

# MONTESSORI CURRICULUM TO STANDARDS ALIGNMENT

**ELEMENTARY • 1ST–6TH GRADE**

**BIOLOGY**

**Montessori Curriculum to Standards Alignment**  
**Elementary • 1st–6th Grade**  
**Biology**

National Center for Montessori in the Public Sector

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Assessment vocabulary drawn from Marzano Resources free online resource, Basic Vocabulary Terms ([marzanoresources.com/media/documents/reproducibles/vocab-common-core/basic-terms-and-phrases.pdf](http://marzanoresources.com/media/documents/reproducibles/vocab-common-core/basic-terms-and-phrases.pdf))

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## CHAPTER 1

# FOUNDATIONS

## GREAT STORY: THE COMING OF LIFE

### SKILLS INVENTORY

#### Lower Elementary

Listens to stories about significant historical changes and is inspired to gather additional information to clarify or deepen understanding.

### MONTESSORI LESSONS

### PURPOSES

#### INITIAL SERIES

#### Great Story: The Coming of Life

- To generate questions about individuals and groups who have shaped a significant historical change.
- To inspire children to ask and answer questions about information that has been presented orally.
- To inspire children to gather additional information to clarify comprehension or deepen understanding.
- To introduce the idea that life has not always existed on earth.
- To inspire further study of the history of life on earth.

**ASSESSMENT VOCABULARY****INITIAL SERIES**

answer

ask

detail

information

issue

media/medium

question

speaker

text

topic

**Cognitive Verbs**

answer

ask

clarify

describe

present

recount

**ASSESSMENT CONSIDERATIONS**

Students will not be assessed on the contents of the Great Stories.

**COLLEGE, CAREER AND CIVIC LIFE (C3) FRAMEWORK FOR STATE SOCIAL STUDIES STANDARDS****HISTORY (D2.HIS)****CHANGE, CONTINUITY AND CONTEXT**

<b>His.3.K-2</b>	Generate questions about individuals and groups who have shaped a significant historical change.
<b>His.3.3-5</b>	Generate questions about individuals and groups who have shaped significant historical changes and continuities.

**COMMON CORE STATE STANDARDS (CCSS.ELA-LITERACY)****LANGUAGE ARTS: SPEAKING AND LISTENING (SL)****COMPREHENSION AND COLLABORATION**

<b>SL.1.2</b>	Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
<b>SL.1.3</b>	Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
<b>SL.2.2</b>	Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
<b>SL.2.3</b>	Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.

**NOTES**

# TIMELINE OF LIFE

## SKILLS INVENTORY

### Lower Elementary

Understands the history of life on earth and the variety of organisms that existed on land and in the water.

### Upper Elementary

Understands that some organisms are no longer found on earth and that fossils provide evidence of different types of organisms and their environments.

## MONTESSORI LESSONS

## PURPOSES

### INITIAL SERIES

<b>Introduction</b>	<ul style="list-style-type: none"> <li>• To illustrate the history of life on our planet from tiny organisms to plants, insects, animals, and humans.</li> <li>• To emphasize that human beings have not always existed on earth.</li> </ul>
<b>The Blank Timeline of Life</b>	<ul style="list-style-type: none"> <li>• For the children to explore their own knowledge of the timeline.</li> </ul>
<b>The Timeline of Life: Further Details</b>	<ul style="list-style-type: none"> <li>• To discover details on aspects of the timeline.</li> <li>• To study their own interests and gather information based on their own exploration.</li> </ul>
<b>Following up The Timeline of Life</b>	<ul style="list-style-type: none"> <li>• To discover details on aspects of the timeline.</li> <li>• To further study their own interests and gather information based on their own exploration.</li> </ul>



ASSESSMENT VOCABULARY	
INITIAL SERIES	MIDDLE SERIES
<p>area diversity of life exist habitat land life living thing plant variety</p> <p><b>Cognitive Verbs</b> compare</p>	<p><i>In addition to previous vocabulary:</i></p> <p>adaptation behavior characteristic cope distribution Earth environment extinct food fossil function (noun) marine nature organism survive</p> <p><b>Cognitive Verbs</b> analyze construct defend depend interpret involve obtain provide vary</p>

## ASSESSMENT CONSIDERATIONS

### INITIAL SERIES

**Students will be asked to demonstrate understanding that:**

- There are many different kinds of living things in any area, and they exist in different places on land and in water. (2-LS4-1)

### MIDDLE SERIES

**Students will be asked to demonstrate understanding that:**

- Some kinds of plants and animals that once lived on Earth are no longer found anywhere. (3-LS4-1)
- Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments. (3-LS4-1)
- For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)

## NEXT GENERATION SCIENCE STANDARDS

### LIFE SCIENCE (LS)

#### ECOSYSTEMS: INTERACTIONS, ENERGY, AND DYNAMICS

<b>3-LS2-1</b>	Construct an argument that some animals form groups that help members survive.
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#### BIOLOGICAL EVOLUTION: UNITY AND DIVERSITY

<b>2-LS4-1</b>	Make observations of plants and animals to compare the diversity of life in different habitats.
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<b>3-LS4-1</b>	Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.
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<b>3-LS4-3</b>	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.
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## NOTES

## CHAPTER 2

# BOTANY AND ZOOLOGY

## BOTANY

### SKILLS INVENTORY

#### Lower Elementary

Identifies the parts of plants (root, stem, leaf, flower, fruit) and how they help the plant survive and grow. Understands the needs of plants including different types of pollination.

#### Upper Elementary

Identifies the internal and external structures of plants and how they serve the functions of growth, survival, behavior, and reproduction.

### MONTESSORI LESSONS

### PURPOSES

#### INITIAL SERIES

##### The Plant

- The Story of the Plant
- Plants
- Parts of a Plant
- Needs of Plants I
- Needs of Plants II

- To give the child an appreciation of the work that plants do.
- To give the child a broad picture of botany before filling in details in future key lessons.
- To familiarize the child with the major parts of a plant: roots, stems, leaves.
- To understand that plants have certain fundamental needs.
- To introduce the child implicitly to basic principles of scientific experimentation.
- Provide children an experience linking chemistry and botany.

