

Unit 1: Physical Science: Life Cycles & Traits (approximately 4 weeks: October 22 - November 30)

Report card standards:

- Describe how organisms grow, develop, and interact
- Describe how heredity and environment impact organisms

Big Idea	Essential Questions	Concepts	Competencies	Vocabulary
All organisms are made of cells and can be characterized by common aspects of their structure and functioning.	How do organisms live, grow, respond to their environment, and reproduce?	Reproduction is essential to the continued existence of every kind of organisms.	Use models to explain how reproduction is essential for every kind of organism.	Life cycle Offspring Parents Reproduce Survival
		Plants and animals have unique and diverse life cycles that include birth, growth, reproduction, and death.	Develop a model to describe the commonalities of life cycles of different organisms.	
Organisms grow, reproduce, and perpetuate their species by obtaining necessary resources through interdependent relationships with other organisms and the physical environment.	How and why do organisms interact with their environment and what are the effects of these interactions?	Animals depend on each other and their surroundings to get what they need including food, water, shelter, and a stable temperature. Groups serve different functions and vary in size.	Based on observation, construct an argument that some animals form groups that help members survive.	Basic Needs Consumer Heterotroph Representation Stable
		When the environment changes in physical characteristics, temperature, availability of resources some organisms survive, others move, yet others may die.	Construct an argument with evidence that within a specific habitat, some organisms survive well, some not so well, and others cannot survive at all.	
Heredity refers to specific mechanisms by which characteristics or traits are passed from one generation to the next via genes, and explains why offspring resemble but are not identical to their parents.	How are the characteristics of one generation passed to the next? How can individuals of the same species and even siblings have different characteristics?	Different organisms vary in how they look and function because they have different inherited information.	Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exist in a group of similar organisms.	Inheritance Traits

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Heredity refers to specific mechanisms by which characteristics or traits are passed from one generation to the next via genes, and explains why offspring resemble but are not identical to their parents.	How are the characteristics of one generation passed to the next? How can individuals of the same species and even siblings have different characteristics?	The environment also affects the traits that an organism develops.	Use evidence to support an explanation that the environment can influence traits.	Environment Evidence Influence
		Many characteristics involve both inherited traits and environmental factors.	Use evidence to compare characteristics inherited from parents, characteristics caused by the environment, and those resulting from both.	Characteristics Environmental factors Generation Inherited Siblings Traits Variations

Unit 2: Earth's Changing Organisms (approximately 6 weeks: December 3 - January 25)

Report card standards

- Describe how and why Earth's organisms change over time.

Big Idea	Essential Questions	Concepts	Competencies	Vocabulary
Biological evolution explains both the unity and diversity of species and provides a unifying principle for the history and diversity of life on Earth	How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	Some plants and animals that once lived on Earth are no longer found anywhere.	Analyze and interpret data from the fossils to provide evidence of the organisms and environments in which they lived long ago.	Extinct Fossils
		Fossils provide evidence about types of organisms that lived long ago as well as about the nature of the environment.		
		Changes in an organism's habitat can be beneficial or harmful to the organism.	Use evidence to argue that when the environment changes in ways that affect a place's visible characteristics, organisms may survive, move to new locations, or die.	Adapt Endangered Habitat Population
		Populations live in a variety of habitats and changes in those habitats impact the organisms living there.		
		Sometimes differences in characteristics in individuals of the same species provide advantages in surviving, finding mates, and reproducing.	Using 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.	

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Biological evolution explains both the unity and diversity of species and provides a unifying principle for the history and diversity of life on Earth	How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	Fossils provide evidence about types of organisms (both visible and microscopic) that lived long ago and also about the nature of their environments.	Use evidence to construct an explanation that some rocks and minerals records the remains of organisms.	Fossils Microscopic
			Obtain and communicate information that some organisms that once lived on Earth are no longer found anywhere, although other organisms now may resemble them.	Microscopic organism Visible organism
		Fossils can be compared with one another and to living organisms according to their similarities and differences.	Use evidence from fossil records to construct an explanation of the relationship between types of organisms living today and types of organisms that lived in the past.	Explanation Fossil record
			Use evidence to construct explanations for how environments today may be different from past environments in which fossilized organisms once lived.	Fossil
		Humans, like all other organisms, obtain living and nonliving resources from their environment.	Use evidence to demonstrate how humans, like all other organisms, obtain living and nonliving resources from their environments.	Living Non-living

Unit 3: Weather & Climate (approximately 2 weeks: January 28 - February 8)

Report card standards

- How and why is the Earth constantly changing?

Big Idea	Essential Question	Concepts	Competencies	Vocabulary
The Earth is a complex and a dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.	How and why is Earth constantly changing?	Scientists record patterns of the weather across different times and areas of the weather so that they can make predictions about what kind of weather might happen next.	Organize simple weather data sets to record local weather data and identify day-to-day variations, as well as, long-term patterns of weather.	Atmosphere Data Weather
		Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over a period of many years.	Record and communicate information to describe climates in different regions of the world.	Climate Conditions Weather
			Display simple data sets in tables and graphs to display previous weather conditions to make predictions for future seasons.	

Unit 4: Forces & Motion (approximately 5 weeks: February 11 - March 20)

Report card standards

- Explain and predict interactions between objects within systems.

Big Idea	Essential Questions	Concepts	Competencies	Vocabulary
Interactions between any two objects can cause changes in one or both.	How can one explain and predict interactions between objects within systems?	Each force acts on one particular object and has both strength and a direction.	Investigate the variables that may affect how objects move across a floor, down a ramp, etc.	Acceleration Force Speed Velocity
		An object at rest typically has, multiple forces acting on it, but they add to give zero net force on the object	Construct an explanation for why an object subjected to multiple pushes and pulls might stay in one place or move.	Systems
		Forces that do not sum to zero can cause changes in the object's speed or direction of motion.	Through the use of objects, design an investigation and demonstrate that forces can cause changes on an object's speed or direction of motion.	Design Direction Investigation Motion Speed
		Patterns of an object's motion in various situations can be observed and measured.	Take measurements of objects in motion and represent the movement of objects in multiple representations.	Motion Net zero Pattern Prediction
		When past motion exhibits a regular motion, future motion can be predicted from it.	Investigate the motion of objects to determine observable and measurable patterns to predict future motions.	Force Gravity Net force Pattern Prediction
			Provide evidence that a pattern can be used to predict future motion.	Force Pattern
		Objects in contact exert forces on each other.	Design and implement an investigation to demonstrate that objects in contact exert forces on each other.	