

**Field Trip Planning Guide:**  
**Elementary Education**  
Coastal Steward Long Island



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## Welcome Letter

Thank you for choosing Coastal Steward Long Island to lead your class's exploration of the Marine Environmental Stewardship Center (MESC) at the Town of Brookhaven Cedar Beach in Mount Sinai. We're excited to share with your students the diverse marine life and coastal habitats found in the Long Island Sound estuarine system. When visiting the MESC, students are able to connect disciplinary science principles to the real-world and environmental topics.

Please review this planning guide to help prepare your students for their upcoming field trip. Included in the guide are various station options that you will need to choose for your trip. Additionally, five in-classroom lesson plans will help you and your students better understand important concepts that we will further expand on during the field trip.

### Field Trip Guidelines

- Field trip programs typically take place from 9:30am to 1:30pm, including a half-hour lunch break. Alternative arrangements can be made as well. Reach out to us at the email below!
- Please make sure all students bring their own lunch.
- Buses must remain at the parking lot near the MESC during the field trip.
- Students should keep all belongings, including lunches, on the bus.
- Discipline is the responsibility of the teachers, not Coastal Steward staff members.
- Students are outdoors most of the day and should dress appropriately for the weather.
- Closed-toe shoes are preferred; students may not walk barefoot (water shoes allowed).
- Recommend to students to wear or bring old sneakers, as they may get wet or dirty.
- Students may bring collection bags to take shells and/or rocks home.

If you have any questions regarding your trip, please contact [education@coastalsteward.org](mailto:education@coastalsteward.org).

**We look forward to meeting you and your students for an exciting day!**

## Marine Environmental Stewardship Center (MESC)

244 Harbor Beach Road, Mount Sinai, New York 11766

The Town of Brookhaven Marine Environmental Stewardship Center (MESC) is located in Mount Sinai, within the Town's Beach & Marina complex at Cedar Beach.

For more information about the MESC, visit: <https://www.brookhavenny.gov/299/Cedar-Beach>.

## Directions

### From Long Island Expressway (I-495/LIE):

Take LIE to Exit 63 towards N Ocean Ave/Mount Sinai. Take a left on N Ocean Ave. that becomes Patchogue-Mount Sinai Rd. (continue for about 8 miles). Take left onto NY-25A west. Take your first right onto Mount Sinai-Coram Rd. Take a left onto N Country Rd. Take a left onto Pipe Stave Hollow Rd. Keep left at the fork to continue on Harbor Beach Rd. Continue past the Town of Brookhaven Cedar Beach Toll Booths and **take your first right into the parking lot.**

## Parking Map



## Field Trip Stations

Once you've arrived at the MESC, the class will be divided into 2 or 3 groups depending on the number of students and chaperones. Groups will rotate between three activity stations. Each activity station lasts approximately 45 minutes, and allows students to travel around the MESC and see all the different coastal habitats and activities that go on in the Mount Sinai Harbor and Long Island Sound ecosystems.

Review the following details and **select three (3) stations** you'd like included in your field trip. Please notify [education@coastalsteward.org](mailto:education@coastalsteward.org) of your selection at least a week prior to your field trip in order for us to provide your students with a 'field guide' that aligns with the stations you've chosen. Note: Some stations will not be available if we're experiencing inclement weather; the requested station will be supplemented with a proxy in-door alternative.

- 1. Harbor Seining and Marsh Exploration:** Students and/or educators, depending on age of students, will use seine nets to collect and identify marine organisms found in Mount Sinai Harbor. Students will have the opportunity to get their hands wet during this program; waders will be provided. While some students use waders to seine, others will use hand shovels and sieves to dig deeper into benthic marine life.  
**Key Concepts:** Harbor ecology, tidal salt marsh function, tides, geographic orientation, food chains and webs, marine species identification, anatomy and morphology.  
**NYS P-12 Science Learning Standards:** P-LS1-1, 1-LS3-1, 3-LS2-1, 5-ESS2-1, MS-LS2-2
- 2. Shellfish Hatchery Tour:** Visit the Town of Brookhaven Shellfish Facility and learn how shellfish are raised from seed and grow into adult shellfish, and how shellfish help improve and restore water quality in the harbor.  
**Key Concepts:** Shellfish anatomy and function, reproduction and morphology, human use of marine resources, water quality, ecosystem engineers and services.  
**NYS P-12 Science Learning Standards:** P-LS1-2, 1-LS1-2, 3-LS2-1, MS-LS1-5
- 3. Water Quality Analysis:** Students will study the characteristics of water, including temperature, salinity, dissolved oxygen, turbidity, and other existing nutrients. Water is collected from the harbor, and we will compare it with water from the Long Island Sound and also freshwater to determine similarities and differences. Water chemistry and ocean acidification will also be introduced.  
**Key Concepts:** Characteristics of water, water quality, data collection, geographic orientation, environmental conditions  
**NYS P-12 Science Learning Standards:** K-PS1-1, 2-PS1-1, 3-ESS2-3, 5-PS1-3
- 4. Plankton Microbiology** (Previous microscope experience **required**. Recommended for grades 4+): Take a closer look at the microscopic marine organisms! Learn about the different types of plankton that exist in the harbor, including phytoplankton, zooplankton, and juvenile marine organisms. Learn how plankton forms the foundation of the marine food web, but also is important to large marine mammals like whales, too!  
**Key Concepts:** Food chains and webs, producers and consumers, photosynthesis, microscopy.  
**NYS P-12 Science Learning Standards:** 4-LS1-1, 5-PS1-1, 5-LS1-1, MS-LS1-6

