MONTESSORI CURRICULUM TO STANDARDS ALIGNMENT

PRIMARY • PK3–K

SCIENCE

Montessori Curriculum to Standards Alignment
Primary • PK3–K
Science

National Center for Montessori in the Public Sector

CONTENTS

GEOGRAPHY

PHYSICAL GEOGRAPHY

NOTE
Physical is typically introduced sensorially in the Sensorial area of the Montessori curriculum, and is also included the Sensorial Album.

SKILLS INVENTORY
• Identifies air, land and water including continents and oceans of the world and types of landforms and water forms. • Identifies weather as the combination of sunlight, wind, snow or rain and understands how weather impacts the earth. • Demonstrates understanding that temperature varies by region and time of year.

MONTESSORI LESSONS	PURPOSES
AIR, LAND AND WATER	
Air, Land and Water	• To recognize air, land, and water. • To demonstrate an understanding that sunlight warms Earth's surface. • Preparation for the later study of physical geography.
Globes • Land and Water Globe (Sandpaper) • Continent Globe (Painted)	• A sensorial and visual representation for geography, showing the relationship between the land and water areas of the world. • To demonstrate an understanding that sunlight warms Earth's surface. • Preparation for the later study of physical geography.
Land and Water Forms • Models • Three Part Cards	• To bring awareness of land and water forms. • To learn vocabulary of land and water forms. • To transfer concrete knowledge of land and water forms to more abstract knowledge. • Preparation for the later study of physical geography.

GEOGRAPHY

MONTESSORI LESSONS	PURPOSES
WEATHER AND CLIMATE	
Teacher-Created Lessons For: • Sun • Wind, Snow, Rain • Temperature • Weather Conditions • Weather, Plants and Animals	• To understand weather and how it impacts the earth. • To demonstrate an understanding that sunlight warms Earth's surface. • To understand that weather is the combination of sunlight, wind, snow or rain. • To understand that temperature varies in regions at particular times. • To understand that people measure weather conditions to describe and record the weather and to notice patterns over time. • To understand that plants and animals can change their environment. • To understand that some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. • To ask questions based on observations to find more information about the designed world. • To make observations (firsthand or from media) to collect data that can be used to make comparisons. • To use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. • To use tools and materials provided to design and build a device that solves a specific problem or a solution to a specific problem. • To read grade-appropriate texts and/or use media to obtain scientific information to describe patterns in the natural world. • To construct an argument with evidence to support a claim.

ASSESSMENT VOCABULARY

area	region	**Cognitive Verbs**
canopy	rock	ask
cloudy	severe weather	build
combination	soil	create
cool (adjective)	structure	describe
Earth's surface	sun	design
forecast	sunlight	determine
form (noun)	temperature	gather
local	warm (adjective)	measure
material (noun)	warm (verb)	obtain
qualitative	weather	prepare
quantitative	weather forecasting	record
rain	weather scientist	reduce
rainy	wind	respond
		share

ASSESSMENT CONSIDERATIONS

Students will be asked to demonstrate understanding that:

- Sunlight warms Earth's surface. (K-PS3-1),(K-PS3-2)
- Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time.
- People measure these conditions to describe and record the weather and to notice patterns over time. (K-ESS2-1)
- Plants and animals can change their environment. (K ESS2-2)
- Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. (K-ESS3-2)

Students will be asked to:

Science and Engineering Practices

- Ask questions based on observations to find more information about the designed world. (K-ESS3-2)
- Make observations (firsthand or from media) to collect data that can be used to make comparisons. (K-PS3-1)
- Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-ESS2-1)
- Use tools and materials provided to design and build a device that solves a specific problem or a solution to a specific problem. (K-PS3- 2)
- Read grade-appropriate texts and/or use media to obtain scientific information to describe patterns in the natural world. (K-ESS3-2)
- Construct an argument with evidence to support a claim. (K-ESS2-2)

COLLEGE, CAREER AND CIVIC LIFE (C3) FRAMEWORK FOR SOCIAL STUDIES

GEOPGRAPHY (D2.GEO)

GEOGRAPHIC REPRESENTATIONS: SPATIAL VIEWS OF THE WORLD

Geo.3.K-2	Use maps, globes, and other simple geographic models to identify cultural and environmental characteristics of places.