##### The Leaf

- The Leaf as a Food Factory
- Plants Grow Toward Light
- Leaves of a Plant Arrange Themselves to Get the Light
- Leaves of Plants Sometimes Need Help to Reach the Light
- Plants Release Oxygen
- Leaves Get Rid of Extra Water

- To introduce the idea that the leaf makes food for the plant.
- Provide opportunity for children to observe together the effects of light on a growing plant and introduce the word “phototropism”.
- To emphasize that leaves need light in order to make food for the plant.
- To discover that some plants have developed clever methods to reach the light.
- This is a key piece of information the children need to appreciate the interdependence of plants and animals.
- To observe that plants release water into the atmosphere.

*continues*

MONTESSORI LESSONS		PURPOSES
<p><b>The Root</b></p> <ul style="list-style-type: none"> <li>• Roots Take up Water for the Plant</li> <li>• Roots Secure Plants to the Ground</li> <li>• Roots Keep Soil in Place</li> <li>• Leaves and Plants Shape Help the Roots</li> </ul>	<ul style="list-style-type: none"> <li>• To see that it's the roots that provide water for the plant.</li> <li>• To see that the roots actively grow towards water.</li> <li>• Provide visual experiences for the child regarding plant structures and functions.</li> <li>• To understand the role plants play in preventing erosion.</li> <li>• We invite the children to explore and extrapolate structure and function in plants.</li> </ul>	
<p><b>The Stem</b></p> <ul style="list-style-type: none"> <li>• Stems Hold the Leaves up to the Light</li> <li>• Stems Carry Water from the Roots and Food from the Leaves</li> <li>• Stems Extend into the Leaves as Veins</li> <li>• Geotropism</li> <li>• The plant and its Reproductive Parts</li> </ul>	<ul style="list-style-type: none"> <li>• To add to the child's understanding of structures and functions in the parts of plants.</li> <li>• Recognize that the stem provides a transport system for the plants.</li> <li>• To extend the idea that the stem provides a transport system for the plants into the leaves.</li> <li>• To observe geotropism in action.</li> </ul>	
<p><b>The Flower</b></p> <ul style="list-style-type: none"> <li>• The Story of the Flower</li> <li>• Parts of the Flower</li> <li>• How Plants Ensure Pollination</li> <li>• Position of the Ovary</li> </ul>	<ul style="list-style-type: none"> <li>• To help the child understand the importance of pollination and to recognize some of the methods of pollination used by plants.</li> <li>• To give the child technical terminology for the parts of a flower in order to facilitate further study.</li> <li>• To introduce pollination methods adopted by plants.</li> </ul>	
<p><b>The Fruit</b></p> <ul style="list-style-type: none"> <li>• Parts of the Fruit</li> <li>• Function of the Fruit</li> </ul>	<ul style="list-style-type: none"> <li>• To give the child technical terminology for the fruit in order to facilitate further investigation.</li> <li>• To expand the child's understanding of the natural world.</li> </ul>	
<p><b>The Seed</b></p> <ul style="list-style-type: none"> <li>• The Story of the Seed</li> <li>• Parts of the Seed</li> <li>• Seed Dispersal</li> </ul>	<ul style="list-style-type: none"> <li>• To help build an understanding of the function of a seed.</li> <li>• To give the child technical terminology for the seed in order to facilitate further investigation.</li> <li>• To expand the child's understanding of variety in nature.</li> </ul>	
MIDDLE SERIES		
CLASSIFICATION OF PLANTS		
<p><b>The Leaf</b></p> <ul style="list-style-type: none"> <li>• External Parts of the Leaf</li> <li>• Venation Patterns</li> <li>• Arrangement of Leaves on the Stem</li> <li>• Attachment of Leaf to Stem</li> <li>• Simple and Compound leaves</li> <li>• Leaf Margins</li> <li>• Leaf Shapes</li> <li>• Specialized Leaves</li> </ul>	<ul style="list-style-type: none"> <li>• These presentations are keys for further exploration of the leaf, rather than an end in themselves.</li> </ul>	

continues

MONTESSORI LESSONS		PURPOSES	
<p><b>The Root</b></p> <ul style="list-style-type: none"> <li>• Parts of the Root Tip</li> <li>• Types of Root Systems</li> <li>• Specialized Roots</li> </ul>	<ul style="list-style-type: none"> <li>• These presentations are keys for further exploration of the root, rather than an end in themselves.</li> </ul>		
<p><b>The Stem</b></p> <ul style="list-style-type: none"> <li>• Parts of a Woody Stem</li> <li>• Buds on the Stem</li> <li>• Attachment of Buds on a Stem</li> <li>• Types of Stems</li> <li>• Types of Aerial Stems</li> <li>• Specialized Stems</li> </ul>	<ul style="list-style-type: none"> <li>• These presentations are keys for further exploration of the stem, rather than an end in themselves.</li> </ul>		
<p><b>The Flower</b></p> <ul style="list-style-type: none"> <li>• Complete and Incomplete Flowers</li> <li>• Perfect and Imperfect Flowers</li> <li>• Variations in the Parts of the Flower</li> <li>• Position of the Ovary</li> </ul>	<ul style="list-style-type: none"> <li>• These presentations are keys for further exploration of the flower, rather than an end in themselves.</li> </ul>		
<p><b>The Fruit</b></p> <ul style="list-style-type: none"> <li>• Variations in the Ovary</li> <li>• Fleshy and Dry Fruits</li> <li>• Types of Dry Fruits</li> <li>• Types of Fleshy Fruits</li> </ul>	<ul style="list-style-type: none"> <li>• These presentations are keys for further exploration of the fruit, rather than an end in themselves.</li> </ul>		
<p><b>The Seed</b></p> <ul style="list-style-type: none"> <li>• Monocotyledons and Dicotyledons</li> </ul>	<ul style="list-style-type: none"> <li>• These presentations are keys for further exploration of the seed, rather than an end in themselves.</li> </ul>		
LATER SERIES			
<p><b>Plant Classification</b></p> <ul style="list-style-type: none"> <li>• Introduction to the Plant Classification System</li> <li>• Text and Picture Cards</li> <li>• Classification of Plants Using the Plant Classification Material</li> <li>• Dichotomous Key</li> </ul>	<ul style="list-style-type: none"> <li>• To introduce children to the plant classification material and to the concept of classification of organisms.</li> </ul>		

