

# Wetland Walk



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**SANTA CRUZ MUSEUM**  
of natural history

# Wetland Walk Program Overview

**Grade:** 3rd

**Topic:** Students explore the wetlands of Neary Lagoon and use binoculars to spot and record wildlife along a one-mile hike. By collecting data on their observations and comparing them to past data, students find patterns of seasonal change, migration, and human impacts.

**Why is this a relevant and interesting topic?** The vast majority of California's wetlands have been historically eliminated, which makes our few remaining wetlands vital, especially for the preservation of the migratory species who use them each year. Through guided, hands-on observation activities, students are able to discover the many valuable elements of a local freshwater system, and begin to make connections between seasonal changes to a wetland and the diversity of birds using it. This interactive exploration of a wetland is also an engaging way to help students build confidence in their inherent ability to be a scientist. Through simple observation and recording, students build background knowledge, generate their own data, and ultimately uncover patterns within the wetland system that involve the seasons, animal migrations, and even themselves.

**Stewardship Goals:** Students create a concrete connection to the natural world through observation and exploration and are inspired not only to return to a local natural setting, but to look closely at it and realize their role in maintaining its integrity. They will be prepared to:

1. Make choices that demonstrate an understanding that changes made to an environment can change the organisms living there
2. Notice ways that wetlands support and benefit life both for animals and humans
3. Take action to educate and inspire others to preserve our local existing wetland habitats

**Objectives** *By the end of the program, students will:*

1. Use observations and critical thinking skills to connect human and animal uses of wetlands
2. Collect and record data on the abundance and diversity of birds at Neary Lagoon
3. Place their data in a larger context and look for potential cause and effect patterns between seasonal changes and their results
4. Make connections between changes in the wetland (primarily seasonal) and their bird count results.

The items in this list assume that a class uses the Classroom presentation and kit in addition to attending the field trip. [Click here](#) for a more detailed look at the standards and how this program supports them.

Next Generation Science Standards		
<b>Performance Expectations</b> <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. <hr/> <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>Science and Engineering Practices</b>  Engaging in Argument from Evidence	<b>Disciplinary Core Ideas</b>  <b>LS4.C:</b> Adaptation <hr/> <b>LS4.D:</b> Biodiversity and Humans	<b>Crosscutting Concepts</b>  Cause and Effect <hr/> Systems and System Models <hr/> Patterns
California Environmental Principles and Concepts		
<b>Principle I:</b> The continuation and health of individual human lives and of human communities and societies depend on the health of the natural systems that provide essential goods and ecosystem services. <b>Principle II:</b> The long-term functioning and health of terrestrial, freshwater, coastal, and marine ecosystems are influenced by their relationships with human societies.		
ELA/Literacy		
<b>RI.3.3:</b> Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.		
Math		
<b>3.MD.3:</b> Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.		
History		
<b>HSS3.1.2:</b> Students trace the ways in which people have used the resources of the local region and modified the physical environment. <b>HSS3.2.2:</b> Discuss the ways in which physical geography, including climate, influenced how the local Indian nations adapted to their natural environment		

# Wetland Walk Field Trip Outline

## Pre-Trip Preparation:

Neary Lagoon is an exciting place to explore, located in the heart of downtown Santa Cruz. Note that we meet at the [Neary Lagoon Tennis Courts](#), where there is a small parking lot. Parking can be fairly limited, so it is best to consolidate space as much as possible if your group is carpooling and arrive 5-10 minutes early. There are bathrooms at the beginning of the trail, but nowhere else along the route, so you may want to have students use the restroom before leaving school or as soon as they arrive. You may also want to go over trail safety (stay together and on the trail, don't pick plants, etc) ahead of time with your class, although our experienced outdoor education team runs through a safety talk on these subjects at the beginning of every field trip. **Students should bring a snack and water bottle, wear sunscreen and a hat (optional), comfortable shoes with good soles, and a coat.** Our field trips run rain or shine as long as the weather is safe. Please have students dress appropriately for the weather.