5. **Shellfish Anatomy and Dissection** (Recommend for grades 4+): Learn about what's under the shell of an oyster and clam by getting an up-close look at the internal anatomy of a shellfish. These shelled organisms are known 'filter-feeders' due to their unique ability to remove and consume, or "filter", particles (mostly plankton) from the water column. Even though shellfish have very different processes than most other animals, they still have a mouth, heart, stomach, and muscles that function similar to humans.  
**Key Concepts:** Shellfish internal anatomy, organ functionality, water quality, plankton, food chains and webs, prey & predator relationships.  
**NYS P-12 Science Learning Standards:** 4-LS1-2, 5-PS1-1, MS-LS4-1
6. **Seashore Scavenger Hunt & Plastic Pollution:** Students will search Cedar Beach on the north side of the MESC to find both natural treasures and examples of marine debris and pollution that can be found on beaches. Provide check-list of items commonly found on the beach and learn about why and how it got there. Students will be introduced to the impacts of pollution on marine life and how recycling can help keep these items from entering our natural environments.  
**Key Concepts:** beach ecology, coastal processes, waste management, recycling  
**NYS P-12 Science Learning Standards:** K-ESS3-3, 3-LS4-4, 5-ESS3-1, MS-LS2-5
7. **History of the Harbor:** Journey through the history of Mount Sinai Harbor, beginning with the glaciation that carved the shores of Long Island and that establish land available for habitation. Archeology is introduced to students and how we learn about the Native Americans that lived here for thousands of years before European settlers began keeping records. Students will compare the changes that have taken place since early 1600s settlement through modern-day.  
**Key Concepts:** geological processes, human development, environmental engineering  
**NYS P-12 Science Learning Standards:** K-ESS3-2, 3-ESS3-1, 4-ESS3-2, MS-ESS3-4
8. **Boardwalk Vegetation Exploration:** Take a stroll through the MESC Nature Walk to learn about the plants that can be found in coastal habitats and the traits of these coastal plants that help them survive. An introduction to the functions these plants provide to not only local land animals, but also to coastal resiliency. Students will take field notes by recording and drawing their observations.  
**Key Concepts:** beach zonation, coastal processes, plant structure, adaptations  
**NYS P-12 Science Learning Standards:** 1-ESS1-2, 2-LS2-1, 5-LS1-1, MS-LS1-4
9. **Virtual Interactive Tour at MESC:** Discover Long Island marine life through indoor exhibits, such as interactive touch screens, simulated touch screen submarines, salt water aquariums with live native marine life, and more. Learn about the different habitats that are found around the MESC and record data observations.  
**Key Concepts:** habitats, adaptations, geological processes, biodiversity  
**NYS P-12 Science Learning Standards:** P-LS1-2, 1-LS1-1, 3-LS3-2, 4-ESS3-1, MS-LS2-4

## **Before Your Field Trip**

For the most productive experience at the MESC, use the enclosed lesson plans to introduce students to marine and coastal concepts that will prepare them for their upcoming field trip.

Lesson plans are designed using the 5E Instructional Model (Engage, Explore, Explain, Elaborate, and Evaluate) to provide students with multiple learning opportunities that encourage independent thinking, critical thinking skills, and problem solving techniques from experiential activities. The 5E model multi-stage approach enhances learners' capacity to work in teams, facilitate discussions, reflect on learning practices and create real-world associations and local connections.

Each lesson plan is broken into learning comprehension levels for varying age groups and subject proficiency designed for lower, intermediate and upper elementary. Lessons standards coordinate with the Next Generation Science Standards (NGSS). Read through the complete lesson plan to determine the appropriate comprehension level that will apply to your students.

Contact [education@coastalsteward.org](mailto:education@coastalsteward.org) for more ways to help you adapt lesson plans to your needs and further incorporate marine topics into your classroom curriculum!

