Field Trip Learning Standards

Updated 03/2024

This document lists the key learning standards that most closely relate to the content covered in our field trips. Our programs are extremely interdisciplinary, and often briefly touch on many content areas and learning standards across Science, Social Studies, ELA, and Math. The standards listed below do not reflect the full content scope of each field trip. While our classes do connect to several units within the NYS Standards and NYC Scope and Sequences, the program many not fully address the listed performance expectations of a given standard, but rather make important connections to the core ideas of that performance expectation. We believe our field trip programs should complement the work done in your classrooms. We encourage teachers to use our pre- and post-trip lesson plans (available on our website) to supplement the learning done during the trip.

Learning Standards Referenced:

	New York City Science Scope and Sequence (2022) PreK–8 , 9–12
	New York State P-12 Science Learning Standards (2017) P–12
	New York City Social Studies Scope and Sequence (2015) K–8 , 9–12
	New York State Social Studies Framework (2017, 2015) K–8 , 9–12

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LEARNING OBJECTIVES:
Students will be able to:

- Explain how oysters are keystone species in the East River estuary.
- Explain how oysters are filter feeders and clean the water.
- Explain how oysters are food for other animals, especially at different stages of their life cycle.
- Describe how oysters create oyster reefs that provide habitat for other organisms.
- Measure and record oyster shell length using a metric ruler (caliper).

Grade	New York City Science Scope and Sequence	New York State Science Learning Standards
2	Unit 1: Plant and Animal Interactions	**2-LS2-2: Interdependent Relationships in Ecosystems** *Develop a simple model that illustrates how plants and animals depend on each other for survival.*
3	Unit 2: Inheritance and Variation Unit 3: Interdependence	**3-LS1-1: Growth and Development of Organisms** *Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.* **3-LS2-1: Social Interactions and Group Behavior** *Construct an argument that some animals form groups that help members survive.*
4	Unit 2: The Structure and Function of Organisms	**4-LS1-1: Structure and Function** *Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.*
5	Unit 4: Matter and Energy in Ecosystems	**5-LS2-1: Interdependent Relationship in Ecosystems** *Develop a model to describe the movement of matter among plants (producers), animals (consumers), decomposers, and the environment.*
6	Unit 3: Ecosystems	**MS-LS2-2: Interdependent Relationship in Ecosystems** *Construct an explanation that predicts patterns of interactions among organisms in a variety of ecosystems.* **MS-LS2-3. Cycle of Matter and Energy Transfer in Ecosystems** *Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.* **MS-LS1-5: Growth and Development of Organisms** *Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.*
7	N/A	
8	Unit 3: Growth, Development, and Reproduction of Organisms	

E3: Exploration, Ecology and the Environment

LEARNING OBJECTIVES:
Students will be able to:

- Define what a habitat is and describe key habitats in Brooklyn Bridge Park and the East River.
- Describe where our highlighted animals live (habitat) and what they eat (diet).
- Discover the interactions people have with their environment, including waterfront history and ecological restoration.
- Make and record observations about nature objects.
- Observe an organism using their eyes and a microscope (4th grade and up only)

Grade	New York City Science Scope & Sequence	New York State Science Learning Standards
K	Unit 1: Our Environment	**K-LS1-1: Organization for Matter and Energy Flow in Organisms** *Use observations to describe patterns of what plants and animals (including humans) need to survive.*
1	Unit 1: Structures and Behaviors in Living Things	**1-LS1-1: Structure and Function** *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.*
2	Unit 1: Plant and Animal Interactions	**2-LS2-2: Interdependent Relationships in Ecosystems** *Develop a simple model that illustrates how plants and animals depend on each other for survival.*
3	Unit 3: Interdependence	**3-LS4-3: Adaptation** *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.*
4	Unit 2: The Structure and Function of Organisms	**4-LS1-1: Structure and Functions** *Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.*
5	Unit 2: Matter and Energy in Ecosystems	**5-LS2-A: Interdependent Relationships in Ecosystems**
6	Unit 3: Ecosystems	**MS-LS2-2: Interdependent Relationships in Ecosystems** *Construct an explanation that predicts patterns of interactions among organisms in a variety of ecosystems.*

LEARNING OBJECTIVES:
Students will be able to:

- Summarize the history and necessity of the construction of the Brooklyn Bridge.
- Identify and describe the parts of a suspension-stay bridge.
- Build and test a bridge model.
- Explain how the forces of tension and compression work to support a suspension bridge.

