Vocabulary

attract
bar magnet
change of direction
change of motion
disc/ring magnet
faster
force
force strength
gravity
horseshoe magnet
iron filings
lines of force
magnet
magnetic fields
magnetic poles
motion
moving away from
poles
position
pull
push
repel
rod magnet
slower
slowing down
speed
speeding up
start
stop
toward
balanced forces
changes of speed
down
east
left
measurement of motion
north
right
south
unbalanced forces
up
west

Crosscutting Concepts

3-PS2-1

Cause and Effect

Cause and effect relationships are routinely identified.

3-PS2-2

Patterns

Patterns of change can be used to make predictions.

3-PS2-3

Cause and Effect

Cause and effect relationships are routinely identified, tested, and used to explain change.

Resources *

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Third Grade • First Quarter

Pacing Guide

Science

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Grade 3 Science First Quarter

Motion and Stability - Forces and Interactions 3-PS2-1	Motion and Stability - Forces and Interactions 3-PS2-2	Motion and Stability - Forces and Interactions 3-PS2-3	Motion and Stability - Forces and Interactions 3-PS2-4
I CAN STATEMENT			
☐ **I CAN** plan and conduct an investigation to show that balanced and unbalanced forces affect the motion of an object.	☐ **I CAN** predict the motion of an object based on pattern observations and movement measurements.	☐ **I CAN** ask questions to figure out how electricity and magnetism affect objects that don't touch.	☐ **I CAN** make something that uses magnets to solve a problem.
Core Idea			
Forces and Motions 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. Objects in contact exert forces on each other.	**Forces and Motions** 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.	**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.	**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 theproperties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other.
Standard			
Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object. *Clarification Statement: Examples could include an unbalanced force on one side of a ball can make it start moving; and, balanced forces pushing on a box from both sides will not produce any motion at all.*	**Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.** *Clarification Statement: Examples of motion with a predictable pattern could include a child swinging in a swing, a ball rolling back and forth in a bowl, and two children on a see-saw.*	**Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.** *Clarification Statement: Examples of an electric force could include the force on hair from an electricallycharged balloon and the electrical forces between a charged rod and pieces of paper; examples of a magnetic force could include the force between two permanent magnets, the force between an electromagnet and steel paperclips, and the force exerted by one magnet versus the force exerted by two magnets. Examples of cause and effect relationships could include how the distance between objects affects strength of the force and how the orientation of magnets affects the direction of the magnetic force.*	**Define a simple design problem that can be solved by applying scientific ideas about magnets.** *Clarification Statement:* *Examples of problems could include constructing a latch to keep a door shut and creating a device to keep two moving objects from touching each other.*
Science and Engineering Practices			
Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 3-5 builds on prior experiences and progresses to include investigations,that control variables and provide evidence to support explanations or design solutions. ► 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.	**Planning and Carrying Out Investigations** Planning and carrying out investigations to answer questions or test solutions to problems in 3-5 builds on prior experiences and progresses to include investigations,that control variables and provide evidence to support explanations or design solutions. ► 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.	**Asking Questions and Defining Problems** Asking questions and defining problems in grades 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships. ► Ask questions that can be investigated based on patterns such as cause and effect relationships.	**Asking Questions and Defining Problems** Asking questions and defining problems in grades 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships. ► Define a simple problem that can be solved through the development of a new or improved object or tool.

Vocabulary

altitude
bar graphs
breezy
blizzard
calm
Celsius
clear (RE: weather)
climate
cloud
cloud cover
cloudy
cold
cool
daily weather patters
data
degrees Fahrenheit
fall (autumn)
foggy
freezing rain
hot
humidity
inches
latitude
lightening
partly cloudy
pictographs
precautions
precipitation
rain gauge
seasons
severe weather
spring
summer
sunny
tables (as graphic organizers)
thermometer
thunderstorms
tornadoes
warm
weather
weather conditions
weather seasons
wind sock
wind vane
windy

Crosscutting Concepts

3-ESS2-1

Patterns

Patterns of change can be used to make predictions.

3-ESS2-2

Patterns

Patterns of change can be used to make predictions.

3-ESS3-1

Cause and Effect

Cause and effect relationships are routinely identified, tested, and used to explain change.

Resources *

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Third Grade • Second Quarter Pacing Guide

Science

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Grade 3 Science Second Quarter

Earth's Systems 3-ESS2-1	Earth's Systems 3-ESS2-2	Earth's Systems 3-ESS3-1	Notes
I CAN STATEMENT			
☐ **I CAN** show weather data for each of the seasons.	☐ **I CAN** gather and share information about climates from around the world.	☐ **I CAN** form an opinion about a design to fix a weather problem.	
Core Idea			
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.	**Weather and Climate** Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years.	**Natural Hazards** A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts.	
Standard			
Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. *Clarification Statement: Examples of data could include average temperature, precipitation, and wind direction.*	**Obtain and combine information to describe climates in different regions of the world.**	**Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.** *Clarification Statement: Examples of design solutions to weather-related hazards could include barriers to prevent flooding, wind resistant roofs, and lightning rods.*	
Science and Engineering Practices			
Analyzing and Interpreting Data Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used. ► Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships.	**Obtaining, Evaluating, and Communicating Information** Obtaining, evaluating, and communicating information in 3–5 builds on K–2 experiences and progresses to evaluating the merit and accuracy of ideas and methods. ► Obtain and combine information from books and other reliable media to explain phenomena.	**Engaging in Argument from Evidence** Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). ► 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.	