## **Assessments**

### **Introduction Survey**

Evaluate your students initial understanding of coastal and marine topics. This survey delineated our baseline information of prior knowledge and confidence in science skills. Grades P-2: Complete the survey as a class discussion and teacher records information. Grades 3-6: Each student completes a survey.

### **Pre-Field Trip Assessment**

At the completion of all five lesson plans and prior to visiting the MESC, deliver students the Pre-Field Trip Assessment. This questionnaire will assess the confidence in marine topics students have acquired from in-class lesson plan activities. Students will also be questioned on their expectations and ambitions for the field trip.

### **Post Field Trip Research Project**

After the class visits the MESC, students must choose a topic discussed on the field trip and further explore a research question they have about it. Depending on the comprehension level of the student, the research can be scaled to the appropriate age.

### **Educator Evaluation**

Conclude the program by evaluating the ease and effectiveness of incorporating lesson plans into your existing curriculum. Describe how students interpreted marine topics and real world connections that were presented throughout lessons. Provide feedback on how students were prepared for field trip and their response to activities at the MESC. Explain any opportunity to enhance and improve program to meet standards and students' learning goals.

**The following pages include a preview of the pre-visit lesson plans for you to go over with your students in the classroom. The lesson plans are meant to be completed before your field trip to the Marine Environmental Stewardship Center.**

**For a complete guide including all of the materials to complete the lessons below, please email us with a request to book a field trip at: [education@coastalsteward.org](mailto:education@coastalsteward.org).**



## **Lesson 1**

### **Our Blue Planet**

**OBJECTIVES:** Students become familiar with the amount of land and water found on Earth. Students will be introduced to the size of oceans in comparison to continents and identify different physical characteristics between fresh and saltwater.

**STANDARDS:** 2-ESS2-2, 2-ESS2-3, 4-ESS2-1, 5-ESS2-2, MS-PS1-8

**LEARNING TARGET(S)/I CAN STATEMENT:**

- I can tell the difference between land and water (Grades P-K).
- I can understand the difference between salt and freshwater (Grades 1-3).
- I can perform test to tell the difference between salt and freshwater (Grades 4-6).

## **Lesson 2**

### **Marine Food Chains & Webs**

**OBJECTIVES:**

Students learn about the energy from the sun and every organism needs energy to sustain life. Students explore how the sun, plants, small animals up to the largest animals are dependent on each other.

**STANDARDS:**

P-LS1-1, K-ESS3-1, 2-LS2-1, 5-LS2-1, MS-LS2-1

**LEARNING TARGET(S)/I CAN STATEMENT:**

- (Grades P-K) I can understand plants get energy from the sun.
- (Grades 1-3) I can tell the difference between producers and consumers.
- (Grades 4-6) I can recognize the impact of human and natural changes on food webs.

## Lesson 3

### Ocean Life

**OBJECTIVES:** Introduction to local marine species and the idea that animals have to adapt to survive in varying habitats. Different fish species have different appearances and the function of their outside body parts can tell us a lot about a species such as where it lives, how it finds food, and protects itself from predators. Introduction to human behavior impact on environment.

**STANDARDS:**

P-LS1-2, 2-LS4-1, 3-LS3-2, 3-LS4-3, 4-LS1-1, MS-LS2-2

**LEARNING TARGET(S)/I CAN STATEMENT:**

- (Grades P-K) I can tell plants and animals have different parts to help them survive.
- (Grades 1-3) I can understand plants and animals interact and rely on each other.
- (Grades 4-6) I can explain why habitats impacts organisms structures and functions.

## Lesson 4

### Pollution Solutions

**OBJECTIVES:** Students identify types of waste and the impacts pollution has on the marine environment. Students design and communicate solutions.

**STANDARDS:**

K-ESS3-3, 1-LS1-1, 3-LS4-4, 4-ESS3-2, MS-LS2-5

**LEARNING TARGET(S)/I CAN STATEMENT:**

- (Grades P-K) I can understand humans create waste and pollution.
- (Grades 1-3) I can recognize the impact of pollution on the environment.
- (Grades 4-6) I can make decisions to help protect the environment from pollution.

## **Lesson 5**

### Counting Fish

**OBJECTIVES:** Engage students in scientific research by demonstrating population estimates for animals in the wild. Explain the importance of managing fish stocks and introduce students to varying science career opportunities.

**STANDARDS:**

K-ESS3-3, 1-LS1-1, 3-LS2-1, 5-LS2-1, 5-ESS2-1, 5-ESS3-1, MS-LS2-4

**LEARNING TARGET(S)/I CAN STATEMENT:**

- (Grades P-K) I can recognize fish are important to both ocean life and humans.
- (Grades 1-3) I can understand that humans impact fish populations.
- (Grades 4-6) I can explain why it's important that we count the amount of fish we take.