HUMAN-ENVIRONMENT INTERACTION: PLACE, REGIONS, AND CULTURE

Geo.4.K-2	Explain how weather, climate, and other environmental characteristics affect people's lives in a place or region.

GEOGRAPHY

NEXT GENERATION SCIENCE STANDARDS

PHYSICAL SCIENCE (PS)

ENERGY

| K-PS3-1 | Make observations to determine the effect of sunlight on Earth's surface. |
| K-PS3-2 | Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area. |

EARTH AND SPACE SCIENCE (ESS)

EARTH'S SYSTEMS

| K-ESS2-1 | Use and share observations of local weather conditions to describe patterns over time. |

EARTH AND HUMAN ACTIVITY

| K-ESS3-2 | Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather. |

NOTES

CHAPTER 2
BIOLOGY

BIOLOGY

<table>
<tr><td colspan="1">SKILLS INVENTORY</td></tr>
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- Demonstrates understanding of the differences between living and non-living.
- Identifies the parts of plants and needs of plants.
- Identifies the internal and external parts of animals and needs of animals.
- Demonstrate understanding of the differences between vertebrates and invertebrates.
- Demonstrates understanding that plants and animals require different habitats to survive.

MONTESSORI LESSONS	PURPOSES
BIOLOGY	
Nature Walks	• To introduce children to plants and animals in nature.
Living and Non-Living Object/ Card Sorts	• To introduce children to living and non-living objects. • To give the child a sensorial experience of living and non-living objects. • To transfer concrete knowledge of living and non-living objects to more abstract knowledge. • To demonstrate understanding that all animals need food in order to live and grow. • To demonstrate an understanding that plants need water and light to live and grow. • To demonstrate an understanding that living things need water, air, and resources from the land. • To demonstrate an understanding that living things live in places that have the things they need.

continues

BIOLOGY

MONTESSORI LESSONS	PURPOSES
Plant and Animal Object/Card Sorts	• Introduce children to plants and animals. • To give the child a sensorial experience of plants and animals. • To transfer concrete knowledge of plants and animals to more abstract knowledge. • To demonstrate understanding that all animals need food in order to live and grow. All animals obtain their food from plants or from other animals. • To demonstrate an understanding that plants and animals can change their environment. • To demonstrate an understanding that living things need water, air, and resources from the land. • To demonstrate an understanding that living things live in places that have the things they need.
ZOOLOGY	

Vertebrates/Invertebrates
• Vertebrate and Invertebrate Object/Card Sorts
• Vertebrate Puzzles
  • Classified Nomenclature—External Parts
• Nomenclature Cards
  • Classified Nomenclature—External Parts
	• To introduce children to the external parts of vertebrates and invertebrates.
	• To give the child sensorial experience of the external parts of vertebrates and invertebrates.
	• To transfer concrete knowledge of the external parts of vertebrates and invertebrates to more abstract knowledge.
	• To demonstrate understanding that all animals need food in order to live and grow.
	• To demonstrate an understanding that plants and animals can change their environment.
	• To demonstrate an understanding that living things need water, air, and resources from the land.
	• To demonstrate an understanding that living things live in places that have the things they need.

BOTANY	
Leaf Cabinet • Tracing the Cabinet • Leaf Cards	• Visual discrimination of shape. • Indirect preparation for botany. • Indirect preparation for handwriting: the use of a writing instrument.
Botany Puzzles • Parts of a Plant • Parts of a Leaf • Parts of a Flower	• To introduce children to the parts of a plant, leaf, and flower. • To present another way for the children to work with parts of the plants, leaf, and flower. • To introduce the puzzle by associating it with an actual plant. • To give the child a sensorial experience of the parts of different plants. • To demonstrate an understanding that plants need water and light to live and grow.

