate                       | 17                      | Life Sciences: Inheritance and Variation of Traits:<br>Life Cycles and Traits |
| 8                       | Earth Sciences:<br>Weather and Climate                       | 18                      | Life Sciences: Inheritance and Variation of Traits:<br>Life Cycles and Traits |
| 9                       | Earth Sciences:<br>Weather and Climate                       | 19                      | Life Sciences: Inheritance and Variation of Traits:<br>Life Cycles and Traits |
| 10                      | Earth Sciences:<br>Weather and Climate                       | 20                      | Life Sciences: Inheritance and Variation of Traits:<br>Life Cycles and Traits |
| <b>Marking Period 3</b> |                                                              | <b>Marking Period 4</b> |                                                                               |
| 21                      | Life Sciences: Interdependent Relationships in<br>Ecosystems | 31                      | Physical Science:<br>Forces and Motion                                        |
| 22                      | Life Sciences: Interdependent Relationships in<br>Ecosystems | 32                      | Physical Science:<br>Forces and Motion                                        |
| 23                      | Life Sciences: Interdependent Relationships in<br>Ecosystems | 33                      | Physical Science:<br>Forces and Motion                                        |
| 24                      | Life Sciences: Interdependent Relationships in<br>Ecosystems | 34                      | Physical Science:<br>Forces and Motion                                        |
| 25                      | Life Sciences: Interdependent Relationships in<br>Ecosystems | 35                      | Physical Science:<br>Forces and Motion                                        |
| 26                      | Life Sciences: Interdependent Relationships in<br>Ecosystems | 36                      | Physical Science:<br>Forces and Motion                                        |
| 27                      | Life Sciences: Interdependent Relationships in<br>Ecosystems | 37                      | Physical Science:<br>Forces and Motion                                        |

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|    |                                                           |    |                                     |
|----|-----------------------------------------------------------|----|-------------------------------------|
| 28 | Life Sciences: Interdependent Relationships in Ecosystems | 38 | Physical Science: Forces and Motion |
| 29 | Life Sciences: Interdependent Relationships in Ecosystems | 39 | Physical Science: Forces and Motion |
| 30 | Life Sciences: Interdependent Relationships in Ecosystems | 40 | Physical Science: Forces and Motion |

|                                                                                                                                                                                                                                                                                                                                        |                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| <b>Time Frame</b>                                                                                                                                                                                                                                                                                                                      | <b>10 weeks</b> |
| <b>Course</b>                                                                                                                                                                                                                                                                                                                          |                 |
| <b>Earth Sciences</b>                                                                                                                                                                                                                                                                                                                  |                 |
| <b>Title of Unit</b>                                                                                                                                                                                                                                                                                                                   |                 |
| Weather and Climate                                                                                                                                                                                                                                                                                                                    |                 |
| <b>Essential Questions</b>                                                                                                                                                                                                                                                                                                             |                 |
| <ol style="list-style-type: none"> <li>1. What is the weather in different parts of the world and during different times of the year?</li> <li>2. How can the impact of weather related hazards be reduced?</li> </ol>                                                                                                                 |                 |
| <b>Enduring Understandings</b>                                                                                                                                                                                                                                                                                                         |                 |
| <i>Students will understand that...</i>                                                                                                                                                                                                                                                                                                |                 |
| <ul style="list-style-type: none"> <li>→ data in tables and graphs can illustrate typical weather conditions expected during a particular season</li> <li>→ climates in different regions of the world can follow patterns</li> <li>→ there are ways to design solutions that reduce the impact of a weather-related hazard</li> </ul> |                 |

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### **Key Knowledge**

#### ***Students will know...***

- scientists record patterns of the weather in order to make predictions about what kind of weather might happen next
- climate describes an area's typical weather conditions and the changes over many years
- many different kinds of natural hazards occur in nature
- although we cannot eliminate natural hazards, we can take steps to reduce their impact

### **Concepts and Skills**

#### ***Students will be able to.....***

- create tables and graphs that show weather patterns
- describe and investigate the climate in different areas of the world
- make predictions about the climate based on the previous observations
- design a solution to reduce the impact of weather-related hazards

### **Learning Activities**

#### **ELA Connections: Wonders**

- ❖ Unit 3 Week 3: Discoveries: What do we know about Earth and Its Neighbors?
- ❖ Unit 6 Week 2: Weather: How can weather affect us?