ASSESSMENT VOCABULARY				
INITIAL SERIES		MIDDLE SERIES		LATER SERIES
account	recognizable	<i>In addition to previous vocabulary:</i>		<i>In addition to previous vocabulary:</i>
adult	representation	advantage	reproduction	material (noun)
area	response	camouflage	resource	plant matter
behavior	root	characteristic	sibling	soil
branch	seed	color	spatial	
design (noun)	shell	coloration	specialized	
detect	sketch	death	species	<b>Cognitive Verbs</b>
disperse	stabilize	distribution	stem	acquire
diversity of life	stem	diverse	store	
equipment	structure	environment	support	
exact	sunlight	environmental	temperature	
exist	survival	essential	trait	
external	survive	existence	transfer (verb)	
feature	thorn	function (verb)	transform	
flower	variety	growth	unique	
food	<b>Cognitive Verbs</b>	inherit	variation	
fruit	communicate	internal	<b>Cognitive Verbs</b>	
function (noun)	compare	life cycle	affect	
grow	conduct	living	analyze	
habitat	construct	memory	cause	
intruder	convey	perception	change	
land	depend	petal	describe	
leaf	design	physical	guide	
life	determine	characteristic	interpret	
light	develop	plant	provide	
living thing	engage	predator	receive	
mimic	plan	process (verb)	support	
offspring	protect	receptor		
organism	respond	reproduce		
parent	share			
physical model	solve			
pollinate	vary			
pollination				

## ASSESSMENT CONSIDERATIONS

### INITIAL SERIES

**Students will be asked to demonstrate understanding that:**

- Plants have external parts. (1-LS1-1)
- Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)
- Adult plants can have young. (1-LS1-2)
- Plants respond to some external inputs. (1-LS1-1)
- Plants are very much, but not exactly, like their parents. (1-LS3-1)
- Individuals of the same kind of plant are recognizable as similar but can also vary in many ways. (1-LS3-1)
- Plants depend on water and light to grow. (2-LS2-1)
- Plants depend on animals for pollination or to move their seeds around. (2-LS2-2)
- There are many different kinds of plants in any area, and they exist in different places on land and in water. (2-LS4-1)

### MIDDLE SERIES

**Students will be asked to demonstrate understanding that:**

- For any particular environment, some kinds of plants survive well, some survive less well, and some cannot survive at all. (3-LS4-3)
- Plant populations live in a variety of habitats, and change in those habitats affects the organisms living there. (3-LS4-4)
- Reproduction is essential to the continued existence of plants. (3-LS1-1)
- Plants have unique and diverse life cycles. (3-LS1-1)
- Many characteristics of plants are inherited from their parents. (3-LS3-1)
- Different plants vary in how they look and function because they have different inherited information. (3-LS3-1)
- The environment also affects the traits that a plant develops. (3-LS3-2)
- Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving and reproducing. (3-LS4-2)
- Plants have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)

### LATER SERIES

**Students will be asked to demonstrate an understanding that:**

- Plants acquire their material for growth chiefly from air and water. (5-LS1-1)

## NEXT GENERATION SCIENCE STANDARDS

### LIFE SCIENCE (LS)

#### FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES

<b>1-LS1-1</b>	Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.
<b>1-LS1-2</b>	Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive
<b>3-LS1-1</b>	Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.
<b>4-LS1-1</b>	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
<b>4-LS1-2</b>	Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.
<b>5-LS1-1</b>	Support an argument that plants get the materials they need for growth chiefly from air and water.

#### ECOSYSTEMS: INTERACTIONS, ENERGY, AND DYNAMICS

<b>2-LS2-1</b>	Plan and conduct an investigation to determine if plants need sunlight and water to grow.
<b>2-LS2-2</b>	Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

#### HEREDITY: INHERITANCE AND VARIATION OF TRAITS

<b>1-LS3-1</b>	Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents
<b>3-LS3-1</b>	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.

#### BIOLOGICAL EVOLUTION: UNITY AND DIVERSITY

<b>2-LS4-1</b>	Make observations of plants and animals to compare the diversity of life in different habitats.
<b>3-LS4-4</b>	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.
<b>3-LS4-2</b>	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.



**NOTES**

Blank area for notes.

# ZOOLOGY

## SKILLS INVENTORY

### Lower Elementary

- Identifies how different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air. Understands that reproduction is essential to the continued existence of every kind of animal.
- Understands the impact that the environment has on animals and the impact that animals have upon their environments.

### Upper Elementary

- Identifies the internal and external structures of animals that serve various functions in growth, survival, behavior, and reproduction. Understands the importance of the brain in processing information from different sense receptors and how animals use this information and memories to guide their actions.

## MONTESSORI LESSONS

## PURPOSES

### INITIAL SERIES

#### Animal Stories

- American Goldfinch
- What Do Animals Eat?

- To help the child appreciate and understand animals of their local habitat.
- To provide an opportunity for interesting reading.
- To realize that different animals eat different foods.
- Indirect preparation for studying ecology.

#### Question and Answer Game

- Study of a Single Animal
- Study of a Single Question

- To help the children organize their informal knowledge about animals.
- To introduce the idea that animals have common needs but different ways of meeting them.

