# Wells Elementary School
# Grade 3 Curriculum
# SCIENCE

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| **Grade Level: 3** |
| **Topic: Weather & Climate** |
| **Timeline: October** |

**Focus Skills/Strategies:**
Students will investigate and make predictions about the weather through careful observation of the clouds and wind. Students also learn to differentiate between weather and climate and use models to reveal global climate patterns.

**Standards (Next Gen Science Standards):**

3-ESS2-1 Earth's Systems

**Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.**
**Performance Expectation Grade: 3-5 3**

3-ESS2-2 Earth's Systems

**Obtain and combine information to describe climates in different regions of the world.**
**Performance Expectation Grade: 3-5 3**

3-ESS3-1 Earth and Human Activity

**Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.***
**Performance Expectation Grade: 3-5 3**

| Common Experiences | Learning Targets ("I Can" statements) |
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| Lesson 1: Gas Trap activity | I can examine clues about how clouds look and feel to discover what they're made of and how they form.<br><br>I can add hot water to clear cups to observe evaporation firsthand and observe the condensation of the water vapor on the sides of the cup.<br>I can understand how clouds are formed. |

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| Lesson 2: Predict the weather using a storm spotter's guide | I can make predictions about the weather by observing clouds and their changes.<br>I can create a small book to record their notes, identify different types of clouds, and think about wind direction to figure out if a storm is heading my way. |
| Lesson 3: Create a Climate Decoder | I can learn about the concept of "climate" and explore the world's five major climates.<br>I can create one part of a world map to figure out the different climates of that region.<br>I can combine maps and search for global climate patterns. |
| Lesson 4:Design a Windproof House | I can explore the effects of natural hazards, such as tornadoes, hurricanes, and dust storms.<br>I can design a windproof house, students build paper house models. Then, using limited materials, students design multiple solutions that will make their houses sturdy enough to survive a wind storm, and compare the merits of their solutions. |

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| **Grade Level: 3** |
| **Topic: Force, Motion, & Magnets** |
| **Timeline: December** |

**Focus Skills/Strategies:**
**Students will investigate the effects of balanced and unbalanced forces, the pushes and pulls of bridge structures, and the effects of friction on the motion of objects.**

**Standards (Next Gen Science Standards):**

3-PS2-1 Motion and Stability: Forces and Interactions

**Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.**

**Performance Expectation  Grade: 3-5 3**

3-PS2-2 Motion and Stability: Forces and Interactions

**Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.**
**Performance Expectation  Grade: 3-5 3**

3-PS2-3 Motion and Stability: Forces and Interactions

**Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.**
**Performance Expectation  Grade: 3-5 3**

3-PS2-4 Motion and Stability: Forces and Interactions

**Define a simple design problem that can be solved by applying scientific ideas about magnets.***
**Performance Expectation  Grade: 3-5 3**

| **Common Experiences** | **Learning Targets ("I Can" statements)** |
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| Lesson 1: Make a hopper popper. | I can see and think that pushes, pulls, and forces can accomplish extraordinary things!<br>I can discuss the forces involved in making this "Hopper Popper" jump. |
| Lesson 2: Build a bridge. | I can learn about real-life bridge design.<br>I can use my knowledge of forces to build a strong bridge that supports as many pennies as possible -- using only paper. |
| Lesson 3: The Great Slide Challenge | I can learn about friction.<br><br>I can participate in the The Great Slide Challenge by working in a group of four to test which materials have the most friction and which materials have the least friction.<br><br>I can make a model of a slide using a stack of books and a piece of cardboard, and make "sliders" out of different materials. |
| Lesson 4: Property of Magnets | I can explore the properties of magnets and experiment with an invisible force that acts at a distance.<br>I can use ring magnets and common objects to discover the push and pull of magnets and how magnets attract certain types of metals. |

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| Lesson 5:  Design a magnetic lock | I can investigate magnetic attraction and repulsion.<br>I can apply my scientific ideas about magnets to create a useful product.<br>I can build a magnetic lock that can open a paper door.<br>I can engage in the engineering design process to test and improve my design. |

**Grade Level:  3**

**Topic:  Adaptations**

**Timeline: February**

**Focus Skills/Strategies:  Animals Through Time - Mystery Science**
Students develop an understanding of how animals and their environments change through time.