**Mystery Science:** *Stormy Skies: Weather, Climate, & Water Cycle* (links provided- click):

1. [Where do clouds come from?](#)
2. [How do we predict it's going to storm?](#)
3. [Why are some places always hot?](#)

*\*\*All video clips can be accessed by clicking on the text- another tool/option would be to type the title into EdPuzzle and utilize the clip as a student led (independent background builder) or assessment option with questions built in (questions can be differentiated and voice recordings can be created [by the teacher] for students who have difficulty with reading).*

#### **YouTube video clips to build background:**

- ❖ [Billy Blue Hair - What is the Water Cycle and Why Does it Rain?](#)
- ❖ [GoNoodle Water Cycle](#)
- ❖ [Water Cycle - StudyJams - Closed Captioned](#)
- ❖ [Weather and Climate- StudyJams](#)
- ❖ [Where does water come from?](#)
- ❖ [Weather and Climate](#)
- ❖ [Weather vs. Climate](#)
- ❖ [Be a weather watcher](#)
- ❖ [Climate Change 101 with Bill Nye | National Geographic](#)

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- ❖ [Where do snowflakes come from?](#)
- ❖ [What are clouds made of?](#)
- ❖ [Bill Nye the Science Guy S03E07 Water Cycle](#)

### **Weather related hazards (video clips):**

- ❖ [Severe Weather](#)
- ❖ [What causes thunder and lightning](#)
- ❖ [What Causes Earthquakes?](#)
- ❖ [Tornado Facts for Kids](#)
- ❖ [What is a blizzard?](#)
- ❖ [What is a tornado?](#)
- ❖ [Bill Nye: Storms](#)

### **BrainPopJr.com**

- ❖ [Water cycle](#)
- ❖ [Temperature](#)

### **BrainPop.com**

- ❖ [Climate Change](#)
- ❖ [Water Cycle](#)
- ❖ [Clouds](#)
- ❖ [Weather](#)
- ❖ [Natural Disasters](#)
- ❖ [Tornadoes](#)
- ❖ [Thunderstorms](#)
- ❖ [Hurricanes](#)

### **Flocabulary.com**

- ❖ [Hurricanes](#)
- ❖ [Water Cycle](#)
- ❖ [Weather](#)

### **Pebblego.com**

- ❖ [What is weather?](#)
- ❖ [Climate](#)
- ❖ [Wind](#)

### **Prepared Lesson Ideas**

- ❖ **Awesome websites** for simple research and information gathering- could be a great source for

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student led/independent study

- [eschooltoday.com](http://eschooltoday.com)
- [Tree House Weather Kids](#) (text is read aloud)
- ❖ [Weather Scope- make weather instruments, gather data- learning log, etc.](#)
- ❖ [Weather, Climate, & Water lessons](#)
- ❖ BetterLesson.com [Earth & Spaces Sciences \(multiple lessons to choose from\)](#)
- ❖ [Water Cycle Activities](#) (4 lessons w/hands on activities/demonstrations)
- ❖ [Cloud Investigation](#)- hands on activity, chart for data collection, assessment
- ❖ [STEAM Weather Activities](#)- hands on- get crafty and reach your students!

### **Books:**

- ❖ [Flash, Crash, Rumble, and Roll](#) by Franklyn Branley
- ❖ [Twister](#) by Darleen Bailey Beard
- ❖ [Cloud Dance](#) by Thomas Locker
- ❖ [Tornado Alert](#) by Franklyn Branley
- ❖ [Down Comes the Rain](#) by Franklyn Branley
- ❖ Gail Gibbons Weather Books \*\*\*free subscription required for online books
  - Online: [Weather Words and What They Mean by Gail Gibbons](#)
  - Online: [Tornadoes by Gail Gibbons](#)

**Basic PowerPoint:** Weather & Climate

## **Assessments**

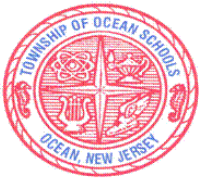
### **Formative:**

- Label diagram "Returning Raindrop" Quiz
- 4 Types of Clouds Quizlet

### **Summative:**

- Water cycle assessment
  - Each student will create a poster for display showing the water cycle in their favorite outdoors place. It may be their home or a vacation spot. The key concepts should be shown in the poster. May use photos cut from magazines in combination with their own artwork to compose the poster.
- Label Water Cycle- Google Drawing Test *(Teacher make a "copy" and save to your Drive before posting/assigning to individual classes)*
- 2nd Version- Label Water Cycle Test *(Teacher make a "copy" and save to your Drive before posting/assigning to individual classes)*
- Mystery Science Assessments