Grade	New York City Social Studies Scope and Sequence	New York State Social Studies Standards	New York State Science Learning Standards
2	Unit 2: New York City Over Time	**Standard 1, 2.6: History of the United States and New York** *Identifying continuities and changes over time can help understand historical developments.*	**K-2-ETS1-1: Engineering Design** *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.*
3	N/A	N/A	**3-5-ETS1-1: Engineering Design** *Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.*
4	Unit 5: Making the Empire State: Immigration, Industrialization, and Westward Movement	**Standard 1, 4.6: History of the United States and New York** *Westward Movement And Industrialization: New York State played an important role in the growth of the United States. During the 1800s, people traveled west looking for opportunities. Economic activities in New York State are varied and have changed over time with improvements in transportation and technology.*	
5	N/A	N/A	
6	N/A	N/A	**MS-ETS1-1: Engineering Design** *Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.*
7	N/A	N/A	
8	Unit 2: A Changing Society and The Progressive Era	**Standard 1, 8.2: History of the United States and New York** *A Changing Society: Industrialization and immigration contributed to the urbanization of America. Problems resulting from these changes sparked the Progressive movement and increased calls for reform.*	

Plankton & Pollution

LEARNING OBJECTIVES:
Students will be able to:

- Perform water quality tests, record the data, and make conclusions about the East River's water quality.
- Identify plankton and microplastics using magnifying tools.
- Describe human impacts on the New York Harbor.

Grade	New York City Science Scope and Sequence	New York State Science Learning Standards
4	Unit 2: The Structure and Function of Organisms	**4-LS1-1: Structure and Function** *Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.*
5	Unit 3: Earth Systems Science	**5-ESS3-1: Human Impacts on Earth Systems** *Obtain and combine information about ways individual communities use science ideas to protect Earth's resources and environment.*
6	Unit 3: Ecosystems Unit 5: Human Impact on Earth's Climate	**MS-LS2-4: Ecosystem Dynamics, Functioning, and Resilience** *Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.* **MS-ESS3-3: Human Impacts on Earth Systems** *Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment*
7	Unit 5: Minimizing Human Impact Through Engineering Design	
8	N/A	
HS	**Living Environment** Unit 2: Ecology Unit 8: Human Influences on the Environment	**HS-LS2-2: Interdependent Relationships in Ecosystems** *Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.* **HS-LS2-6. Ecosystem Dynamics, Functioning, and Resilience** *Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.*

Reading Rocks

LEARNING OBJECTIVES:
Students will be able to:

- Identify and examine properties of and differences between rocks.
- Describe characteristics of the three main types of rocks.
- Describe and model how rocks move through the rock cycle and the forces that drive it.
- Identify the rocks in the park by observing their characteristics.
- Give examples of how humans use rocks in every day life.

Grade	New York City Science Scope and Sequence	New York State Science Learning Standards
2	Unit 3: The Changes to Land Over Time	**2-ESS1-1: The History of Planet Earth** *Use information from several sources to provide evidence that Earth events can occur quickly or slowly.*
3	Unit 4: Change Over Time	**3-LS4-1. Evidence of Common Ancestry and Diversity** *Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago*
4	Unit 3: Changes on Earth's Surface	**4-ESS1-1: The History of Planet Earth** *Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.*

LEARNING OBJECTIVES:
Students will be able to:

- Predict and make an argument using evidence about whether the East River is a healthy or unhealthy habitat.
- Perform water quality tests, record the data, and make conclusions about the East River's water quality.
- Define the terms biotic and abiotic and provide examples that can be found in the East River Estuary.
- Explain how humans have impacted estuaries, specifically in the urban environment.

Grade	New York City Science Scope and Sequence	New York State Science Learning Standards
K	Unit 1: Our Environment	**K-ESS3-1: Natural Resources** *Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.*
1	Unit 1: Structures and Behaviors of Living Things	**1-LS1-1: Structure, Function, and Information Processing** *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.*
2	Unit 1: Plant and Animal Interactions	**2-LS2-2: Interdependent Relationships in Ecosystems** *Develop a simple model that illustrates how plants and animals depend on each other for survival.*
3	Unit 3: Interdependence	**3-LS4-3: Adaptation** *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.*

LEARNING OBJECTIVES:
Students will be able to:

- Explain what an estuary is.
- Describe the basic anatomy of a fish and use a field guide (younger students) or dichotomous key (older students) to identify organisms.
- Perform water quality tests and discuss the results.
- Investigate the shoreline and use a field guide to identify organisms found.
- Use a seining net to catch organisms for observation (high school students).

