

TRIMESTER 1
TRIMESTER 2
TRIMESTER 3

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	Project	<i>Designing a Severe Weather Bag</i>	<i>Designing an Animal Sanctuary</i>	<i>Record & Observe Life Cycle of Butterfly</i>	<i>Design & Build a Cart that can stop at a specific location</i>	<i>Create a model of energy transfer or transformation</i>	<i>Create a model showing the cycling of matter in an ecosystem</i>
	Theme	Weather	Plant & Animal Survival	Organisms & Their Habitat	Investigating Forces	Energy Transfer	Energy & Matter in Ecosystems
	Project	<i>Designing a Mini Golf Course</i>	<i>Building a Communication Device</i>	<i>Repurpose/ Design Something New</i>	<i>Research & Create a Presentation on an Endangered Animal</i>	<i>Analyzing the Structure & Function of a Living Thing Research</i>	<i>Investigating Chemical Reactions</i>
	Theme	Pushes & Pulls	Exploring Light & Sound	Properties of Matter	Habitats & Change	Structure & Functions of Living Things	Investigating Matter
	Project	<i>Creating a Model for an Animal, Plant, or Person to live in</i>	<i>Creating a Model showing how the Sun impacts the moon</i>	<i>Record & Create a Travel Journal Based on National Park Virtual Visits</i>	<i>Design a solution to stop hail damage</i>	<i>Model a tool or concept that will reduce the impact of a natural disaster.</i>	<i>Carbon Footprint Research Project</i>
	Theme	Needs of Plants & Animals	Sun, Moon & Stars	Exploring Land & Water	Weather & Climate	Processes That Shape Earth	Solar System & Our Place In IT

Life Science
Physical Science
Earth & Space Science


Unit 1: Overview

Topics & Vocabulary Terms	Forces and Motion: force, motion, push, pull, balanced forces, unbalanced forces, gravity, friction, pattern of motion Magnetism & Magnetic Interactions: magnet, magnetism, attract, repel, magnetic poles, solution, problem Engineering Design & Problem Solving: design, engineering, problem, solution
Projects & Artifacts	Students explore forces and motion through hands-on investigations (e.g., push/pull activities, friction lab, pendulum building) and conduct magnetic investigations using everyday objects. The culminating design challenge asks students to engineer a cart that rolls down a ramp and stops using magnetic force. Throughout the unit, students engage in “Scientist Circles” to discuss findings and refine ideas.
Resources	Core Knowledge: Investigating Force [Teacher Guide & Student Reader] STEELS Routine Investigation materials (toy cars, ramps, magnets, various surfaces, etc.) Performance task materials (cart components, magnets, measuring tools)

Unit 2: Overview

Topics & Vocabulary Terms	Habitats & Ecosystems: habitat, organism, ecosystem, survive, fresh water, salt water, forest, desert, tundra, grassland Adaptations & Traits: adaptation, trait, behavioral trait, physical trait, social groups, role, blubber Environmental Changes & Fossils: fossil, extinct, respond, climate, glacier, invasive species, migrate, endangered Scientific Thinking & Engineering: claim, evidence, inference, model, relative age
Projects & Artifacts	Students participate in an ongoing performance task: Rescue Mission: Advocates for Endangered Life , where they select an endangered organism and create a persuasive product (e.g., slideshow, infographic, video) encouraging others to care and take action.
Resources	Core Knowledge: Habitats & Change [Teacher Guide & Student Reader] STEELS Routine

Materials for Labs (e.g., shortening, ice, plastic cups, fossil models, modeling clay)

Unit 3: Overview

Topics & Vocabulary Terms	Weather & Atmosphere: atmosphere, air pressure, condensation, evaporation, precipitation, water cycle, wind, air mass, front Meteorology & Data: meteorologist, climate, ice age, seasonal, climate zone Extreme Weather & Hazards: drought, hazard, engineering design process, hail Scientific Thinking: data, investigation, prediction, design solution, patterns
Projects & Artifacts	Students engage in multiple investigations and a culminating Performance Task: Hail Damage Engineering Challenge , in which they design a model to prevent damage from hailstorms.
Resources	Core Knowledge: Weather & Climate [Teacher Guide & Student Reader] STEELS Routine Materials: Unit Kit: (water, pot, kettle, thermometer, cups, modeling materials, marbles for hail)

Unit 1: Investigating Force

STAGE 1 | DESIRED RESULTS

Forces and Motion

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.

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.

Types of Interactions

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.