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- [The World of Weather- Mystery 1: Weather Patterns, Water Cycle Test](#)
- [The World of Weather- Mystery 2: Climate Test](#)
- [The World of Weather- Mystery 3: Climate, Typical Weather, Geography](#)
- [4 Types of Clouds Labeling- Google Drawings Assessment](#) (Teacher make a "copy" and save to your Drive before posting/assigning to individual classes)
- [Climate & Weather Google Forms Assessment](#) (Teacher make a "copy" and save to your Drive before posting/assigning to individual classes)

### **Benchmark:**

- Engineering Design Process Rubric Assessment 1

### **Alternative Assessment:**

- [Weather Scope- make weather instruments, gather data- learning log, etc.](#)
- [Cloud Investigation](#)- hands on activity, chart for data collection, assessment

## **NGSS and Interdisciplinary Connections**

### **NGSS:**

- **ESS2-1** - Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season
- **ESS2-2** - Obtain and combine information to describe climates in different regions of the world
- **3-ESS3.1** - Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard

### **NJSLS: ELA**

- **R3.1** - Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers
- **R3.9** - Compare and contrast the most important points and key details presented in two texts on the same topic
- **W3.1** - Write opinion pieces on topics or texts, supporting a point of view with reasons
- **W3.7** - Conduct short research projects that build knowledge about a topic
- **W3.8** - Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories

### **NJSLS: Math**

- **3.MD.A.2** - Measure and estimate liquid volumes and masses of objects using standard units of

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grams (g), kilograms (kg), and liters (l).1 Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem

- **3.MD.B.3** - Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs

## **Technology Integration**

### **Technology Learning Activities:**

- Students use Chromebooks to access Mystery Science extension activities.
- Students will use Google Classroom to access links to interactive activities, science labs, interactive stories and video resources.

### **Alignment to Standards:**

- **8.1.2.A.3:** Compare the common uses of at least two different digital applications and identify the advantages and disadvantages of using each.
- **8.1.2.A.4:** Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).
- **8.1.5.A.1:** Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.
- **8.1.8.A.1:** Demonstrate knowledge of a real world problem using digital tools.
- **8.1.P.C.1:** Collaborate with peers by participating in interactive

## **21st-Century Skills**

**9.2.4.A.4** Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

## **Career Ready Practices**

**CRP 6.** SW demonstrate creativity and innovation while working on [Weather Scope- make weather instruments, gather data- learning log, etc.](#) AND [Cloud Investigation](#).

**CRP 8.** SW utilize critical thinking to make sense of Mystery Science problems and persevere in solving them.

|                                                                       |                 |
|-----------------------------------------------------------------------|-----------------|
| <b>Time Frame</b>                                                     | <b>10 weeks</b> |
| <b>Course</b>                                                         |                 |
| <b>Life Sciences</b>                                                  |                 |
| <b>Title of Unit</b>                                                  |                 |
| <b>Interdependent Relationships in Ecosystems</b>                     |                 |
| <b>Essential Questions</b>                                            |                 |
| 1. What happens to plants and animals when their environment changes? |                 |

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2. How are plants, animals, and environments of the past similar or different from current plants, animals, and environments?
3. How can fossils provide evidence that animals and plants have changed over time?

## **Enduring Understandings**

*Students will understand that...*

- that some animals form groups that help group members survive
- data from fossils can provide evidence of the organisms and the environments in which they lived long ago
- in a particular habitat some organisms can survive well, while some survive less well, and others cannot survive at all
- when an environment changes, the types of plants and animals that live in it may change, and a variety of solutions may be used to solve this problem. Each of these possibilities may have advantages and disadvantages.