### MIDDLE SERIES

#### Body Functions of Vertebrates

- Introduction to the Five Classes
- Learning Characteristics: Complete Text
- Learning Characteristics: Incomplete Text
- Comparing Classes
- Naming the Body Functions

- To support the child's understanding of structures and functions of animals' body parts.
- Recognize that there are different groups of animals, and they differ in how their bodies are organized to meet their needs.
- For children to recognize that most body functions vary from class to class, but all vertebrates have a backbone.
- To provide inspiration for further research into vertebrates.

*continues*

MONTESSORI LESSONS		PURPOSES
<b>LATER SERIES</b>		
<p><b>Classification of Animals</b></p> <ul style="list-style-type: none"> <li>• Introduction to Animal Classification</li> <li>• Introduction to Text and Picture Cards</li> <li>• Classification of Animals Using Folders and Circles</li> </ul>	<ul style="list-style-type: none"> <li>• To introduce children to the animal classification material and to the concept of classification of organisms.</li> </ul>	

ASSESSMENT VOCABULARY					
INITIAL SERIES			MIDDLE SERIES		
account	mimic		<i>In addition to previous vocabulary:</i>		
adult	offspring		advantage	physical	<b>Cognitive Verbs</b>
area	organism		birth	characteristic	
behavior	parent		brain	predator	
body	recognizable		camouflage	process (verb)	
breed	response		characteristic	receptor	
comfort	shell		cope	reflect	
detect	stabilize		death	reproduce	
diversity of life	structure		distribution	reproduction	
equipment	survival		diverse	resource	
exact	survive		environment	sense receptor	
exist	variety		environmental	senses	
external		<b>Cognitive Verbs</b>	essential	sensory	
feature	compare		existence	sibling	
food	construct		function (noun)	skin	
grasp	convey		function (verb)	spatial	
grow	design		heart	specialized	
growth	determine		inherit	species	
habitat	engage		inheritance	stomach	
hear	protect		interaction	store	
human	respond		internal	stunt	
intruder	share		life cycle	support	
land	solve		light	surface	
life	vary		living	temperature	
living thing			lung	trait	
material (noun)			mate	transfer (verb)	
			memory	transform	
			perception	unique	
				variation	

## ASSESSMENT CONSIDERATIONS

### INITIAL SERIES

**Students will be asked to demonstrate understanding that:**

- All animals have external parts. (1-LS1-2)
- Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air. (1-LS1-1)
- Adult animals can have young. (1-LS1-2)
- In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. (1-LS1-2)
- Animals have body parts that capture and convey different kinds of information needed for growth and survival. (1-LS1-1)
- Animals respond to these inputs for growth and survival with behaviors that help them survive. (1-LS1-1)
- Young animals are very much, but not exactly, like their parents. (1-LS3-1)
- There are many different kinds of animals in any area, and they exist in different places on land and in water. (2-LS4-1)

### MIDDLE SERIES

**Students will be asked to demonstrate understanding that:**

- Being part of a group helps animals obtain food, defend themselves, and cope with changes. (3-LS2-1)
- Animal groups may serve different functions and vary dramatically in size. (3-LS2-1)
- For any particular environment, some kinds of animals survive well, some survive less well, and some cannot survive at all. (3-LS4-3)
- Animal populations live in a variety of habitats, and change in those habitats affects the animals living there. (3-LS4-4)
- Reproduction is essential to the continued existence of every kind of animal. (3-LS1-1)
- Animals have unique and diverse life cycles. (3-LS1-1)
- Many characteristics of animals are inherited from their parents. (3-LS3-1)
- Other characteristics result from individual animals' interactions with the environment, which can range from diet to learning. (3-LS3-2)
- Many characteristics of animals involve both inheritance and environment. (3-LS3-2)
- An object can be seen when light reflected from its surface enters the eyes. (4-PS4-2)
- Animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)
- Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal's brain. (4-LS1-2)
- Animals are able to use their perceptions and memories to guide their actions. (4-LS1-2)

<b>NEXT GENERATION SCIENCE STANDARDS</b>	
<b>LIFE SCIENCE (LS)</b>	
<b>FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES</b>	
<b>1-LS1-1</b>	Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.
<b>1-LS1-2</b>	Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive
<b>3-LS1-1</b>	Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.
<b>4-LS1-1</b>	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
<b>4-LS1-2</b>	Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.
<b>ECOSYSTEMS: INTERACTIONS, ENERGY, AND DYNAMICS</b>	
<b>3-LS2-1</b>	Construct an argument that some animals form groups that help members survive
<b>HEREDITY: INHERITANCE AND VARIATION OF TRAITS .</b>	
<b>1-LS3-1</b>	Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents
<b>3-LS3-1</b>	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.
<b>3-LS3-2</b>	Use evidence to support the explanation that traits can be influenced by the environment.
<b>BIOLOGICAL EVOLUTION: UNITY AND DIVERSITY</b>	
<b>2-LS4-1</b>	Make observations of plants and animals to compare the diversity of life in different habitats.
<b>3-LS4-2</b>	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.
<b>3-LS4-4</b>	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.
<b>4-PS4-2</b>	Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen

**NOTES**

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## CHAPTER 3

# THE HUMAN BODY

## THE HUMAN BODY

### SKILLS INVENTORY

#### Lower Elementary

- Identifies how humans use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air.
- Understands that humans have body parts that capture and convey different kinds of information needed for growth and survival including that reproduction is essential to the continued existence of humans.

#### Upper Elementary

- Identifies the internal and external structures of humans that serve various functions in growth, survival, behavior, and reproduction.

### MONTESSORI LESSONS

### PURPOSES

#### MIDDLE SERIES

#### The Human Body

- The Great River
- Humans are Mammals
- Cells
- Senses
  - Sight
  - Hearing
  - Smell
  - Taste
  - Touch
- Body Systems
  - Digestive system
  - Circulatory system
  - Respiratory system
  - Muscular system
  - Nervous system

- To appreciate how diligently the individual organs of the body work to keep us alive.
- To recognize that human beings are mammals.
- To bring attention to the fact that living things are composed of cells.
- To spark interest in the senses.
- To inspire research into the various systems of the human body.
- To spark interest in how the systems of the human body work.