3.2.3.D Define a simple design problem that can be solved by applying scientific ideas about magnets.

Transfer

Forces change motion

Meaning

Big Ideas:

- A change in the motion of interacting objects can be explained and predicted by forces.
- All forces between objects, regardless of size or direction, arise from only a few types of interactions.

Essential Questions:

- How can one predict an object's continued motion, changes in motion, or stability?
- What underlying forces explain the variety of interactions observed?

Acquisition

Knowledge:

- I understand that the patterns of an object's motion in various situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted.
- I know that each force acts on one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add to 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.
- I know electric and magnetic forces between a pair of

Skills:

- I can make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution.
- I can plan and conduct 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 trials considered.
- I can ask questions that can be investigated based on patterns such as cause and effect relationships.
- I can define a simple problem that can be solved through the development of a new or improved object or tool.

	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	
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Unit 2: Habitats & Change

STAGE 1 DESIRED RESULTS		
Growth and Development of Organisms 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. Social Interactions and Group Behavior 3.1.3.B Construct an argument that some animals form groups that help members survive. Inheritance of Traits 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. Variation of Traits 3.1.3.D Use evidence to support the explanation that traits can be influenced by the environment Evidence of Common Ancestry and Diversity 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. Natural Selection	Transfer	
	<i>Organisms adapt to the habitat in which they live.</i>	
	Meaning	
	Big Ideas: - Organisms have characteristic structures, functions, and behaviors that allow them to grow, reproduce, and die. - Many species live in groups which can increase the chances of survival for individuals and their relatives. - Offspring resemble but are not identical to, their parents due to traits being passed from one generation to the next via genes. - Variation among individuals of the same species can be explained by both genetic and environmental factors. - Comparisons between species provide evidence that species evolved from common ancestors which explains the similarities and differences between species. - In any particular environment individuals with particular traits may be more likely than others to survive and produce offspring.	Essential Questions: - How do the structures of organisms enable life's functions? - How do organisms interact in groups so as to benefit individuals? - How are the characteristics of one generation related to the previous generation? - Why do individuals of the same species vary in how they look, function, and behave? - What evidence shows that different species are related? - How does genetic variation among organisms affect survival and reproduction? - How does the environment influence populations of organisms over multiple generations? - What is biodiversity, how do humans affect it, and how does it affect humans?

STAGE 1 | DESIRED RESULTS

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.

Adaptation

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.

Biodiversity and 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.

- When the environment changes, some individuals in a population may have traits that provide a reproductive advantage which over many generations can change the make-up of a population.
- Humans depend on biodiversity, the variety of species and ecosystems, for resources, and human actions can impact the diversity of species.

Acquisition

Knowledge:

- I know reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles.
- I understand 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.
- I know many characteristics of organisms are inherited from their parents.
- I understand different organisms vary in how they look and function because they have different inherited information.
- I know other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many

Skills:

- I can develop models to describe phenomena.
- I can construct an argument with evidence, data, and/or a model.
- I can analyze and interpret data to make sense of phenomena using logical reasoning.
- I can use evidence (e.g., observations, patterns) to support an explanation.
- I can construct an argument with evidence.
- I can 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.

STAGE 1 | DESIRED RESULTS

characteristics involve both inheritance and environment.

- I understand the environment also affects the traits that an organism develops.
- I know some kinds of plants and animals that once lived on Earth are no longer found anywhere.
- I can determine that fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments.
- I understand that sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing.
- I know that in any particular environment, some organisms survive well, some survive less well, and some cannot survive at all.
- I understand that when the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations.
- I know populations live in a variety of habitats and change in those habitats affects the organisms living there.

Unit 3: Weather & Climate

STAGE 1 | DESIRED RESULTS

Weather and Climate

3.3.3.A Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.

3.3.3.B Obtain and combine information to describe climates in different regions of the world.

Natural Hazards

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.

Transfer

Earth is affected by weather and its current climate patterns.

Meaning

Big Ideas:

- Weather and climate are shaped by complex interactions involving sunlight, the ocean, the atmosphere, ice, landforms, and living things.
- Natural processes can cause sudden or gradual changes to Earth's systems, some of which may adversely affect humans.

Essential Questions:

- What regulates weather and climate?
- How do natural hazards affect individuals and societies?

Acquisition

Knowledge:

- I know 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.
- I understand climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years.
- I know a variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts.

Skills:

- I can represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships.
- I can obtain and combine information from books and other reliable media to explain phenomena.
- I can 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.

