Abington Heights School District
Grade 3 Science, Technology & Engineering, and Environmental Literacy & Sustainability Curriculum

Themes:

- ★ **Life Cycles**
- ★ **Forces and Motion**
- ★ **Weather and Climate**

Board Approval Date: April 3, 2024
Review Date:

Adoption: 2024 - 2025 SY

Grade 3 Science Curriculum Scope and Sequence

Month	Unit	Estimated Number of Weeks
Quarter 1	Balancing Forces	9 Weeks
Quarter 2	Inheritance and Traits	9 Weeks
Quarter 3	Environments and Survival	9 Weeks
Quarter 4	Weather and Climate	9 Weeks

Grade 3 Comet Connects Curriculum Scope and Sequence

Month	Unit	Estimated Number of Weeks
September	Introduction: What is STEM?	2 Weeks
October-November	Technology: How can technology be used to share information?	4 Weeks
December	Technology: What are the different ways robotics can move? What is digital citizenship?	2 Weeks
January	Technology : What is the importance of block coding? How is blocked coding used in different apps?	2 Weeks
February	Technology and engineering: How do technologies develop and change? How do technologies help us grow and develop as a society?	2 Weeks
March-May	Technology and engineering: How can technology or engineering be used to create a project that meets a specific need?	6 Weeks
June	Technology: What is binary coding?	2 Weeks

AHSD Grade 3 Science Curriculum

Month / Unit	Essential Questions	Standards	Content	Skills	Activities	Assessment / Evidence of Learning
Balancing Forces	Pre-requisite knowledge necessary, use to activate background knowledge:	**3.2.K.A Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.** **3.2.K.B Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.**				
	How can one predict an object's continued motion, changes in motion, or stability?	3.2.3.A Make and communicate observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.	Forces and Motion: The Pattern of an object's motion in carious situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted from it.	**Planning and Carrying Out Investigation:** Make observations and/or measurements to produce data to serve as the basis for evidence for an explaination of a phenomenon or test a design solution. **Science Knowledge is Based on Empirical Evidence:** Science findings are based on recognizing patterns. Patterns: Patterns of change can be used to make predictions.	Balancing Forces Unit	**Balancing Forces (Grade 3)** PRE: Lesson 1.1 Activity 1 OTFA 6: Lesson 2.3 Activity 4 OTFA 8: Lesson 2.5 Activity 1 OTFA 11: Lesson 3.4 Activity 1 OTFA 12: Lesson 3.4 Activity 2 CJ 2: Lesson 3.4 Activity 3 OTFA 16: Lesson 4.4 Activity 1 INV: Lesson 5.1 Activity 3 (S) EOU: Lesson 5.5 Activity 1 (S)
	How can one predict an object's continued motion, changes in motion, or stability?	3.2.3.B Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.	Forces and Motion: Each force acts on one partiular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add ti give zero net force on the object. Forces that do not sum to zero can cause changes in the object's speed or direction of motion.	**Planning and Carrying out Investigations:** Plan and condct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of traits considered. **Scientific Investigations Use a variety of Methods:** Science investigations use a variety of methods, tools, and techniques. Cause and Effect: Cause and effect relationships are routinely identified.	Balancing Forces Unit	**Balancing Forces (Grade 3)** PRE: Lesson 1.1 Activity 1 OTFA 2: Lesson 1.4 Activity 3 CJ 1: Lesson 1.4 Activity 4 CW: Lesson 1.4 Activity 4 OTFA 3: Lesson 2.1 Activity 2 OTFA 6: Lesson 2.3 Activity 4 OTFA 8: Lesson 2.5 Activity 1 OTFA 9: Lesson 3.1 Activity 3 OTFA 10: Lesson 3.2 Activity 3 OTFA 11: Lesson 3.4 Activity 1 CJ 2: Lesson 3.4 Activity 3 CW: Lesson 3.4 Activity 3 OTFA 13: Lesson 4.1 Activity 4 OTFA 14: Lesson 4.2 Activity 3 OTFA 16: Lesson 4.4 Activity 1 OTFA 17: Lesson 4.4 Activity 3 INV: Lesson 5.1 Activity 3 (S) EOU: Lesson 5.5 Activity 1 (S)
	What underlying forces explain the variety of interactions observed?	3.2.3.C Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.	Types of Interactions: Electric, and magnetic forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other.	**Asking Questions and Defining Problems:** Ask questions that can be investigated based on pattern such as cause and effect relationships. **Interdependence of Science Engineering, and Technology:** Scientific discoveries about the natural world can odten lead to new and improved technologies, which are developed through the engineering design process.	Balancing Forces Unit	**Balancing Forces (Grade 3)** PRE: Lesson 1.1 Activity 1 OTFA 3: Lesson 2.1 Activity 2 OTFA 4: Lesson 2.1 Activity 4 OTFA 6: Lesson 2.3 Activity 4 OTFA 8: Lesson 2.5 Activity 1 OTFA 11: Lesson 3.4 Activity 1 OTFA 13: Lesson 4.1 Activity 4 OTFA 14: Lesson 4.2 Activity 3 OTFA 16: Lesson 4.4 Activity 1 OTFA 17: Lesson 4.4 Activity 3 EOU: Lesson 5.5 Activity 1 (S)
	What underlying forces explain the variety of interactions observed?	3.2.3.D Define a simple design problem that can be solved by applying scientific ideas about magnets.	Types of Interactions: Electric, and magnetic forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other.	**Asking Questions and Defining Problems:** Define a simple problem that can be solved through the development of a new or improved object or tool. **Interdependence of Science, Engineering, and Technology:** Scientific discoveries about the natural world can often lead to new and improved technologies, which are developed through the engineering design process.	Balancing Forces Unit	**Balancing Forces (Grade 3)** PRE: Lesson 1.1 Activity 1 OTFA 3: Lesson 2.1 Activity 2 OTFA 4: Lesson 2.1 Activity 4 OTFA 6: Lesson 2.3 Activity 4 OTFA 8: Lesson 2.5 Activity 1 OTFA 11: Lesson 3.4 Activity 1 OTFA 13: Lesson 4.1 Activity 4 OTFA 14: Lesson 4.2 Activity 3 OTFA 16: Lesson 4.4 Activity 1 OTFA 17: Lesson 4.4 Activity 3 EOU: Lesson 5.5 Activity 1 (S)