## **Key Knowledge**

*Students will know.....*

- being part of a group helps animals obtain food, defend themselves, and cope with changes
- there are different reasons for groups
- some kinds of plants and animals that once lived on Earth are no longer found anywhere
- fossils provide evidence about the types of organisms and environments from long ago
- explain with evidence how some habitats allow animals to survive or die out
- environmental changes cause organisms to survive and reproduce, move to new locations, and die out
- animals live in a variety of habitats and change in those habitats to fit in them

## **Concepts and Skills**

*Students will be able to.....*

- create an argument with evidence that shows how animals form groups to survive
- use fossils to make connections between how animals lived long ago and how they live today
- explain with evidence how some habitats allow animals to survive and flourish or die out. Explain how environmental changes affect the animals that live in the environment

## **Learning Activities**

**ELA Connection: Wonders**

- ❖ Unit 2 Week 1: Cooperation: Why is working together a good way to solve a problem?
- ❖ Unit 2 Week 4: Survival: How can People help animals survive?
- ❖ Unit 4 Week 3: Adaptations: How do animals adapt to challenges in their habitat?

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- ❖ Unit 5 Week 2: Reuse & Recycle: How can we reuse what we already have?

### **Mystery Science:** *Animals Through Time: Habitats, Change, & Heredity*

- ❖ [Where can you find whales in a desert?](#)
- ❖ [How do we know what dinosaurs look like?](#)
- ❖ [Can you outrun a dinosaur?](#)
- ❖ [What kind of animals might there be in the future?](#)
- ❖ [Can selection happen without people?](#)

*\*\*All video clips can be accessed by clicking on the text- another tool/option would be to type the title into EdPuzzle and utilize the clip as a student led (independent background builder) or assessment option with questions built in (questions can be differentiated and voice recordings can be created [by the teacher] for students who have difficulty with reading).*

### **YouTube video clips to build background:**

- ❖ [Amazing Animal Groups](#)
- ❖ [Can wildlife adapt to climate change?](#)
- ❖ [Animals With Winter Coats](#)
- ❖ [How do Whales, Penguins, and Polar Bears Keep Warm?](#)
- ❖ [study jams - ECOSYSTEMS](#)
- ❖ [study jams- Adaptations](#)
- ❖ [Dig Into Paleontology](#)
- ❖ [What's a Fossil?](#)
- ❖ [Bill Nye the Science Guy- Biodiversity \(Ecosystem Support\)](#)
- ❖ [Bill Nye the Science Guy- Fossils](#)

### **BrainPopJr.com**

- ❖ [Fossils](#)
- ❖ [Plant Adaptations](#)

### **BrainPop.com**

- ❖ [Fossils](#)

### **Pebblego.com**

- ❖ [Adaptations](#)
- ❖ [Animals Affect Habitats](#)
- ❖ [Endangered and Threatened Animals](#)

### **Flocabulary.com** (subscription required)

- ❖ [Adaptation](#)

### **Online Books: (with short quizzes) \*\*\*free subscription required**

- ❖ [Earth Science Rocks! Fossils by Chris Bowman](#)
- ❖ [Figuring Out Fossils by Sally M. Walker](#)

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- ❖ [Animal Adaptations by Louise Spilsbury & Richard Spilsbury](#)

### **Prepared Lesson Ideas:**

- ❖ [“Fun with Fossils”](#) -excellent lesson w/video clips, student project, assessment
- ❖ [Animals Adapt to Their Habitats](#) - excellent lesson w/video clips, scenario for student connections, and assessment (seems similar to Houghton Mifflin B.4.3 lesson on adaptations)
- ❖ **Website** for simple research and information gathering- could be a great source for student led/independent study to help build background [eschooltoday.com](http://eschooltoday.com)
- ❖ [Heredity Lesson- hands on activity](#)

## **Assessments**

### **Formative:**

- **Mystery Science Assessments:**

- Animals Through Time: Mystery 1: Habitats & Environment Change Quiz
- Animals Through Time: Mystery 2: Structures & Adaptation; Fossil Evidence Quiz
- Animals Through Time: Mystery 3: Fossil Evidence, Behavior Quiz
- Animals Through Time: Mystery 4: Heredity, Variation, & Selection Quiz
- Animals Through Time: Mystery 5: Heredity & Selection Quiz

### **Summative:**

- **Prepared Lesson Idea” Assessment**

- [Animals Adapt to Their Habitats](#) (conclusion to lesson)- Draw the animal that you imagine was in the box you received from the explorer. Describe the physical characteristics of the animal and how it is specially adapted to be successful in its habitat. Describe the habitat from which you think it comes.
- [How a Fossil Forms- Google Slide Assessment](#) (Teacher make a “copy” and save to your Drive before posting/assigning to individual classes)