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MONTESSORI LESSONS	PURPOSES
Nomenclature Cards • Parts of a Plant • Parts of a Leaf • Parts of a Flower	• To transfer concrete knowledge of parts of a plant, leaf, and flower to more abstract knowledge. • To demonstrate an understanding that plants need water and light to live and grow. • To demonstrate an understanding that plants and animals can change their environment. • To demonstrate an understanding that living things need water, air, and resources from the land. • To demonstrate an understanding that living things live in places that have the things they need.

MATTER AND ENERGY IN ORGANISMS

Animals, Plants, and the Environment • Teacher-Created Lessons	• To identify that all animals need food in order to live and grow. • To understand that animals obtain their food from plants or from other animals. • To identify that plants need water and light to live and grow. • To demonstrate an understanding that plants and animals can change their environment. • To demonstrate an understanding that living things need water, air, and resources from the land. • To demonstrate an understanding that living things live in places that have the things they need. • To demonstrate an understanding that humans use natural resources for everything they do. • To demonstrate an understanding that things that people do to live comfortably can affect the world around them. • To demonstrate an understanding that people can make choices that reduce their impacts on the land, water, air, and other living things.
Science and Engineering Practice • Teacher-Created Lessons	• To use a model to represent relationships in the natural world. • To use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. • To construct an argument with evidence to support a claim. • To communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas.

BIOLOGY

ASSESSMENT VOCABULARY

area	local	**Cognitive Verbs**
biogeology	natural resource	affect
comfort	physical model	communicate
communicate	plant	convey
design (noun)	recycle	obtain
environment	representation	produce
food	requirement	reduce
forested	resource	represent
grass	reuse	
grow	root	
human	sketch	
impact	sunlight	
land	support	
light	surrounding	
living thing	tree	

ASSESSMENT CONSIDERATIONS

Students will be asked to demonstrate understanding that:
- All animals need food in order to live and grow. (K-LS1-1)
- All animals obtain their food from plants or from other animals. (K-LS1-1)
- Plants need water and light to live and grow. (K-LS1-1)
- Plants and animals can change their environment. (K-ESS2-2)
- Living things need water, air, and resources from the land. (K-ESS3-1)
- Living things live in places that have the things they need. (K-ESS3-1)
- Humans use natural resources for everything they do. (K-ESS3-1)
- Things that people do to live comfortably can affect the world around them. (K-ESS3-3)
- People can make choices that reduce their impacts on the land, water, air, and other living things. (K-ESS3-3)

BIOLOGY

HEAD START EARLY LEARNING OUTCOMES FRAMEWORK (HELOF) GOALS

DEVELOPMENTAL PROGRESSION		INDICATORS
36 TO 48 MONTHS	48 TO 60 MONTHS	BY 60 MONTHS

SCIENTIFIC REASONING (P-SCI)

SCIENTIFIC INQUIRY

P-SCI 1. Child observes and describes observable phenomena (objects, materials, organisms, and events).

Uses the five senses to observe objects, materials, organisms, and events. Provides simple verbal or signed descriptions. With adult support, represents observable phenomena, such as draws a picture.	Makes increasingly complex observations of objects, materials, organisms, and events. Provides greater detail in descriptions. Represents observable phenomena in more complex ways, such as pictures that include more detail.	• Identifies the five senses (smell, touch, sight, sound, taste) and uses them to make observations. • Uses observational tools to extend the five senses, such as a magnifying glass, microscope, binoculars, or stethoscope. • Describes observable phenomena using adjectives and labels, such as lemons taste sour and play dough feels sticky. • Represents observable phenomena with pictures, diagrams, and 3-D models.

P-SCI 2. Child engages in scientific talk

Begins to use scientific vocabulary words with modeling and support from an adult. Sometimes repeats new words offered by adults.	Uses a greater number of scientific vocabulary words. Repeats new words offered by adults and may ask questions about unfamiliar words.	• Uses scientific practice words or signs, such as observe, describe, compare, contrast, question, predict, experiment, reflect, cooperate, or measure. • Uses scientific content words when investigating and describing observable phenomena, such as parts of a plant, animal, or object.