AHSD Grade 3 Science Curriculum						
Month / Unit	Essential Questions	Standards	Content	Skills	Activities	Assessment / Evidence of Learning
Inheritance and Traits	How do the structures of organisms enable life's functions?	3.1.3.A Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.	Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles.	**Developing and Using Models:** Develop models to describe phenomena. **Patterns:** Patterns of change can be used to make predictions.	Inheritance and Traits Unit	**Inheritance and Traits (Grade 3)** TS: Lesson 2.2 Activity 2
	How do organisms interact in groups so as to benefit individuals?	3.1.3.B Construct an argument that some animals form groups that help members survive.	Social Interactions and Group Behavior: Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size.	**Cause and Effect:** Cause and effect relationships are routinely identified and used to explain change. **Engaging in Argument from Evidence:** Construct an argument with evidence, data, and/or a model.	Inheritance and Traits Unit	**Inheritance and Traits (Grade 3)** TS: Lesson 3.2 Activity 3
	How are the characteristics of one generation related to the previous generation?	3.1.3.C 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.	Inheritance of Traits: Many characteristics of organisms are inherited from their parents. Variation of Traits: Different organisms vary in how they look and function because they have different inherited information.	**Analyzing and Interpreting Data:** Analyze and interpret data to make sense of phenomena using logical reasoning. **Scale, Proportion, and Quantity:** Observable phenomena exists from very short to very long time periods.	Inheritance and Traits Unit	**Inheritance and Traits (Grade 3)** PRE: Lesson 1.1 Activity 2 OTFA 7: Lesson 2.5 Activity 1 CJ 2: Lesson 2.6 Activity 3 CW: Lesson 2.6 Activity 3 EOU 1: Lesson 3.6 Activity 3 (S) Activity 2 CJ 1: Lesson 1.7 Activity 1 OTFA 7: Lesson 2.5 Activity 1 CW: Lesson 2.6 Activity 3
	Why do individuals of the same species vary in how they look, function, and behave?	3.1.3.D Use evidence to support the explanation that traits can be influenced by the environment.	Inheritance of Traits: Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment. Variation of Traits: The environment also affects the traits that an organism develops.	**Constructing Explanations and Designing Solutions:** Use evidence (e.g., observations, patterns) to support an explanation. **Cause and Effect:** Cause and effect relationships are routinely identified and used to explain change.	Inheritance and Traits Unit	**Inheritance and Traits (Grade 3)** PRE: Lesson 1.1 Activity 2 OTFA 10: Lesson 3.2 Activity 2 CW: Lesson 3.3 Activity 1 OTFA 11: Lesson 3.4 Activity 3 CJ 3: Lesson 3.5 Activity 2 EOU 1: Lesson 3.6 Activity 3 (S)