### **Benchmark:**

- Engineering Design Process Rubric Assessment 2

### **Alternative Assessment:**

- [“Fun with Fossils”](#) -excellent lesson w/video clips, student project, assessment

## **NGSS and Interdisciplinary Connections**

### **NGSS:**

- **3-LS2-1** - Construct an argument that some animals form groups that help members survive

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- **3-LS4-1** - Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago
- **3-LS4-3** - Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all
- **3-LS4-2** - Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing
- **3-LS4-4** - Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change

## **NJSLS: ELA**

- **RI3.1** - Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers
- **RI3.2** - Determine the main idea of a text; recount the key details and explain how they support the main idea
- **RI3.3** - Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect
- **W3.1** - Write opinion pieces on topics or texts, supporting a point of view with reasons
- **W3.2** - Write informative/explanatory texts to examine a topic and convey ideas and information clearly
- **W3.8** - Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories
- **SL3.4** - Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace

## **NJSLS: Math**

- **3.NBT.A.1** - Use place value understanding to round whole numbers to the nearest 10 or 100
- **3.NBT.A.2** - Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction
- **3.NBT.A.3** - Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g.,  $9 \times 80$ ,  $5 \times 60$ ) using strategies based on place value and properties of operations
- **3.MD.B.3** - Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs
- **3.MD.B.4** - Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters

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### **Technology Integration**

#### **Technology Learning Activities:**

- Students use Chromebooks to access Mystery Science extension activities.
- Students will use Google Classroom to access links to interactive activities, science labs, interactive stories and video resources.

#### **Alignment to Standards:**

- TECH.8.1.2.A.CS2 Select and use applications effectively and productively
- TECH.8.2.2.C The design process is a systematic approach to solving problems

### **21st-Century Skills**

### **Career Ready Practices**

**CRP 6.** SW demonstrate creativity and innovation when working on the [Heredity Lesson- hands on activity](#).

**CRP 8.** SW utilize critical thinking to make sense of Mystery Science problems and persevere in solving them.

**CRP 11.** SW use technology to enhance productivity while accessing the following online resources:

- [Amazing Animal Groups](#)
- [Can wildlife adapt to climate change?](#)
- [Animals With Winter Coats](#)
- [How do Whales, Penguins, and Polar Bears Keep Warm?](#)
- [study jams - ECOSYSTEMS](#)
- [study jams- Adaptations](#)
- [Dig Into Paleontology](#)
- [What's a Fossil?](#)
- [Bill Nye the Science Guy- Biodiversity \(Ecosystem Support\)](#)
- [Bill Nye the Science Guy- Fossils](#)

**Time Frame** | 10 weeks

### **Course**

**Life Science**

### **Title of Unit**

**Inheritance and Variation of Traits: Life Cycles and Traits**

### **Essential Questions**

1. How do organisms vary in their traits?
2. What kinds of traits are passed from parents to offspring?

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### **Enduring Understandings**

*Students will understand that...*

- organisms have unique and diverse life cycles but they all have these things in common: birth, growth, reproduction, and death
- data can provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms
- evidence supports the explanation that traits can be influenced by the environment
- evidence can be used to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing

### **Key Knowledge**

*Students will know...*

- plants and animals have unique and diverse life cycles
- plants and animals inherit traits from their parents
- traits of plants and animals can change to adapt to the environment; changes can range from diet to learning abilities.
- plants and animals look and act differently as a result of environmental and/or inherited traits
- variations of traits help plants and animals survive, choose mates, and reproduce in specific ways

### **Concepts and Skills**

*Students will be able to...*

- plants and animals have different life cycles, but share similarities in birth, growth, reproduction, and death
- collect and analyze data to give evidence that plants and animals have traits that are passed down from parents
- similar plants and animals share traits but also have differences
- use evidence to show how traits can be influenced by the environment
- show how variations of traits help plants and animals survive, choose mates, and reproduce

### **Learning Activities**

**ELA Connection: Wonders:**

- ❖ Unit 3 Week 1: Be Unique: What makes different animals unique?
- ❖ Unit 3 Week 4: New Ideas: What ideas can we get from nature?
- ❖ Unit 4 Week 1: Choices: What choices are good for us?
- ❖ Unit 6 Week 4: Animals and You: How can learning about animals help you respect them?

