

Subject and Grade:	Science, Grade 6	School Year:	2023-2024
Unit Title:	Why Is It So Challenging to Predict the Weather?	Author/s:	Renee Barone

NYS Next Gen Learning Standards	Essential Question/Big Ideas
<ul style="list-style-type: none"> ● MS-ESS2-5. Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions. ● MS-PS3-4. Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample. ● MS-PS3-5. Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object. ● MS-ESS2-6. Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates. ● MS-PS1-4. Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed. ● MS-PS3-3 . Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer. ● MS-PS3-4. Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample. ● MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. ● MS-ETS1-4. Develop a model to generate data for iterative 	<ul style="list-style-type: none"> ● What is weather? ● What causes air temperature to change? ● Why is temperature different in different places? ● What happens to the warmer air? ● What else is moving besides air? ● How does water move? ● Why does some wind move differently? ● Does water move the same way air moves? ● What causes climates to vary?

<p>testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.</p> <ul style="list-style-type: none"> ● MS-ESS2-4. Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity. ● MS-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. 	
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Brief Unit Summary	Content Vocabulary
<p>Students will explore what causes variations in local weather events and global climate patterns, the movement of matter (air and water), and the role energy plays in that movement. Students analyze the relationships among temperature, thermal energy, and the kinetic energy of particles in liquids. Students create models of what causes the weather to change. By looking at weather as yet another complex system made up of subsystems, students are able to construct an explanation for why predicting the weather is challenging.</p>	<p>Atmosphere Condensation Elevation Energy Equator Matter Molecule Precipitation Pressure Thermal energy</p>

Content Skills or Learning Targets	Assessments (Pre-Assessments, Formative, and Summative)	Timeframe
<p>Students determine that temperature varies by latitude.</p> <p>Students investigate the movement of air masses at different temperatures and develop a model to show the movement of air in the atmosphere and what is happening to the matter and energy.</p>	<p>Summative: Lessons 1-10 assessments End-of-unit assessment</p> <p>Formative: Labs, worksheets, science notebook</p>	<p>3rd week of September-October</p> <p>Unit Breakdown:</p> <ul style="list-style-type: none"> • 10 Lessons & Activities • 10 Lesson Assessments • 1 Unit Assessment

<p>Students investigate the movement of air masses of different temperatures will develop a model to show the movement of air in the atmosphere and what is happening to the matter and energy.</p> <p>Students learn about water is located in nine reservoirs on Earth in each of its different phases (solid, liquid, gas)</p> <p>Students discover that convection takes place in water just as it doesn't air, and that this causes water to circulate globally</p>		
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These boxes are for adding things along the way. Links, etc

Differentiation/Enrichment	Materials	Resources

Subject and Grade:	Science, Grade 6	School Year:	2023-2024
Unit Title:	What is Going On Inside Me?	Author/s:	Renee Barone

NYS Next Gen Learning Standards	Essential Question/Big Ideas
<ul style="list-style-type: none"> MS-LS1-1. Conduct an investigation to provide evidence that living things are made of cells—either one cell or many different numbers and types of cells. MS- LS1- 2. Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function. MS-LS1-3 Use an argument supported by evidence for how the 	<ul style="list-style-type: none"> What is inside of me? What is my body made of? Where else can we find cells? How do structures work together? How do cells get the things they need? What happens to the stuff after I eat it? How does my body use the food it digests?

body is a system of interacting subsystems composed of groups of cells.

- MS-LS1-2. From Molecules to Organisms: Structures and Processes Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.
- MS-LS1-3. From Molecules to Organisms: Structures and Processes Use an argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.
- MS-LS1-3. From Molecules to Organisms: Structures and Processes Use an argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.
- MS-LS1-8. From Molecules to Organisms: Structures and Processes Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.
- MS-ETS1-1. Engineering Design: Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
- MS-ETS1-2. Engineering Design: Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
- MS-ETS1-3. Engineering Design: Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
- MS-LS1-3. From Molecules to Organisms: Structures and Processes. Use an argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.
- MS-LS1-8. From Molecules to Organisms: Structures and Processes. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for