ASSESSMENT VOCABULARY		
INITIAL SERIES		MIDDLE SERIES
account	<b>Cognitive Verbs</b>	<i>In addition to previous vocabulary:</i>
adult	construct	birth
behavior	convey	<b>Cognitive Verbs</b>
body	design	affect
branch	determine	allow
breed	engage	analyze
comfort	protect	describe
detect	respond	develop
equipment	share	influence
exact	solve	interpret
external	vary	involve
feature		learn
food		provide
grasp		support
grow		
growth		
hear		
human		
intruder		
material (noun)		
mimic		
offspring		
organism		
parent		
recognizable		
response		
shell		
stabilize		
structure		
survival		
survive		
		existence
		function (noun)
		function (verb)
		heart
		inherit
		inheritance
		interaction
		internal
		life
		life cycle
		light
		lung
		reflect
		reproduction
		sibling
		skin
		stomach
		stunt
		support
		surface
		trait
		unique
		variation



## ASSESSMENT CONSIDERATIONS

### INITIAL SERIES

#### Students will be asked to demonstrate understanding that:

- Humans have external parts. (1-LS1-1)
- Humans use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air. (1-LS1-1)
- Humans have body parts that capture and convey different kinds of information needed for growth and survival. (1-LS1-1)
- Humans can have young. (1-LS1-2)
- Parents engage in behaviors that help the offspring to survive. (1-LS1-2)
- Young humans are very much, but not exactly, like their parents. (1-LS3-1)

### MIDDLE SERIES

#### Students will be asked to demonstrate understanding that:

- Reproduction is essential to the continued existence of humans. (3-LS1-1)
- Many characteristics are inherited from their parents. (3-LS3-1)
- Many characteristics involve both inheritance and environment. (3-LS3-2)
- An object can be seen when light reflected from its surface enters the eyes. (4-PS4-2)
- Humans have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)

## NEXT GENERATION SCIENCE STANDARDS

### LIFE SCIENCE (LS)

#### FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES

<b>1-LS1-1</b>	Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.
<b>1-LS1-2</b>	Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive
<b>3-LS1-1</b>	Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.
<b>4-LS1-1</b>	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

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**NEXT GENERATION SCIENCE STANDARDS****HEREDITY: INHERITANCE AND VARIATION OF TRAITS**

<b>1-LS3-1</b>	Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.
<b>3-LS3-1</b>	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.
<b>3-LS3-2</b>	Use evidence to support the explanation that traits can be influenced by the environment.

**PHYSICAL SCIENCE (PS)****WAVES AND THEIR APPLICATIONS IN TECHNOLOGIES FOR INFORMATION TRANSFER**

<b>4-PS4-2</b>	Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.
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**NOTES**

## CHAPTER 4

# ECOLOGY AND EVOLUTION

## ECOLOGY

### SKILLS INVENTORY

#### Upper Elementary

Understands that a healthy ecosystem is one in which multiple types of different species are able to meet their needs in a stable web of life in which matter cycles between the air and soil and among plants, animals, and microbes as organisms live and die.

MONTESSORI LESSONS	PURPOSES
<b>LATER SERIES</b>	
<b>From Biosphere to Atoms</b>	<ul style="list-style-type: none"><li>• To gain a framework for understanding life at levels from the biosphere to the atom.</li><li>• Understanding and organization of all subsequent lessons in biology.</li></ul>
<b>Biomes</b>	<ul style="list-style-type: none"><li>• To learn the characteristics of a biome and pursue further study about biomes.</li><li>• Preparation for observations and work with the child's own biome.</li></ul>
<b>Ecosystems: Trophic Levels and Food Chains</b>	<ul style="list-style-type: none"><li>• To learn about trophic levels and the way they affect causality in the food chain.</li><li>• Review of food chains and preparation for ecosystems study.</li></ul>
<b>Matter Cycles</b>	<ul style="list-style-type: none"><li>• To learn that matter cycles in an ecosystem.</li><li>• Review of cycle of life, elements of life.</li></ul>
<b>Energy Flows</b>	<ul style="list-style-type: none"><li>• To learn about the energy transfer through the trophic levels of an ecosystem.</li><li>• To review and understand food chains and the difference between matter and energy.</li></ul>
<b>Communities: Niches and Keystone Species</b>	<ul style="list-style-type: none"><li>• To learn about niches in a community of living things.</li></ul>
<b>Communities through Time: Succession</b>	<ul style="list-style-type: none"><li>• To learn the role of disturbances and time in a community.</li></ul>

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MONTESSORI LESSONS	PURPOSES
<b>Communities: Interactions between Species</b>	<ul style="list-style-type: none"> <li>• To learn how different species interact with one another.</li> </ul>
<b>Populations: Snowy Owls and Lemmings</b>	<ul style="list-style-type: none"> <li>• To understand how snowy owls and lemmings interact at the population level.</li> <li>• To understand the relationships between populations within an ecosystem, and the role of evolution in these relationships.</li> </ul>
<b>Organisms: A Mouse and a Mutation</b>	<ul style="list-style-type: none"> <li>• To learn about species adaptations in the context of the theory of evolution.</li> <li>• To understand the extent to which species exist in balance within the larger spheres of life.</li> </ul>
<b>The Ocean Ecosystem</b>	<ul style="list-style-type: none"> <li>• To introduce the children to the operation of a simple ecosystem.</li> <li>• To introduce the children to a method for diagramming an ecosystem.</li> <li>• To inspire the children to research ecosystems further.</li> </ul>
<b>Chart of Interdependencies</b>	<ul style="list-style-type: none"> <li>• To help develop an understanding of the interrelationships that exist between all things.</li> <li>• To appreciate the fragile balance between all the things in the world.</li> <li>• To inspire a view of the world that is ecologically aware and sensitive, and to encourage a sense of responsibility toward the natural world.</li> </ul>