**Mystery Science: *Power of Flowers***

- ❖ [Why do plants grow flowers?](#)
- ❖ [Why do plants give us fruit?](#)

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- ❖ [Why are some apples red and some green?](#)
- ❖ [How could you make the biggest fruit in the world?](#)

*\*\*All video clips can be accessed by clicking on the text- another tool/option would be to type the title into EdPuzzle and utilize the clip as a student led (independent background builder) or assessment option with questions built in (questions can be differentiated and voice recordings can be created [by the teacher] for students who have difficulty with reading).*

### **YouTube video clips to build background:**

- ❖ [How Does A Seed Become A Plant?](#)
- ❖ [Grow Your Own Plants!](#) (Part 1)
- ❖ [What Happened to Our Plants?](#) (Part 2)
- ❖ [How a Caterpillar Becomes a Butterfly](#)
- ❖ [Salmon Parents Are Amazing!](#)- Salmon Life Cycle
- ❖ [Bill Nye the Science Guy- Life Cycles](#)
- ❖ [What is a trait?](#)
- ❖ [Heredity](#)

### **Online Books: (with short quizzes) \*\*\*free EPIC subscription required**

- ❖ [Animal Life Cycles: Growing and changing](#) by Bobbie Kalman
- ❖ [Life Cycles of Insects](#) by Molly Aloian

### **Prepared Lessons**

- ❖ <http://www.eschooltoday.com/> Website for simple research and information gathering- could be a great source for student led/independent study to help build background

### **BrainPopJr.com**

- ❖ [Plant Life Cycle](#)
- ❖ [Butterflies](#)
- ❖ [Frogs](#)

### **BrainPop.com**

- ❖ [Ecosystems](#)

### **Pebblego.com**

- ❖ [Heredity](#)
- ❖ [Living or Nonliving](#)

### **Flocabulary.com**

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- ❖ [Life Cycles](#)
  - ❖ [Pollination](#)
- [Useful websites](#)

## Assessments

### **Formative:**

- [Plant Life Cycle](#)
- [Butterflies](#)
- [Frogs](#)

### **Summative:**

- **Mystery Science Assessments:**
  - Power of Flowers: Mystery 1: Reproduction Test
  - Power of Flowers: Mystery 3: Inheritance, Traits, & Selection Test

## NGSS and Interdisciplinary Connections

### **NGSS:**

- **3-LS1-1** - Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death
- **3-LS3-1** - Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms
- **3-LS3-2** - Use evidence to support the explanation that traits can be influenced by the environment
- **3-LS4-3** - Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all

### **NJSLS: ELA**

- **RI3.1** - Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers
- **RI3.2** - Determine the main idea of a text; recount the key details and explain how they support the main idea
- **RI3.3** - Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect
- **RI3.7** - Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur)

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- **W3.2** - Write informative/explanatory texts to examine a topic and convey ideas and information clearly
- **SL3.4** - Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace
- **SL3.5** - Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details

## **NJSLS: Math**

- **3.MD.B.3** - Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs
- **3.MD.B.4** - Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters

## **Technology Integration**

### **Technology Learning Activities:**

- Students use Chromebooks to access Mystery Science extension activities.
- Students will use Google Classroom to access links to interactive activities, science labs, interactive stories and video resources.

### **Alignment to Standards:**

- **TECH.8.1.2.A.CS2** Select and use applications effectively and productively
- **TECH.8.2.2.C** The design process is a systematic approach to solving problems

## **21st-Century Skills**

**9.2.4.A.4** Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

## **Career Ready Practices**

**CRP 8.** SW utilize critical thinking to make sense of Mystery Science problems and persevere in solving them.

**CRP 11.** SW use technology to enhance productivity when accessing the following online resources:

- [How Does A Seed Become A Plant?](#)
- [Grow Your Own Plants! \(Part 1\)](#)
- [What Happened to Our Plants? \(Part 2\)](#)
- [How a Caterpillar Becomes a Butterfly](#)
- [Salmon Parents Are Amazing!](#)- Salmon Life Cycle
- [Bill Nye the Science Guy- Life Cycles](#)
- [What is a trait?](#)