Vocabulary

adult
air
beak shape
body coverings
(e.g. feathers, fur, skin, hair, scales)
butterfly
characteristics
cocoon
ecosystems
egg
environment
eye color
food
habitat
inherited
insects
interdependent
larva
life cycle
metamorphosis
moth
needs of animals
observable features
organism(s)
parents
pupa
reproduction
offspring
requirements for life
similarities and differences between offspring and their parents
survival
traits
variations
water young

Crosscutting Concepts

3-LS3-1

Patterns

Similarities and differences in patterns can be used to sort and classify natural phenomena.

3-LS3-2

Cause and Effect

Cause and effect relationships are routinely identified and used to explain change.

3LS4-2

Cause and Effect

Cause and effect relationships are routinely identified and used to explain change..

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Third Grade • Third Quarter

Pacing Guide

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Grade 3 Science Third Quarter

Heredity: Inheritance and Variety of Traits 3-LS3-1	Heredity: Inheritance and Variety of Traits 3-LS3-2	Heredity: Inheritance and Variety of Traits 3-LS4-2	Notes
I CAN STATEMENT			
☐ **I CAN** examine data to show that plants and animals inherit traits from parents but all are a little different.	☐ **I CAN** show that an organism is affected by its environment.	☐ **I CAN** explain how certain individuals have certain physical advantages that will help them survive.	
Core Idea			
Inheritance of Traits Many characteristics of organisms are inherited from their parents.	**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.	**Natural Selection** Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing.	
Standard			
Analyze and interpret data to provide evidence that plants & animals have traits inherited from parents & that variation of these traits exists in a group of similar organisms. *Clarification Statement: Patterns are the similarities and differences in traits shared between offspring and their parents, or among siblings. Emphasis is on organisms other than humans.*	**Use evidence to support the explanation that traits can be influenced by the environment.** *Clarification Statement: Examples of the environment affecting a trait could include normally tall plants grown with insufficient water are stunted; and, a pet dog that is given too much food and little exercise may become overweight*	**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, & reproducing.** *Clarification Statement: Examples of cause and effect relationships could be plants that have larger thorns than other plants may be less likely to be eaten by predators; and, animals that have better camouflage coloration than other animals may be more likely to survive and therefore more likely to leave offspring.*	
Science and Engineering Practices			
Analyzing and Interpreting Data Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used. ► Analyze and interpret data to make sense of phenomena using logical reasoning.	**Constructing Explanations and Designing Solutions** Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. ► Use evidence (e.g., observations, patterns) to support an explanation.	**Constructing Explanations and Designing Solutions** Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. ► Use evidence (e.g., observations, patterns) to construct an explanation.	

Vocabulary

adult
air
beak shape
body coverings: feathers, fur, skin,
butterfly
characteristics
chrysalis
egg
eye color
flower
flowering plants
food
food storage
fruit
hair, scales
insects
larva
leaf shape
life cycle
light
makes its own food
metamorphosis
needs of plants
parent
plant
pupa
seed
size
water

Crosscutting Concepts

3-LS4-1

Scale, Proportion, and Quantity

Observable phenomena exist from very short to very long time periods.

3LS4-2

Cause and Effect

Cause and effect relationships are routinely identified and used to explain change.

3LS4-3

Cause and Effect

Cause and effect relationships are routinely identified and used to explain change.

3-LS4-4

Systems and System Models

A system can be described in terms of its components and their interactions.

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Third Grade • Fourth Quarter

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Grade 3 Science Fourth Quarter

Biological Evolution - Unity and Diversity 3-LS4-1	Biological Evolution - Unity and Diversity 3-LS4-2	Biological Evolution - Unity and Diversity 3-LS4-3	Biological Evolution - Unity and Diversity 3-LS4-4
I CAN STATEMENT			
☐ **I CAN** show that fossils from an area show traits related to their environment. habitats.	☐ **I CAN** obtain information from text about temperature, precipitation, & wind direction for the climate of a region. ☐ **I CAN** compare/contrast climates from different regions (of the world or of MI?)	☐ **I CAN** show that not all living things are suited for all habitats.	☐ **I CAN** evaluate a solution to an environmental problem for living things.
Core Idea			
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.	**Natural Selection** Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing.	**Adaptation** For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all.	**Biodiversity and Humans** Populations live in a variety of habitats, and change in those habitats affects the organisms living there.
Standard			
Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. *Clarification Statement: Examples of data could include type, size, and distributions of fossil organisms. Examples of fossils and environments could include marine fossils found on dry land, tropical plant fossils found in Arctic areas, and fossils of extinct organisms.*	**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, & reproducing.** *Clarification Statement: Examples of cause and effect relationships could be plants that have larger thorns than other plants may be less likely to be eaten by predators; and, animals that have better camouflage coloration than other animals may be more likely to survive and therefore more likely to leave offspring.*	**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.** *Clarification Statement: Examples of evidence could include needs and characteristics of the organisms and habitats involved. The organisms and their habitat make up a system in which the parts depend on each other.*	**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.** *Clarification Statement: Examples of environmental changes could include changes in land characteristics, water distribution, temperature, food, and other organisms.*
Science and Engineering Practices			
Analyzing and Interpreting Data Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used. ► Analyze and interpret data to make sense of phenomena using logical reasoning.	**Constructing Explanations and Designing Solutions** Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. ► Use evidence (e.g., observations, patterns) to construct an explanation.	**Engaging in Argument from Evidence** Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). ► Construct an argument with evidence.	**Engaging in Argument from Evidence** Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). ► 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.