**ASSESSMENT VOCABULARY**

**LATER SERIES**

body repair	health	species
break down	life	stable
chemical process	liquid	sun
cycle (verb)	material (noun)	survive
decompose	matter	waste matter
decomposer	microbe	<b>Cognitive Verbs</b>
decomposition	movement	change
diagram	operate	describe
earth	organism	develop
ecosystem	plant	introduce
environment	plant part	maintain
flow chart	recycle	obtain
food	relative	provide
food web	release	relate
fungi	restore	trace
gas	soil	
growth	solid	

**ASSESSMENT CONSIDERATIONS**

**LATER SERIES**

**Students will be asked to demonstrate understanding that:**

- The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (5-PS3-1)
- The food of almost any kind of animal can be traced back to plants. (5-LS2-1)
- Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. (5-LS2-1)
- Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” (5-LS2-1)
- Decomposition eventually restores (recycles) some materials back to the soil. (5-LS2-1)
- Organisms can survive only in environments in which their particular needs are met. (5-LS2-1)
- A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. (5-LS2-1)
- Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)
- Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. (5-LS2-1)
- Organisms obtain gasses, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (5-LS2-1)

**NEXT GENERATION SCIENCE STANDARDS****LIFE SCIENCE (LS)****ECOSYSTEMS: INTERACTIONS, ENERGY, AND DYNAMICS**

<b>5-LS2-1</b>	Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.
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**PHYSICAL SCIENCE (PS)****ENERGY**

<b>5-PS3-1</b>	Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.
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**NOTES**

# EVOLUTION

## SKILLS INVENTORY

### Upper Elementary

Understands that when an environment changes (temperature, availability of resources) some organisms survive and reproduce, others move to new locations, others move into the transformed environment, and some do not survive, while recognizing that the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing.

## MONTESSORI LESSONS PURPOSES

### LATER SERIES

<b>Darwin's Theory</b>	<ul style="list-style-type: none"> <li>• To understand Darwin's Theory.</li> <li>• To learn about the processes of science and the logical foundation of the theory of evolution.</li> </ul>
<b>Mechanisms of Evolution</b>	<ul style="list-style-type: none"> <li>• To understand how evolution works.</li> <li>• To learn about species adaptations in the context of the theory of evolution.</li> </ul>
<b>Building the Tree of Life</b>	<ul style="list-style-type: none"> <li>• To learn the sequence of evolution and overall structure of the organization of life.</li> <li>• Preparation for study of the Tree of Life and of cladograms (branching diagrams); to conceptualize the overall categories of life.</li> </ul>
<b>The First Mammals</b>	<ul style="list-style-type: none"> <li>• To learn how mammals evolved.</li> <li>• To understand how many factors affected the evolution of mammals.</li> </ul>
<b>The End of the Dinosaurs</b>	<ul style="list-style-type: none"> <li>• To learn about the dramatic end to the dinosaurs and the creation of a niche for mammals.</li> <li>• Reverence for life and an appreciation of the role of chance in the history of life.</li> </ul>

## ASSESSMENT VOCABULARY

INITIAL SERIES	MIDDLE SERIES	
area diversity of life exist habitat land life living thing plant variety  <b>Cognitive Verbs</b> compare	<i>In addition to previous vocabulary:</i> adaptation advantage area camouflage characteristic coloration distribution Earth environment environmental extinct food fossil function (noun) function (verb) grow human inherit inheritance interaction living marine mate nature offspring organism parent physical characteristic plant predator  reproduce resource sibling species stunt support survive temperature thorn trait transform variation  <b>Cognitive Verbs</b> affect analyze cause change construct depend develop influence interpret involve learn provide share support vary	



**ASSESSMENT CONSIDERATIONS**

**MIDDLE SERIES**

**Students will be asked to demonstrate understanding that:**

- Many characteristics of organisms are inherited from their parents. (3-LS3-1)
- Many characteristics result from individuals' interactions with the environment, which can range from diet to learning. (3-LS3-2)
- Many characteristics involve both inheritance and environment. (3-LS3-2)
- Different organisms vary in how they look and function because they have different inherited information. (3-LS3-1)
- The environment affects the traits that an organism develops. (3-LS3-2)
- There are many different kinds of living things in any area, and they exist in different places on land and in water. (2-LS4-1)
- Some kinds of plants and animals that once lived on Earth are no longer found anywhere. (3-LS4-1)
- Fossils provide evidence about the types of organisms that lived long ago. (3-LS4-1)
- Fossils provide evidence about the nature of their environments. (3-LS4-1)
- The differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing. (3-LS4-2)
- For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)
- Populations live in a variety of habitats, and change in those habitats affects the organisms living there. (3-LS4-4)
- 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. (3-LS4-4)

**NEXT GENERATION SCIENCE STANDARDS**

**LIFE SCIENCE (LS)**

**HEREDITY: INHERITANCE AND VARIATION OF TRAITS**

<b>3-LS3-1</b>	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.
<b>3-LS3-2</b>	Use evidence to support the explanation that traits can be influenced by the environment.

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**NEXT GENERATION SCIENCE STANDARDS****BIOLOGICAL EVOLUTION: UNITY AND DIVERSITY**

<b>2-LS4-1</b>	Make observations of plants and animals to compare the diversity of life in different habitats.
<b>3-LS4-1</b>	Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.
<b>3-LS4-2</b>	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.
<b>3-LS4-3</b>	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.
<b>3-LS4-4</b>	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.

**NOTES**

# APPENDIX

## ENGINEERING, TECHNOLOGY, AND APPLICATIONS OF SCIENCE

### SKILLS INVENTORY

Engages in scientific inquiry to build, deepen, and apply knowledge of science including understanding what scientists do to investigate the natural world and what engineers do to design and build systems.