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- [Heredity](#)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| <b>Time Frame</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>10 weeks</b> |
| <b>Course</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                 |
| <b>Physical Science</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |
| <b>Title of Unit</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |
| <b>Forces and Motion</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 |
| <b>Essential Questions</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |
| 1. How do equal and unequal forces on an object affect the object?<br>2. How can magnets be used?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                 |
| <b>Enduring Understandings</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |
| <i>Students will understand that...</i> <ul style="list-style-type: none"><li>→ an investigation can provide evidence of the effects of balanced and unbalanced forces on the motion of an object</li><li>→ observations and/or measurements of an object's motion can be used to provide evidence that a pattern can be used to predict future motion</li><li>→ there is a cause and effect relationship of electrical and magnetic interactions between two objects not in contact with each other</li><li>→ a simple design problem can be solved by applying scientific ideas about magnets</li></ul> |                 |

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### **Key Knowledge**

#### **Students will know...**

- a force can be a push or a pull
- objects remain in motion or at rest until another force changes the direction or changes the speed
- friction slows objects down
- some changes in motion require objects to touch and some do not require objects to touch (electrical or magnetic forces)
- magnets are attracted to some objects that contain certain metals
- static electricity between hair and a balloon is an electrical force

### **Concepts and Skills**

#### **Students will be able to...**

- give evidence of the effects of balanced and unbalanced forces on the motion of an object
- collect measurement data to provide evidence of an object's motion
- use data to predict future motion
- demonstrate how two objects do not need to be in contact with each other to cause motion
- define a simple design problem that can be solved by applying scientific ideas about magnets

### **Learning Activities**

#### **ELA Connection: Wonders:**

- ❖ Unit 1 Week 4: Inventions: How can problem solving lead to new ideas?
- ❖ Unit 2 Week 5: Figure It Out: How do people figure things out?
- ❖ Unit 4 Week 4: Flight: How are people able to fly?
- ❖ Unit 5 Week 5: Energy: What are different kinds of energy?

#### **Mystery Science: *Invisible Forces***

- ❖ [How could you win a tug-of-war against a bunch of adults?](#) (supporting video clip\*)
- ❖ [What makes bridges so strong?](#) (supporting video clip\*)
- ❖ [How can you go faster down a slide?](#)
- ❖ [What can magnets do?](#)

*\*\*All video clips can be accessed by clicking on the text- another tool/option would be to type the title into EdPuzzle and utilize the clip as a student led (independent background builder) or assessment option with questions built in (questions can be differentiated and voice recordings can be created [by the teacher] for students who have difficulty with reading).*

#### **YouTube video clips to build background:**

- ❖ [Friction: Slipping, Sliding Science!](#)
- ❖ [Acceleration: Study Jams](#)
- ❖ [Defining Gravity](#)
- ❖ [Let's Get Rolling!](#)

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- ❖ [Swings, Slides, and Science](#)
- ❖ [Need a Life, Try a Pulley](#)
- ❖ [What Makes Bridges So Strong](#)- supports “bridges so strong” \*Mystery Science
- ❖ [Balanced and Unbalanced Forces](#)- supports tug of war \*Mystery Science
- ❖ [Force & Motion](#)
- ❖ [Static Electricity: The Sticky Balloon Trick](#)
- ❖ [Bill Nye the Science Guy Magnetism](#)
- ❖ [Bill Nye the Science Guy Static Electricity](#)
- ❖ [Bill Nye the Science Guy Simple Machines](#)

**Books Online** (with short quizzes at the end of each book) \*\*\*free subscription required

- ❖ [Magnetism](#) by Mari Schuh
- ❖ [Pushing and Pulling](#) by Natalie Hyde
- ❖ [Gravity](#) by Kay Manolis

### **Prepared Lessons**

- ❖ <http://www.eschooltoday.com/> **Website** for simple research and information gathering- could be a great source for student led/independent study to help build background
- ❖ [Measuring Friction](#) (can be used as performance assessment)- make a copy and save to your own google drive

### **Pebblego.com**

- ❖ [Kinds of Forces](#)
- ❖ [What is Motion?](#)
- ❖ [Electricity](#)
- ❖ [Magnetism](#)
- ❖ [Friction](#)
- ❖ [Gravity](#)

### **Flocabulary.com**

- ❖ [Force and Motion](#)
- ❖ [Gravity](#)
- ❖ [Motion](#)
- ❖ [Static Electricity](#)

### **BrainPopJr.com**

- ❖ [Magnets](#)
- ❖ [Push & Pull](#)

## **Assessments**

### **Formative:**

- Forces and Motion Google Forms Quiz\_(Make a copy to save in your drive).