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Month / Unit	Essential Questions	Standards	Content	Skills	Activities	Assessment / Evidence of Learning
Environments and Survival	What evidence shows that different species are related?	3.1.3.E Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.	Evidence of Common Ancestry and Diversity: Some kinds of plants and animals that once lived on Earth are no longer found anywhere. Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments.	**Analyzing and Interpreting Data:** Analyze and interpret data to make sense of phenomena using logical reasoning. **Scale, Proportion, and Quantity:** Observable phenomena exists from very short to very long time periods.	Environments and Survival Unit	**Environments and Survival (Grade 3)** TS: Lesson 2.2 Activity 3 TS: Lesson 2.3 Activity 1
	How does genetic variation among organisms affect survival and reproduction?	3.1.3.F 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.	Natural Selection Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing.	**Constructing Explanations and Designing Solutions**: Use evidence (e.g., observations, patterns) to construct an explanation. **Cause and Effect:** Cause and effect relationshops are routinely identified and used to explain change.	Environments and Survival Unit	**Environments and Survival (Grade 3)** PRE: Lesson 1.1 Activity 3 OTFA 5: Lesson 2.3 Activity 3 OTFA 6: Lesson 2.5 Activity 1 CJ 2: Lesson 2.6 Activity 3 CW: Lesson 2.6 Activity 3 OTFA 9: Lesson 3.3 Activity 1 CJ 3: Lesson 3.3 Activity 2 EOU 1: Lesson 3.4 Activity 3 (S)
	How does the environment influence populations of organisms over multiple generations?	3.1.3.G 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.	Adaptation: For any particular environment, some kids of organisms survive well, some survive less well, and some cannot survive at all.	**Engaging in an Argument from Evidence:** Construct an argument with evidence. **Cause and Effect:** Cause and effect relationshops are routinely identified and used to explain change.	Environments and Survival Unit	**Environments and Survival (Grade 3)** PRE: Lesson 1.1 Activity 3 OTFA 1: Lesson 1.2 Activity 3 CJ 1: Lesson 1.4 Activity 4 OTFA 5: Lesson 2.3 Activity 3 OTFA 6: Lesson 2.5 Activity 1 CJ 2: Lesson 2.6 Activity 3 CW: Lesson 2.6 Activity 3 CJ 3: Lesson 3.3 Activity 2 EOU 1: Lesson 3.4 Activity 3 (S)
	What is biodiversity, how do humans affect it, and how does it affect humans?	3.1.3.H Make a claim supported by evidence 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.	Ecosystem Dynamics, Functioning, and Reslilence: When the environment changes in way that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations.	**Engaging in an Argument from Evidence:** Make a claim about the merit of a solution to a problem by citing evidence about how it meets the criteria and constraints of the problem. **System and System Models:** A system can described in terms of its components and interactions.	Environments and Survival Unit	**Environments and Survival (Grade 3)** OTFA 9: Lesson 3.3 Activity 1 CJ 3: Lesson 3.3 Activity 2 EOU 1: Lesson 3.4 Activity 3 (S) PRE: Lesson 1.1 Activity 3 OTFA 1: Lesson 1.2 Activity 3 CJ 1: Lesson 1.4 Activity 4 OTFA 5: Lesson 2.3 Activity 3 OTFA 6: Lesson 2.5 Activity 1 CJ 2: Lesson 2.6, Activity 3 CW: Lesson 2.6 Activity 3 CJ 3: Lesson 3.3 Activity 2 EOU 1: Lesson 3.4 Activity 3 (S)