### MONTESSORI LESSONS PURPOSES

These purposes are integrated into Montessori lessons across the science curriculum.

<b>Life Science</b>	<ul style="list-style-type: none"><li>• To use a model to represent relationships in the natural world.</li><li>• To use observations to describe patterns in the natural world in order to answer scientific questions.</li><li>• To construct an argument with evidence to support a claim.</li><li>• To communicate solutions with others in oral and/or written forms.</li><li>• To use models and/or drawings that provide detail about scientific ideas.</li></ul>
<b>Physical Science</b>	<ul style="list-style-type: none"><li>• To plan and conduct an investigation in collaboration with peers.</li><li>• To analyze data from tests of an object or tool to determine if it works as intended.</li></ul>
<b>Earth Science</b>	<ul style="list-style-type: none"><li>• To use observations to describe patterns in the natural world in order to answer scientific questions.</li><li>• To construct an argument with evidence to support a claim.</li></ul>

ASSESSMENT VOCABULARY	
INITIAL SERIES	MIDDLE AND LATER SERIES
analyze communicate compare convey design (noun) develop engineering illustrate optimize physical model representation situation sketch solve test  <b>Cognitive Verbs</b> approach ask change create define design engineer gather solve understand	<i>In addition to previous vocabulary:</i> account aspect available best control (variable) controlled cost criteria design problem design process difficulty element failure point feature improved limited material (noun) peers perform proposal prototype resource success  <b>Cognitive Verbs</b> carry out communicate compare consider control determine develop generate identify improve investigate involve lead limit optimize plan propose share suggest test

## ASSESSMENT CONSIDERATIONS

### INITIAL SERIES

**Students will be asked to demonstrate understanding that:**

#### Defining and Delimiting Engineering Problems

- A situation that people want to change or create can be approached as a problem to be solved through engineering. (K-2-ETS1-1)
- Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1)
- Before beginning to design a solution, it is important to clearly understand the problem. (K-2-ETS1-1)

#### Developing Possible Solutions

- Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. (K-2-ETS1-2)

#### Optimizing the Design Solution

- Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (K-2-ETS1-3)

**Students will be asked to:**

#### Asking Questions and Defining Problems

- Ask questions based on observations to find more information about the natural and/or designed world. (K-2-ETS1-1)
- Define a simple problem that can be solved through the development of a new or improved object or tool. (K-2-ETS1-1)

#### Developing and Using Models

- Develop a simple model based on evidence to represent a proposed object or tool. (K-2-ETS1-2)

#### Analyzing and Interpreting Data

- Analyze data from tests of an object or tool to determine if it works as intended. (K-2-ETS1-3)

### MIDDLE AND LATER SERIES

**Students will be asked to demonstrate understanding that:**

#### Defining and Delimiting Engineering Problems

- Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). (3-5-ETS1-1)
- Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (3-5-ETS1-1)

#### Developing Possible Solutions

- Research on a problem should be carried out before beginning to design a solution. (3-5-ETS1-2)
- Testing a solution involves investigating how well it performs under a range of likely conditions. (3-5-ETS1-2)
- At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. (3-5-ETS1-2)
- Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (3-5-ETS1-3)

#### Optimizing the Design Solution

- Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (3-5-ETS1-3)

**NEXT GENERATION SCIENCE STANDARDS****ENGINEERING, TECHNOLOGY AND APPLICATIONS OF SCIENCE (ETS)****ENGINEERING DESIGN**

<b>K-2-ETS1-1</b>	Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
<b>3-5-ETS1-1</b>	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
<b>K-2-ETS1-2</b>	Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
<b>3-5-ETS1-2</b>	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
<b>K-2-ETS1-3</b>	Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.
<b>3-5-ETS1-3</b>	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

**NOTES**

# INDEXES

## STANDARDS TO MONTESSORI INDEX

COLLEGE, CAREER AND CIVIC LIFE (C3) FRAMEWORK FOR STATE SOCIAL STUDIES STANDARDS		
HISTORY (D2.HIS)		
CHANGE, CONTINUITY AND CONTEXT		
<b>His.3.K-2</b>	Generate questions about individuals and groups who have shaped a significant historical change.	<b>Foundations</b> <ul style="list-style-type: none"> <li>• The Story of Coming of Life</li> </ul>
<b>His.3.3-5</b>	Generate questions about individuals and groups who have shaped significant historical changes and continuities.	

COMMON CORE STATE STANDARDS STRANDS, DIVISIONS, AND STANDARDS CCSS.ELA.LITERACY		MONTESSORI CHAPTERS AND SECTIONS
SPEAKING AND LISTENING (SL)		
COMPREHENSION AND COLLABORATION		
<b>SL.1.2</b>	Ask and answer questions about key details in a text read aloud or information presented orally or through other media.	<b>Foundations</b> <ul style="list-style-type: none"> <li>• Great Story: The Coming of Life</li> </ul>
<b>SL.2.2</b>	Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.	
<b>SL.1.3</b>	Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.	
<b>SL.2.3</b>	Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.	

NEXT GENERATION SCIENCE STANDARDS		MONTESSORI CHAPTERS AND SECTIONS
<b>LIFE SCIENCE (LS)</b>		
<b>FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES</b>		
<b>1-LS1-1</b>	Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.	<b>Botany and Zoology</b> <ul style="list-style-type: none"> <li>• Botany</li> <li>• Zoology</li> <li>• The Human Body</li> </ul>
<b>4-LS1-1</b>	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.	
<b>4-LS1-2</b>	Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.	<b>Botany and Zoology</b> <ul style="list-style-type: none"> <li>• Botany</li> <li>• Zoology</li> </ul>
<b>5-LS1-1</b>	Support an argument that plants get the materials they need for growth chiefly from air and water.	
<b>ECOSYSTEMS: INTERACTIONS, ENERGY, AND DYNAMICS</b>		
<b>2-LS2-1</b>	Plan and conduct an investigation to determine if plants need sunlight and water to grow.	<b>Botany and Zoology</b> <ul style="list-style-type: none"> <li>• Botany</li> </ul>
<b>2-LS2-2</b>	Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.	
<b>3-LS2-1</b>	Construct an argument that some animals form groups that help members survive.	<b>Foundations</b> <ul style="list-style-type: none"> <li>• The Timeline of Life</li> </ul> <b>Botany and Zoology</b> <ul style="list-style-type: none"> <li>• Botany</li> </ul>
<b>5-LS2-1</b>	Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.	<b>Ecology and Evolution</b> <ul style="list-style-type: none"> <li>• Ecology</li> </ul>