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### **Summative:**

- **Mystery Science Assessments:**

- Invisible Forces: Mystery 1: Forces Test
- Invisible Forces: Mystery 2: Balance of Forces, Engineering Test
- Invisible Forces: Mystery 3: Balance of Forces, Friction Test
- Invisible Forces: Mystery 4: Magnets, Forces Test

### **Benchmark:**

- Engineering Design Process Rubric Assessment 3

### **Alternative Assessments:**

- <http://www.eschooltoday.com/> **Website** for simple research and information gathering- could be a great source for student led/independent study to help build background
- [Measuring Friction](#) (can be used as performance assessment)- make a copy and save to your own google drive

## **NGSS and Interdisciplinary Connections**

### **NGSS:**

- **3-PS2-1** - Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object
- **3-PS2-2** - Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion
- **3-PS2-3** - Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other
- **3-PS2-4** - Define a simple design problem that can be solved by applying scientific ideas about magnets

### **NJSLS: ELA**

- **RI3.1** - Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers
- **RI3.3** - Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect
- **RI3.8** - Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence)
- **W3.7** - Conduct short research projects that build knowledge about a topic
- **W3.8** - Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories

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- **SL3.3** - Ask and answer questions about information from a speaker, offering appropriate elaboration and detail

### **NJSLS: Math**

- **MD.A.2** - Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).1 Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem

## **Technology Integration**

### **Technology Learning Activities:**

- Students use Chromebooks to access Mystery Science extension activities.
- Students will use Google Classroom to access links to interactive activities, science labs, interactive stories and video resources.

### **Alignment to Standards:**

- **TECH.8.1.2.A.CS2** Select and use applications effectively and productively
- **TECH.8.1.2.E** Students apply digital tools to gather, evaluate, and use information.
- **TECH.8.2.2.C** The design process is a systematic approach to solving problems

## **21st-Century Skills**

**9.2.4.A.1** Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals.

## **Career Ready Practices**

**CRP 8.** SW utilize critical thinking to make sense of problems and persevere in solving them by completing the Mystery Science challenge.

**CRP 11.** SW use technology to enhance productivity by accessing the following online resources:

- [Kinds of Forces](#)
- [What is Motion?](#)
- [Electricity](#)
- [Magnetism](#)
- [Friction](#)
- [Gravity](#)

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## **Modifications (ELL, Special Education, At-Risk Students, Gifted and Talented, and 504 Plans)**

### **ELL:**

- Work toward longer passages as skills in English increase
- Use visuals
- Introduce key vocabulary before lesson
- Teacher models reading aloud daily
- Provide peer tutoring
- Use of Bilingual Dictionary
- Guided notes and/or scaffold outline for written assignments
- Provide students with English Learner leveled readers.

### **Supports for Students With IEPs:**

- Allow extra time to complete assignments or tests
- Guided notes and/or scaffold outline for written assignments
- Work in a small group
- Allow answers to be given orally or dictated
- Use large print books, Braille, or books on CD (digital text)
- Follow all IEP modifications

### **At-Risk Students:**

- Guided notes and/or scaffold outline for written assignments
- Introduce key vocabulary before lesson
- Work in a small group
- Lesson taught again using a differentiated approach
- Allow answers to be given orally or dictated
- Use visuals / Anchor Charts
- Leveled texts according to ability

### **Gifted and Talented:**

- Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles)
- Provide options, alternatives and choices to differentiate and broaden the curriculum
- Organize and offer flexible small group learning activities
- Provide whole group enrichment explorations
- Teach cognitive and methodological skills
- Use center, stations, or contracts

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- Organize integrated problem-solving simulations
- Propose interest-based extension activities
- Expose students to beyond level texts.

### **Supports for Students With 504 Plans:**

- Follow all the 504 plan modifications
- Text to speech/audio recorded selections
- Amplification system as needed
- Leveled texts according to ability
- Fine motor skill stations embedded in rotation as needed
- Modified or constrained spelling word lists
- Provide anchor charts with high frequency words and phonemic patterns

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