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HEAD START EARLY LEARNING OUTCOMES FRAMEWORK (HELOF) GOALS

P-SCI 3. Child compares and categorizes observable phenomena.

Sorts objects into groups based on simple attributes, such as color. With support, uses measurement tools to quantify similarities and differences of observable phenomena, such as when a child scoops sand into two containers and, with adult assistance, determines which container holds more scoops.	With increasing independence, sorts objects into groups based on more complex attributes, such as weight, sound, or texture. Uses measurement tools to assess the properties of and compare observable phenomena.	• Categorizes by sorting observable phenomena into groups based on attributes such as appearance, weight, function, ability, texture, odor, and sound. • Uses measurement tools, such as a ruler, balance scale, eye dropper, unit blocks, thermometer, or measuring cup, to quantify similarities and differences of observable phenomena.

REASONING AND PROBLEM-SOLVING

P-SCI 4. Child asks a question, gathers information, and makes predictions.

Asks simple questions. Uses adults as primary resources to gather information about questions. With adult support and modeling, makes simple predictions, such as "I think that the golf ball will be heavier than the ping pong ball."	Asks more complex questions. Uses other sources besides adults to gather information, such as books or other experts. Uses background knowledge and experiences to make predictions.	• Asks questions that can be answered through an investigation, such as "What do plants need to grow?" or "What countries do the children in our class come from?" • Gathers information about a question by looking at books or discussing prior knowledge and observations. • Makes predictions and brainstorms solutions based on background knowledge and experiences, such as "I think that plants need water to grow," or "I think adding yellow paint to purple will make brown."

HEAD START EARLY LEARNING OUTCOMES FRAMEWORK (HELOF) GOALS

P-SCI 5. Child plans and conducts investigations and experiments.

With adult support, engages in simple investigations and experiments, such as building a "bridge" out of classroom materials and seeing how many dolls it will hold before it collapses. Records data with teacher assistance, mostly using pictures and marks on a page.	With increasing independence, engages in some parts of conducting complex investigations or experiments. Increasingly able to articulate the steps that need to be taken to conduct an investigation. Uses more complex ways to gather and record data, such as with adult support, makes a graph that shows children's favorite snacks.	• Articulates steps to be taken and lists materials needed for an investigation or experiment. • Implements steps and uses materials to explore testable questions, such as "Do plants need water to grow?" by planting seeds and giving water to some but not to others. • Uses senses and simple tools to observe, gather, and record data, such as gathering data on where children's families are from and creating a graph that shows the number of children from different countries.

P-SCI 6. Child analyzes results, draws conclusions, and communicates results.

With adult assistance, analyzes and interprets data. Draws conclusions and provides simple descriptions of results. For example, an adult suggests counting how many dolls can be supported by a bridge before it breaks and along with the children counts, "One, two, three dolls. What happened when we put on the next doll?" A child says, "The bridge broke!"	With increasing independence, analyzes and interprets data and draws conclusions. With adult support, compares results to initial prediction and generates new questions or designs. For example, after putting multiple magnets together to create one magnet that is not strong enough to lift 10 paperclips, builds another and tries again. Communicates results, solutions, and conclusions in increasingly complex ways through multiple methods.	• Analyzes and interprets data and summarizes results of investigation. • Draws conclusions, constructs explanations, and verbalizes cause and effect relationships. • With adult support, compares results to initial prediction and offers evidence as to why they do or do not work. Generates new testable questions based on results. • Communicates results, solutions, and conclusions through a variety of methods, such as telling an adult that plants need water to grow or putting dots on a map that show the number of children from each country.