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NEXT GENERATION SCIENCE STANDARDS		MONTESSORI CHAPTERS AND SECTIONS
<b>HEREDITY: INHERITANCE AND VARIATION OF TRAITS</b>		
<b>1-LS3-1</b>	Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents	<b>Botany and Zoology</b> <ul style="list-style-type: none"> <li>• Botany</li> <li>• Zoology</li> <li>• The Human Body</li> </ul>
<b>3-LS3-1</b>	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.	<b>Botany and Zoology</b> <ul style="list-style-type: none"> <li>• Botany</li> <li>• Zoology</li> <li>• The Human Body</li> </ul> <b>Ecology and Evolution</b> <ul style="list-style-type: none"> <li>• Evolution</li> </ul>
<b>3-LS3-2</b>	Use evidence to support the explanation that traits can be influenced by the environment.	<b>Botany and Zoology</b> <ul style="list-style-type: none"> <li>• Zoology</li> <li>• The Human Body</li> </ul> <b>Ecology and Evolution</b> <ul style="list-style-type: none"> <li>• Evolution</li> </ul>
<b>FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES</b>		
<b>2-LS4-1</b>	Make observations of plants and animals to compare the diversity of life in different habitats.	<b>Foundations</b> <ul style="list-style-type: none"> <li>• The Timeline of Life</li> </ul> <b>Botany and Zoology</b> <ul style="list-style-type: none"> <li>• Botany</li> <li>• Zoology</li> </ul> <b>Ecology and Evolution</b> <ul style="list-style-type: none"> <li>• Evolution</li> </ul>
<b>3-LS4-1</b>	Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.	<b>Foundations</b> <ul style="list-style-type: none"> <li>• The Timeline of Life</li> </ul> <b>Ecology and Evolution</b> <ul style="list-style-type: none"> <li>• Evolution</li> </ul>

*continues*

NEXT GENERATION SCIENCE STANDARDS		MONTESSORI CHAPTERS AND SECTIONS
<b>3-LS4-2</b>	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.	<b>Botany and Zoology</b> <ul style="list-style-type: none"> <li>• Botany</li> <li>• Zoology</li> </ul> <b>Ecology and Evolution</b> <ul style="list-style-type: none"> <li>• Evolution</li> </ul>
<b>3-LS4-3</b>	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.	<b>Foundations</b> <ul style="list-style-type: none"> <li>• The Timeline of Life</li> </ul> <b>Ecology and Evolution</b> <ul style="list-style-type: none"> <li>• Evolution</li> </ul>
<b>3-LS4-4</b>	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.	<b>Botany and Zoology</b> <ul style="list-style-type: none"> <li>• Botany</li> <li>• Zoology</li> </ul> <b>Ecology and Evolution</b> <ul style="list-style-type: none"> <li>• Evolution</li> </ul>
<b>PHYSICAL SCIENCE (PS)</b>		
<b>ENERGY</b>		
<b>5-PS3-1</b>	Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.	<b>Ecology and Evolution</b> <ul style="list-style-type: none"> <li>• Ecology</li> </ul>

# MONTESSORI TO STANDARDS INDEX

MONTESSORI CHAPTER AND SECTION	NEXT GENERATION SCIENCE STANDARDS ALIGNED	
<b>FOUNDATIONS</b>		
<b>Great Story: The Story of Creation</b>	<b>D2.His</b>	<b>History*</b> <ul style="list-style-type: none"> <li>• Change, Continuity and Context</li> <li>* C3 Framework</li> </ul>
	<b>SL</b>	<b>Speaking and Listening*</b> <ul style="list-style-type: none"> <li>• Comprehension and Collaboration</li> <li>* CCSS.ELA-Literacy</li> </ul>
<b>Timeline of Life</b>	<b>LS</b>	<b>Life Science</b> <ul style="list-style-type: none"> <li>• Biological Evolution: Unity and Diversity</li> <li>• Ecosystems: Interactions, Energy, and Dynamics</li> </ul>
<b>BOTANY AND ZOOLOGY</b>		
<b>Botany Zoology</b>	<b>LS</b>	<b>Life Science</b> <ul style="list-style-type: none"> <li>• Biological Evolution: Unity and Diversity,</li> <li>• Ecosystems: Interactions, Energy, and Dynamics</li> <li>• From Molecules to Organisms: Structures and Processes</li> <li>• Heredity: Inheritance and Variation of Traits</li> </ul>
<b>The Human Body</b>	<b>LS</b>	<b>Life Science</b> <ul style="list-style-type: none"> <li>• From Molecules to Organisms: Structures and Processes</li> <li>• Heredity: Inheritance and Variation of Traits</li> </ul>
<b>ECOLOGY AND EVOLUTION</b>		
<b>Ecology</b>	<b>LS</b>	<b>Life Science</b> <ul style="list-style-type: none"> <li>• Ecosystems: Interactions</li> </ul>
	<b>PS</b>	<b>Physical Science</b> <ul style="list-style-type: none"> <li>• Energy, and Dynamics, Energy</li> </ul>
<b>Evolution</b>	<b>LS</b>	<b>Life Science</b> <ul style="list-style-type: none"> <li>• Biological Evolution: Unity and Diversity</li> <li>• Heredity: Inheritance and Variation of Traits</li> </ul>