Grade	New York City Science Scope and Sequence	New York State Science Learning Standards
PK	Unit 7: Water Unit 9: Babies	**P-LS1-1: Organization for Matter and Energy Flow in Organisms** *Observe familiar plants and animals (including humans) and describe what they need to survive.*
K	Unit 1: Our Environment	**K-LS1-1: Organization for Matter and Energy Flow in Organisms** *Use observations to describe patterns of what plants and animals (including humans) need to survive.*
1	Unit 1: Structures and Behaviors in Living Things	**1-LS1-1: Structure and Function** *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.*
2	Unit 1: Plant and Animal Interactions	**2-LS4-1: Interdependent Relationships in Ecosystems** *Make observations of plants and animals to compare the diversity of life in different habitats.*
3	Unit 3: Interdependence	**3-LS4-3. Adaptation** *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.*
4	Unit 2: The Structure and Function of Organisms	**4-LS1-1: Structure and Function** *Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.*
5	Unit 2: Matter and Energy in Ecosystems	N/A
6	Unit 3: Ecosystems	**MS-LS2-2: Interdependent Relationships in Ecosystems** *Construct an explanation that predicts patterns of interactions among organisms in a variety of ecosystems.*
7	N/A	
8	Unit 3: Growth, Development, and Reproduction of Organisms	
HS	**Living Environment** Unit 2: Ecology	**HS-LS2-2: Ecosystem Dynamics, Functioning, and Resilience** *Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.*

Sustainable Landscapes

LEARNING OBJECTIVES:
Students will be able to:

- Describe how rainwater runoff negatively affects our city, and identify possible mitigation strategies.
- Conduct an experiment to test the permeability of different groundcovers.
- Provide examples of ways the park reduces, reuses, and recycles resources and materials, as well as restores native habitat.
- Describe various sustainable design practices used by landscape architects.
- Apply their knowledge of sustainable park features to design their own pier.

<table>
<tr><th>Grade</th><th>New York City
Science Scope and Sequence</th><th>New York State
Science Learning Standards</th></tr>
<tr><td>5</td><td>Unit 3: Earth Systems Science</td><td>5-ESS3-1: Human Impacts on Earth Systems
Obtain and combine information about ways individual communities use science ideas to protect Earth’s resources and environment.</td></tr>
<tr><td>6</td><td>Unit 5: Human Impact on Earth's Climate</td><td rowspan="3">MS-ESS3-3: Human Impact on Earth Systems
Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.</td></tr>
<tr><td>7</td><td>Unit 5: Minimizing Human Impact Through Engineering Design</td></tr>
<tr><td>8</td><td>N/A</td></tr>
<tr><td>HS</td><td>Living Environment
Unit 8: Human Influences on the Environment</td><td>HS-ESS3-4: Human Impacts on Earth Systems
Evaluate or refine a technological solution that reduces impacts of human activities on natural systems</td></tr>
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Trees of Brooklyn Bridge Park

LEARNING OBJECTIVES:
Students will be able to:

- Explain that trees are living organisms and provide evidence.
- Measure and record the sizes using a measuring tape.
- Identify the parts of a tree and describe their functions.
- Identify the trees in the park by looking at the leaves, fruits, and bark while using a field guide.

Grade	New York City Science Scope and Sequence	New York State Science Learning Standards
PK	Unit 8: Plants	**P-LS1-2: Structure and Function** *Plan and conduct an investigation to determine how familiar plants and/or animals use their external parts to help them survive in the environment.*
K	Unit 1: Our Environment	**K-LS1-1: Organization for Matter and Energy Flow in Organisms** *Use observations to describe patterns of what plants and animals (including humans) need to survive.*
1	Unit 1: Structures and Behaviors in Living Things	**1-LS1-1: Structure and Function** *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.*

Weather on the Water

LEARNING OBJECTIVES:
Students will be able to:

- Explain that different types of weather are caused by interactions between water, air, and the sun.
- Identify the four seasons and describe activities, clothing, and types of weather characteristic to each season.
- Describe how water moves in a cycle and changes the weather.
- Make weather observations by using scientific tools and recording data.

Grade	New York City Science Scope and Sequence	New York State Science Learning Standards
P	Unit 4: Where We Live	**P-ESS2-1: Weather and Climate** *Ask questions, make observations, and collect and record data using simple instruments to recognize patterns about how local weather conditions change daily and seasonally*
K	Weather Study Unit 3: Our Weather	**K-ESS2-1: Weather and Climate** *Use and share observations of local weather conditions to describe patterns over time*
1	Unit 3: Exploring Light and Solar Patterns	**1-ESS1-2: Earth and the Solar System** *Make observations at different times of year to relate the amount of daylight to the time of year*