BIOLOGY

NEXT GENERATION SCIENCE STANDARDS	
LIFE SCIENCE (LS)	
FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES	
K-LS1-1	Use observations to describe patterns of what plants and animals (including humans) need to survive.
EARTH AND SPACE SCIENCE (ESS)	
EARTH'S SYSTEMS	
K-ESS2-2	Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.
EARTH AND HUMAN ACTIVITY	
K-ESS3-1	Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.
K-ESS3-3	Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

PHYSICAL SCIENCE

PHYSICAL SCIENCE

SKILLS INVENTORY
• Demonstrates understanding of magnetism and can sort magnetic or non-magnetic objects. • Demonstrates understanding of buoyancy and can sort objects that sink or float. • Demonstrates understanding of light by identifying objects as translucent or opaque. • Demonstrates the impacts of pushing or pulling an object and can describe the speed and direction of an object.

MONTESSORI LESSONS	PURPOSES
Magnetic and Non-Magnetic	• To give the child a sensorial experience with magnetism.
Sink and Float	• To give the child a sensorial experience with buoyancy.
Translucent and Opaque	• To give the child a sensorial experience with light.
Forces and Interactions • Teacher-Created Lessons **Science and Engineering Practices** • Teacher-Created Lessons	• To identify that pushes and pulls can have different strengths and directions. • To understand that pushing or pulling on an object can change the speed or direction of its motion. • To understand that pushing or pulling can start or stop an object. • To identify that when objects touch or collide, they push on one another and can change motion. • With guidance, to plan and conduct an investigation in collaboration with peers. • To analyze data from tests of an object or tool to determine if it works as intended.

ASSESSMENT VOCABULARY

	Cognitive Verbs
collide	analyze
design solution	approach
engineering	cause
increase	change
pull	compare
push	conduct
ramp	create
roll	determine
situation	intend
speed	plan
structure	solve

ASSESSMENT CONSIDERATIONS

Students will be asked to demonstrate understanding that:

• Pushes and pulls can have different strengths and directions. (K-PS-1, K-PS-2)

• Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. (K-PS-1, K-PS-2)

• When objects touch or collide, they push on one another and can change motion. (K-PS2-1)

HEAD START EARLY LEARNING OUTCOMES FRAMEWORK (HELOF) GOALS

DEVELOPMENTAL PROGRESSION		INDICATORS
36 TO 48 MONTHS	48 TO 60 MONTHS	BY 60 MONTHS

SCIENTIFIC REASONING (P-SCI)

SCIENTIFIC INQUIRY

P-SCI 1. Child observes and describes observable phenomena (objects, materials, organisms, and events).

Uses the five senses to observe objects, materials, organisms, and events. Provides simple verbal or signed descriptions. With adult support, represents observable phenomena, such as draws a picture.	Makes increasingly complex observations of objects, materials, organisms, and events. Provides greater detail in descriptions. Represents observable phenomena in more complex ways, such as pictures that include more detail.	• Identifies the five senses (smell, touch, sight, sound, taste) and uses them to make observations. • Uses observational tools to extend the five senses, such as a magnifying glass, microscope, binoculars, or stethoscope. • Describes observable phenomena using adjectives and labels, such as lemons taste sour and play dough feels sticky. • Represents observable phenomena with pictures, diagrams, and 3-D models.

P-SCI 2. Child engages in scientific talk.

Begins to use scientific vocabulary words with modeling and support from an adult. Sometimes repeats new words offered by adults.	Uses a greater number of scientific vocabulary words. Repeats new words offered by adults and may ask questions about unfamiliar words.	• Uses scientific practice words or signs, such as observe, describe, compare, contrast, question, predict, experiment, reflect, cooperate, or measure. • Uses scientific content words when investigating and describing observable phenomena, such as parts of a plant, animal, or object.

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HEAD START EARLY LEARNING OUTCOMES FRAMEWORK (HELOF) GOALS

P-SCI 3. Child compares and categorizes observable phenomena.

Sorts objects into groups based on simple attributes, such as color. With support, uses measurement tools to quantify similarities and differences of observable phenomena, such as when a child scoops sand into two containers and, with adult assistance, determines which container holds more scoops.	With increasing independence, sorts objects into groups based on more complex attributes, such as weight, sound, or texture. Uses measurement tools to assess the properties of and compare observable phenomena.	• Categorizes by sorting observable phenomena into groups based on attributes such as appearance, weight, function, ability, texture, odor, and sound. • Uses measurement tools, such as a ruler, balance scale, eye dropper, unit blocks, thermometer, or measuring cup, to quantify similarities and differences of observable phenomena.