**Standards (Next Gen Science Standards):**

3-LS2-1 Ecosystems: Interactions, Energy, and Dynamics

**Construct an argument that some animals form groups that help members survive.**
**Performance Expectation  Grade: 3-5 3**

3-LS4-1 Biological Evolution: Unity and Diversity

**Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.**
**Performance Expectation  Grade: 3-5 3**

3-LS4-2 Biological Evolution: Unity and Diversity

**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.**
**Performance Expectation  Grade: 3-5 3**

3-LS4-3 Biological Evolution: Unity and Diversity

**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.**
**Performance Expectation  Grade: 3-5 3**

3-LS4-4 Biological Evolution: Unity and Diversity

**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.***
**Performance Expectation  Grade: 3-5 3**

| **Common Experiences** | **Learning Targets ("I Can" statements)** |
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| Lesson 1: Create a model fossil dig. | I can explore the idea that rock sometimes contains fossils, and investigate how fossils reveal changes in habitat through time. dig.<br>I can identify traits of fossils to determine what the habitat looked like when these organisms were alive.<br>I can use  this information to figure out where some Mystery Fossils belong in their fossil dig. |
| Lesson 2: Guess What These Animals Eat | I can learn how we can infer what the outside of an animal looked like by using clues about their skeleton.<br><br>I can participate in Guess What These Animals Eat by examining photos of skulls of both familiar animals and dinosaurs to figure out what each animal eats. |
| Lesson 3- Outrunning CeeLo activity | I can learn about how fossil dinosaur tracks reveal how quickly a dinosaur was running.<br><br>I can figure out if I could have won a race with a dinosaur that was just my size by comparing the length of my running steps with the dinosaur's steps. |
| Lesson 4: Designer Dogs | I can learn how people create new breeds of animals by mating (selecting) individuals with desirable traits.<br><br>I can participate in the Designer Dogs activity by studying the physical traits of pairs of adult dogs and three potential puppies and look for the puppy that shares these traits. |
| Lesson 5- Lizard Island Simulation | I can learn about an example of how nature, not human beings, can slowly change the appearance of an animal using the process of selection. |

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| | I can simulate how natural selection affects a group of tree-climbing green lizards when their island is invaded by hungry brown lizards. |
| Lesson 6: Field Journal | I can discover why dogs' expressions, like tail wagging, are so useful when living in a pack.<br><br>I can participate in the Field Journal activity by watching videos of different animals that live in groups to simulate observing them in their natural habitats.<br><br>I can participate in the Field Journal activity by discussing and recording my observations, and constructing an explanation of how living in groups helps these animals survive. |
| Lesson 7: Design solutions to get rid of mosquitos. | I can investigate mosquito life cycles and habitats and discover the role of mosquitoes in carrying diseases such as malaria.<br><br>I can evaluate the different solutions for getting rid of mosquitoes at various locations in a town.<br><br>I can design a solution to help the town deal with an abundance of mosquitoes resulting from a very rainy summer. |
| Lesson 8- Astronaut In Training | I can examine how physical traits can be influenced by the environment.<br><br>I can analyze how a NASA astronaut's traits changed during his "year in space."<br><br>I can measure some of my physical traits (arm strength, height, and balance) and predict how my own traits might change after living in space. |

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| **Grade Level: 3** |
| **Topic: Life Cycles** |

**Timeline: April**

**Focus Skills/Strategies: Plants, Life Cycles and Hereditary**
Students will discover how plants reproduce by exploring the process of pollination and fruiting. They also investigate how plant traits are inherited from parent plants, and how favorable plant traits can be enhanced by humans via artificial selection.

**Standards (Next Gen Science Standards):**

3-LS1-1 From molecules to Organisms: Structures and Processes

**Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.**
**Performance Expectation Grade: 3-5 3**

3-LS3-1 Heredity: Inheritance and Variation of Traits

**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.**
**Performance Expectation Grade: 3-5 3**

3-LS3-2 Heredity: Inheritance and Variation of Traits

**Use evidence to support the explanation that traits can be influenced by the environment.**
**Performance Expectation Grade: 3-5 3**

| **Common Experiences** | **Learning Targets ("I Can" statements)** |
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| Lesson 1- Make Flower Models | I can learn how and why flowers are pollinated.<br>I can make flower models out of paper and bee models out of pipe cleaners.<br><br>I can fly my bees from flower to flower and observe what happens to the flower's pollen during this process. |
| Lesson 2- Science Fruit or Vegetable | I can learn about why plants grow fruit.<br><br>I can examine common grocery produce and predict if each item is a science fruit or science vegetable. |
| Lesson 3- Apple Taste Test | I can learn how the food we eat is a result of |

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| | selection.<br><br>I can taste four different varieties of apples to learn about the traits (color, texture, and flavor) of apples that humans have artificially selected to encourage. |
| Lesson 4- Odd One Out Game | I can explore how human beings have modified plants based on our knowledge of how plants inherit their traits.<br><br>I can guess which fruits are related to each other based on traits of leaves, flowers, and arrangement of seeds.<br><br>I can use this information to understand how humans create fruit varieties by selecting certain traits. |