



**DERBY
PUBLIC SCHOOLS**

Science Grade Three

Derby's Instructional Core Beliefs

Derby Public Schools believes curriculum outlines what students will know and be able to do as a result of their experiences in Our classrooms. Teachers continue to develop effective ways to implement the “what” of the curriculum with “how” can be more effective for student learning. They engage is

- *Curriculum establishes what learners will know and be able to do through assured experiences.*
- *The curriculum is built on a series of learning progressions.*
- *The district's model for High-Quality Instruction involves equitable access to well planned tasks that grow relationships, risk taking and agency for learning in all students. Learning is developed through all of us and is cultivated through personalized actionable feedback, a growth mindset, and developmental relationships among all learners.*
- *Assessment is a co-created process in a learning environment that enables participants to understand how learners are thinking, what they know, and what skills need to be developed and refined.*


Derby's Vision of HQI

[Derby's Portrait of the Graduate](#)

References



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Content Area: Science	Course: Grade Three Science	Grade Level: Third
	Vision of the Graduate <ul style="list-style-type: none"> • The Citizen • The Critical Thinker • The Communicator • The Problem Solver • The Collaborator 	
Unit Titles	Length of Unit	
<ul style="list-style-type: none"> • Forces and Interactions (Motions) 	<ul style="list-style-type: none"> • 6-8 weeks 	
<ul style="list-style-type: none"> • Interdependent Relationships in Ecosystems (Fossils) 	<ul style="list-style-type: none"> • 6-8 weeks 	
<ul style="list-style-type: none"> • Life Cycles and Traits (Monarchs) 	<ul style="list-style-type: none"> • 6-8 weeks 	
<ul style="list-style-type: none"> • Weather and Climate (Changing Environments) 	<ul style="list-style-type: none"> • 6-8 weeks 	



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Course Level Overview

The grade three NGSS aligned curriculum model is divided into four bundles that build on one another and increase intellectual demand both in terms of content and the science and engineering practices. While other crosscutting concepts are included at this grade level, the crosscutting concepts of cause and effect is a theme that carries throughout the year.

The grade 3 disciplinary core ideas in physical science focus on forces and explanations for types of interactions involving motion, electricity, and magnetism. Core ideas in life science include life cycles of organisms, fossils as evidence of major changes over time in the environment, and traits influenced by inheritance and the environment. These ideas contribute to building the understanding that variations in traits among individuals of the same species can provide advantages in survival and reproduction. The core ideas in Earth and space science emphasize weather patterns, climates, and the connection between the two.

Note that the practices and crosscutting concepts included in each bundle are intended as end-of-instructional unit expectations and not curricular designations. Additional practices and crosscutting concepts should be used throughout instruction in each bundle.*

* CREC Introduction Narrative @2016

Unit Title	Forces and Interactions (Motions)	Length of Unit	6-8 weeks
Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • How do forces affect the motion of objects? • What effects do electricity and magnetism have on the interaction of objects? 		
Standards*	3-PS2-1, 3-PS2-2, 3-PS2-3, 3-PS2-4, ETS1-3		
Unit Strands & Concepts	DISCIPLINARY CORE IDEAS (DCI): <ul style="list-style-type: none"> • Forces and Motion • Types of Interactions Cross Cutting Concepts (CCC) <ul style="list-style-type: none"> • Patterns • Cause and Effect 		
Key Vocabulary	Balanced Force, Unbalanced Force, Motion, Interaction, Data, Observations		

*Standards based on the Next Generation Science Standards (NGSS) and the National Research Council (NRC)

For more information visit: <http://portal.ct.gov/SDE/Science/Science-Standards-and-Resources>

Unit Title	Forces and Interactions (Motions)	Length of Unit	6-8 Weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • 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 ➡ • 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 from it • Objects in contact exert forces on each other • 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 	<ul style="list-style-type: none"> • Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object. • Make observations and/or measurements of an object's motion in order to justify that a pattern can be used to predict future motion. • Determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other. • Define and test a simple design problem that can be solved by applying scientific ideas about magnets

Assessments:	Performance Task(s) focused on demonstrating an understanding of the effects of different forces on an object and electric and magnetic interactions
Teacher Resources:	NGSS Frameworks, CREC Bundles, Model Based Inquiry Investigations, Foss Kits, NGSS Phenomenon Resources, Stem Teaching Tools