REASONING AND PROBLEM-SOLVING

P-SCI 4. Child asks a question, gathers information, and makes predictions.

Asks simple questions. Uses adults as primary resources to gather information about questions. With adult support and modeling, makes simple predictions, such as "I think that the golf ball will be heavier than the ping pong ball."	Asks more complex questions. Uses other sources besides adults to gather information, such as books or other experts. Uses background knowledge and experiences to make predictions.	• Asks questions that can be answered through an investigation, such as "What do plants need to grow?" or "What countries do the children in our class come from?" • Gathers information about a question by looking at books or discussing prior knowledge and observations. • Makes predictions and brainstorms solutions based on background knowledge and experiences, such as "I think that plants need water to grow," or "I think adding yellow paint to purple will make brown."

HEAD START EARLY LEARNING OUTCOMES FRAMEWORK (HELOF) GOALS

P-SCI 5. Child plans and conducts investigations and experiments.

With adult support, engages in simple investigations and experiments, such as building a "bridge" out of classroom materials and seeing how many dolls it will hold before it collapses. Records data with teacher assistance, mostly using pictures and marks on a page.	With increasing independence, engages in some parts of conducting complex investigations or experiments. Increasingly able to articulate the steps that need to be taken to conduct an investigation. Uses more complex ways to gather and record data, such as with adult support, makes a graph that shows children's favorite snacks.	• Articulates steps to be taken and lists materials needed for an investigation or experiment. • Implements steps and uses materials to explore testable questions, such as "Do plants need water to grow?" by planting seeds and giving water to some but not to others. • Uses senses and simple tools to observe, gather, and record data, such as gathering data on where children's families are from and creating a graph that shows the number of children from different countries.

P-SCI 6. Child analyzes results, draws conclusions, and communicates results.

Uses the five senses to observe objects, materials, organisms, and events. Provides simple verbal or signed descriptions. With adult support, represents observable phenomena, such as draws a picture.	Makes increasingly complex observations of objects, materials, organisms, and events. Provides greater detail in descriptions. Represents observable phenomena in more complex ways, such as pictures that include more detail.	• Identifies the five senses (smell, touch, sight, sound, taste) and uses them to make observations. • Uses observational tools to extend the five senses, such as a magnifying glass, microscope, binoculars, or stethoscope. • Describes observable phenomena using adjectives and labels, such as lemons taste sour and play dough feels sticky. • Represents observable phenomena with pictures, diagrams, and 3-D models.

PHYSICAL SCIENCE

NEXT GENERATION SCIENCE STANDARDS	
PHYSICAL SCIENCE (PS)	
MOTION AND STABILITY: FORCES AND INTERACTIONS	
K-PS2-1	Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.
K-PS2-2	Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.

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GEOGRAPHY (D2.GEO)		
GEOGRAPHIC REPRESENTATIONS: SPATIAL VIEWS OF THE WORLD		
Geo.3.K-2	Use maps, globes, and other simple geographic models to identify cultural and environmental characteristics of places.	**Geography** • Physical Geography
HUMAN-ENVIRONMENT INTERACTION: PLACE, REGIONS, AND CULTURE		
Geo.4.K-2	Explain how weather, climate, and other environmental characteristics affect people's lives in a place or region.	**Geography** • Physical Geography

HEAD START EARLY LEARNING OUTCOMES FRAMEWORK	MONTESSORI CHAPTERS AND SECTIONS
SCIENTIFIC REASONING (P-SCI)	
SCIENTIFIC INQUIRY	
P-SCI-1 Child observes and describes observable phenomena (objects, materials, organisms, and events).	**Biology** • Biology **Physical Science** • Physical Science **Appendix** • Applications of Science **Also Aligned in: Sensorial: Education of the Senses** • Auditory Sense • Olfactory Sense • Gustatory Sense • Visual Sense • Stereognostic Sense • Tactile Sense
P-SCI-2 Child engages in scientific talk.	
P-SCI-3 Child compares and categorizes observable phenomena.	
REASONING AND PROBLEM-SOLVING	
P-SCI-4 Child asks a question, gathers information, and makes predictions.	**Biology** • Biology **Physical Science** • Physical Science **Appendix** • Applications of Science
P-SCI-5 Child plans and conducts investigations and experiments.	
P-SCI-6 Child analyzes results, draws conclusions, and communicates results.	