AHSD Grade 3 Science Curriculum						
Month / Unit	Essential Questions	Standards	Content	Skills	Activities	Assessment / Evidence of Learning
Weather and Climate	Pre-requisite knowledge necessary, use to activate background knowledge:	**3.3.K.A Use and share observations of local weather conditions to describe patterns over time.** **3.3.K.D Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.**				
	What regulates weather and climate?	3.3.3.A Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.	Weather and Climate: Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next.	**Analyzing and Interpreting Data:** Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships.	Weather and Climate Unit	**Weather and Climate (Grade 3)** PRE: Lesson 1.1 Activity 2 CJ 1: Lesson 1.5 Activity 3 OTFA 3: Lesson 1.6 Activity 1 OTFA 4: Lesson 2.2 Activity 2 OTFA 5: Lesson 2.3 Activity 2 CJ 2: Lesson 2.4 Activity 2 OTFA 6: Lesson 2.5 Activity 1 CW: Lesson 2.5 Activity 3 OTFA 7: Lesson 3.2 Activity 1 OTFA 8: Lesson 3.3 Activity 2 OTFA 9: Lesson 3.4 Activity 2 CJ 3: Lesson 3.5 Activity 3 OTFA 10: Lesson 3.6 Activity 1 EOU 1: Lesson 3.7 Activities 1-3 (S) OTFA 11: Lesson 4.2 Activity 2
	What regulates weather and climate?	3.3.3.B Obtain and combine information to describe climates in different regions of the world.	Weather and Climate: Climate describes a range of an area's typical weather conditions and the extene to which those conditions cary over the years.	**Obtaining, Evaluating, and Communicating Information:** Obtain and combine information from books and other reliable media to explain phenomena. **Patterns:** Patterns of change can be used to make predictions.	Weather and Climate Unit	**Weather and Climate (Grade 3)** PRE: Lesson 1.1 Activity 2 OTFA 8: Lesson 3.3 Activity 2 CJ 3: Lesson 3.5 Activity 3 OTFA 10: Lesson 3.6 Activity 1 EOU 1: Lesson 3.7 Activities 1-3 (S) OTFA 11: Lesson 4.2 Activity 2
	How do natural hazards affect individuals and societies?	3.3.3.C Make a claim supported by evidence about the merit of a design solution that reduces the impacts of a weather-related hazard.	Natural Hazards: A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their imapcts.	**Engaging in Argument from Evidence:** Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem. **Cause and Effect:** Cause and effect relationships are routinely identified, tested, and used to explain change. **Influence of Engineering, Technology, and Science:** Engineers improve existing technologies or develop new ones to increase their benefits (e.g., better artifical limbs, decrease known risks (e.g., seatbelts in cars), and meet societal demands (e.g., cell phones). **Science is a Human Endeavor:** Science affects everyday behavior.	Weather and Climate Unit	**Weather and Climate (Grade 3)** OTFA 11: Lesson 4.2 Activity 2 EOU 2: Lesson 4.4 Activities 1 & 2 (S) **<u>Also addressed in 4th grade:</u>** **Waves, Energy, and Information (Grade 4)** TS: Lesson 1.3 Activity 3