- How does my body heal, grow, and get stronger?
- How do memories help us respond quickly and accurately?

immediate behavior or storage as memories.	
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Brief Unit Summary	Content Vocabulary
Students begin the unit with the Anchoring Phenomenon using photographs and discussion of everyday activities and the body's responses to spark questions about what could be happening inside the body to enable people to engage in various activities. Investigative Phenomena include students collecting and analyzing data to determine patterns in how people move, how their bodies heal wounds, and how they build stronger/faster muscles. Students also conduct an investigation, making observations and comparisons using the microscope.	Carbohydrate Cell Cell membrane Digestive system Multicellular organism Neuron (nerve cell) Organism Single-celled organism Stimulus Tissue

Content Skills or Learning Targets	Assessments (Pre-Assessments, Formative, and Summative)	Timeframe
<p>Students begin to apply the idea of systems, subsystems, structures, and their functions to the human body</p> <p>Students investigate how food provides building materials in addition to energy. they see images of cell division discuss where the mass needed for cell growth and division could be coming from.</p> <p>Students investigate how to demand for energy triggers increased activity of the circulatory system and respiratory systems.</p>	<p>Summative: Lessons 1-11 assessments End-of-unit assessment</p> <p>Formative: Labs, worksheets, science notebook</p>	<p>January- February</p> <p>Unit Breakdown:</p> <ul style="list-style-type: none"> • 11 Lessons & Activities • 11 Lesson Assessments • 1 Unit Assessment

These boxes are for adding things along the way. Links, etc

Differentiation/Enrichment	Materials	Resources

Subject and Grade:	Science, Grade 6	School Year:	2023-2024
Unit Title:	Why Do Organisms Look the Way They Do?	Author/s:	Renee Barone

NYS Next Gen Learning Standards	Essential Question/Big Ideas
<ul style="list-style-type: none"> ● MS-LS3-2. Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation. ● MS-LS1-2. Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function. ● MS-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. ● MS-LS3-2. Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation. ● MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. ● MS-ESS2-4. Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity. ● MS-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. ● MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. 	<ul style="list-style-type: none"> ● Why do I look the way I do? ● What traits get passed on? ● Can we determine patterns and traits? ● Do traits show patterns over multiple generations? ● How does the inside affect the outside? ● How do instructions from our parents get inside us? ● What traits get passed on? ● Do traits matter? ● Why are traits important?

<ul style="list-style-type: none"> MS-LS1-4. Use an argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic behaviors and specialized structures affect the probability of successful reproduction of animals and plants, respectively. 	
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Brief Unit Summary	Content Vocabulary
Students begin the unit with the Anchoring Phenomenon by generating a list of human traits and distinguish between acquired traits and inherited traits. Investigative Phenomena include identifying variation in selected traits. They survey the class for those selected traits, create graphs that show the frequency of the occurrence of those traits. Ss conduct a class survey about liking/disliking Brussels sprouts. They compare PTC tasting data to Brussels sprouts data to determine if there is a link between the two.	Acquired Allele Chromosome Gene Genetics Inherited Meiosis Mitosis Pedigree Phenotype Pigment Trait Variation

Content Skills or Learning Targets	Assessments (Pre-Assessments, Formative, and Summative)	Timeframe
<p>Students investigate the distinction between inherited and acquired traits. They expand their investigation to include plants as well as humans.</p> <p>Students examine human pedigrees over multiple Generations in order to determine patterns and how traits are inherited.</p>	<p>Summative: Lessons 1-9 assessments End-of-unit assessment</p> <p>Formative: Labs, worksheets, science notebook</p>	<p>March-End of May</p> <p>Unit Breakdown:</p> <ul style="list-style-type: none"> • 9 Lessons & Activities • 9 Lesson Assessments • 1 Unit Assessment

<p>Students compare cell division and somatic cells in order to understand the differences and how those differences served specific functions.</p> <p>Students investigate traits with multiple variations and determine how to represent those variations for a large population.</p>		
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