NEXT GENERATION SCIENCE STANDARDS STRANDS, DIVISIONS, AND STANDARDS		MONTESSORI CHAPTERS AND SECTIONS
PHYSICAL SCIENCE (PS)		
MOTION AND STABILITY: FORCES AND INTERACTIONS		
K-PS2-1	Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.	**Physical Science** • Physical Science
K-PS2-2	Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull	
ENERGY		
K-PS3-1	Make observations to determine the effect of sunlight on Earth's surface	**Physical Science** • Physical Science **Also Aligned in:** **Sensorial:** **Education of the Senses** • Tactile Sense
K-PS3-2	Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.	**Physical Science** • Physical Science
LIFE SCIENCE (LS)		
MOTION AND STABILITY: FORCES AND INTERACTIONS		
K-LS1-1	Use observations to describe patterns of what plants and animals (including humans) need to survive.	**Biology** • Biology
EARTH AND SPACE SCIENCE (ESS)		
EARTH'S SYSTEMS		
K-ESS2-1	Use and share observations of local weather conditions to describe patterns over time.	**Physical Science** • Physical Science
K-ESS2-2	Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.	**Biology** • Biology

NEXT GENERATION SCIENCE STANDARDS STRANDS, DIVISIONS, AND STANDARDS		MONTESSORI CHAPTERS AND SECTIONS
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K-ESS3-1	Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.	**Biology** • Biology
K-ESS3-2	Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.	**Physical Science** • Physical Science
K-ESS3-3	Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.	**Biology** • Biology
ENGINEERING, TECHNOLOGY, AND APPLICATIONS OF SCIENCE (ETS)		
ENGINEERING DESIGN		
K-2-ETS1-1	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.	**Appendix** • Applications of Science
K-2-ETS1-2	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.	
K-2-ETS1-3	Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	

MONTESSORI TO STANDARDS INDEX

CHAPTER AND SECTION	STANDARDS ALIGNED	
GEOGRAPHY		
Physical Geography	**C3 FRAMEWORK**	
	D2.Geo	**Geography** • Geographic Representations: Spatial Views of the World • Human-Environment Interaction: Place, Regions, and Culture
	NEXT GENERATION SCIENCE STANDARDS	
	ESS	**Earth and Space Science** • Earth and Human Activity
	PS	**Physical Science** • Energy
BIOLOGY		
Biology	**HELOF COGNITION**	
	P-SCI	**Scientific Reasoning** • Scientific Inquiry • Reasoning and Problem-Solving
	NEXT GENERATION SCIENCE STANDARDS	
	ESS	**Earth and Space Science** • Earth's Systems
	LS	**Life Science** • From Molecules to Organisms: Structures and Processes

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CHAPTER AND SECTION	STANDARDS ALIGNED		
PHYSICAL SCIENCE			
Physical Science	HELOF COGNITION		
	P-SCI	**Scientific Reasoning** • Scientific Inquiry • Reasoning and Problem-Solving	
	NEXT GENERATION SCIENCE STANDARDS		
	ESS	**Earth and Space Science** • Earth and Human Activity • Earth's Systems	
	PS	**Physical Science** • Energy • Motion and Stability: Forces and Interactions	
APPENDIX			
Applications of Science	HELOF SCIENTIFIC REASONING		
	P-SCI	**Scientific Reasoning** • Scientific Inquiry • Reasoning and Problem-Solving	
	NEXT GENERATION SCIENCE STANDARDS		
	ETS	**Engineering, Technology, and Applications of Science** **Engineering Design**	