Unit Title	Interdependent Relationships in Ecosystems (Fossils)	Length of Unit	6-8 weeks
Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • What does the evidence of plants and animals no longer found on Earth tell us about how and when they lived? • How are plants, animals, and environments of the past similar or different from current plants, animals, and environments? • What happens to organisms when their environment changes? 		
Standards	3-LS2-1, 3-LS4-1, 3-LS4-3, 3-LS4-4, ETS1-1, ETS1-2		
Unit Strands & Concepts	<p>DISCIPLINARY CORE IDEAS (DCI):</p> <ul style="list-style-type: none"> • Ecosystem Dynamics, Functioning, and Resilience • Social Interactions and Group Behavior • Evidence of Common Ancestry and Diversity • Adaptation • Biodiversity and Humans <p>Cross Cutting Concepts (CCC)</p> <ul style="list-style-type: none"> • Systems and System Models • Scale, Proportion, and Quantity • Cause and Effect 		
	Fossils, Organisms, Habitat, Ecosystem, Ancestry, Adaptation, Data, Observations		

Unit Title	Interdependent Relationships in Ecosystems (Fossils)	Length of Unit	6-8 weeks
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Critical Content: My students will Know...	Key Skills: My students will be able to (Do)...
<ul style="list-style-type: none"> • 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, yet others move into the transformed environment, and some die. • 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. • 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. • For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all • Populations live in a variety of habitats, and change in those habitats affect the organisms living there 	<ul style="list-style-type: none"> • Construct an argument that some animals form groups that help members survive • Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago • Construct and justify an argument that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. • 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

Assessments:	Performance Task(s) focused on demonstrating an understanding of the different interdependent relationships that exist within a given ecosystem
Teacher Resources:	NGSS Frameworks, CREC Bundles, Model Based Inquiry Investigations, Foss Kits, NGSS Phenomenon Resources, Stem Teaching Tools

Unit Title	Life Cycles and Traits (Monarchs)	Length of Unit	6-8 weeks
Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • How do organisms vary in their traits? • How can the differences in traits within the species help them to survive? 		
Standards*	3-LS1-1, 3-LS3-1, 3-LS3-2, 3-LS4-2		
Unit Strands & Concepts	<p>DISCIPLINARY CORE IDEAS (DCI):</p> <ul style="list-style-type: none"> • Growth and Development of Organisms • Inheritance of Traits • Variation of Traits • Natural Selection <p>Cross Cutting Concepts (CCC)</p> <ul style="list-style-type: none"> • Patterns • Cause and Effect 		
Key Vocabulary	Traits, Variation, Life cycle, Offspring, Inherited, Organisms, Species, Data, Observations		

Unit Title	Life Cycles and Traits (Monarchs)	Length of Unit	6-8 weeks
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Critical Content: My students will Know...	Key Skills: My students will be able to (Do)...
<ul style="list-style-type: none"> • Reproduction is essential to the continued existence of every kind of organism. • Plants and animals have unique and diverse life cycles. • Many characteristics of organisms are inherited from their parents. • Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. • Many characteristics involve both inheritance and environment. • Different organisms vary in how they look and function because they have different inherited information. • The environment also affects the traits that an organism develops. • Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing. 	<ul style="list-style-type: none"> • Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. • 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. • Use evidence to justify the claim that traits can be influenced by the environment • 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.

Assessments:	Performance Task(s) focused on demonstrating an understanding of variation of inherited traits and the diversity of life cycles
Teacher Resources:	NGSS Frameworks, CREC Bundles, Model Based Inquiry Investigations, Foss Kits, NGSS Phenomenon Resources, Stem Teaching Tools

Unit Title	Weather and Climate (Changing Environments)	Length of Unit	6-8 weeks
Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • What is typical weather in different parts of the world and during different times of the year? • How can the impact of weather-related hazards be reduced? 		
Standards*	3-ESS2-1, 3-ESS2-2, 3-ESS3-1, ETS1-2		
Unit Strands & Concepts	DISCIPLINARY CORE IDEAS (DCI): <ul style="list-style-type: none"> • Weather and Climate • Natural Hazards Cross Cutting Concepts (CCC) <ul style="list-style-type: none"> • Patterns • Cause and Effect 		
Key Vocabulary	Climate, Season, Natural Hazard, Region, Forecast Data, Observations		

Unit Title	Weather and Climate (Changing Environments)	Length of Unit	6-8 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • 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. • Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years • A variety of natural hazards result from natural processes. • Humans cannot eliminate natural hazards but can take steps to reduce their impacts. 	<ul style="list-style-type: none"> • Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. • Obtain and synthesize information to describe climates in different regions of the world. • Test, and make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard

Assessments:	Performance Task(s) focused on demonstrating an understanding of seasonal weather conditions in a given climate and developing a design solution to reduce the impact of weather related hazards
Teacher Resources:	NGSS Frameworks, CREC Bundles, Model Based Inquiry Investigations, Foss Kits, NGSS Phenomenon Resources, Stem Teaching Tools