**Wetland Walk Meeting Location:** [110 California St, Santa Cruz, CA 95060](#)

There is very limited parking in the marked spaces in the parking lot next to the bathrooms. Please do not park on the dirt. If the parking spaces are full there is ample street parking. There is a gate that leads into the wastewater treatment plant that is only for the wastewater treatment plant and there is no additional field trip parking beyond the gate. We recommend buses drop off on the street rather than pulling into the parking lot as there is not really enough space for them to turn around in the parking lot.

## Field Trip:

We will do our best to adhere to the following outline. Please let our staff know as soon as possible if your class has specific needs with respect to timing, such as needing to leave early. Late arrivals or early departures may result in the exclusion of some parts of the program.

**Total program time: 2 hours**

## Greeting

**Time:** 15 minutes

**Location:** Picnic Table near playground

**Objectives:** Introduce students to Neary Lagoon and discuss its importance as a wildlife refuge. Students also learn how the bird count will be conducted and how to use their binoculars.

**Vocabulary:** wetland, refuge, migration

## Walking Tour

Staff have planned activities (listed below) that happen on every tour and allow for hands-on learning about subjects related to communities and ecological interactions. Because our outdoor setting provides many unplanned learning experiences, your guide may not get to every activity.

## **Bird Count**

**Time:** 1.5 hours

**Location:** The walking trail at Neary Laboon

**Objectives:** Students practice skills in observation while collecting data on the birds at Neary Lagoon. They participate in a group wrap-up using this data as evidence to answer the question “What birds are at Neary Lagoon this time of year and why?”

**Vocabulary:** migration, physical adaptation, behavioral adaptation

**Materials:** Binoculars, bird identification cards

## **Bird Skulls**

**Time:** 10 minutes

**Location:** Varies, frequently done at snack break at the benches

**Objectives:** Students spend hands-on time with replica bird skulls, discussing their adaptations and using them to explain how a large quantity of birds can survive in a small location.

**Vocabulary:** physical adaptations

**Materials:** replica heron and hawk skulls

## **Ohlone Artifacts**

**Time:** 10 minutes

**Location:** Floating walkway in front of tule

**Objectives:** Students spend hands-on time observing Ohlone artifact replicas and use them to discover ways people could use the wetlands to survive.

**Vocabulary:** decoy, Uypi tribe, tule

**Materials:** boat made from tule

## **Conclusion**

**Time:** 15 minutes

**Location:** Playground

**Objectives:** Students analyze their data by counting the total number of birds and the number of species found. This is followed by an analysis of why the variety of birds changes seasonally and how migration is an adaptation that helps organisms survive. Staff encourage students to return to Neary Lagoon in different seasons to compare the species found there throughout the year.

**Vocabulary:** migration, behavioral adaptation, seasonality

# Wetland Walk Classroom Kit Outline

## Why do we provide the Educational Kit?

This activity kit is designed to familiarize your students with topics presented in the Wetland Walk field trip, and to provide a depth of experience and opportunity to apply knowledge after the trip. The activities within this kit will give your students a better understanding of such topics as **adaptations**, **the wetland habitat**, **change in environments**, and **data collection** using unique artifacts and hands-on exploration. They are designed to build a strong background for the field trip itself, thereby enhancing your students' outdoor experience.

## How does it work?

We recommend that these activities are done in the order that they are presented, for a more comprehensive understanding of relevant concepts. These activities can be adjusted to different age or learning groups. If you feel that your students could benefit from more written analyses, the kit's curriculum includes extensional writing prompts with particular activities, which help to further understanding and scientific observational skills.

## Wetland Kit Contents

1. Supplemental Activity Curriculum Descriptions
2. Materials to support curriculum
3. Visual Aids to support curriculum, including habitat photos, diagrams, and worksheets
4. Artifacts to let students get up close and personal with wetland plants and animals including snake skin, plant seeds, and a birds nest.

## Teachers will need to supply:

1. Modeling Clay
2. Aluminum pan or pie tin
3. Watering can
4. Strip of carpet

## List of Activities and Key Concepts Covered

1. **Bill Nye Wetlands DVD** - *Wetland habitat and ecosystem values*  
This DVD and its related activity help students further understand the important roles wetlands play in our lives and how we can better care for them. Material is also available on a USB stick.
2. **Neary Bird Guide** - *Adaptations, identification skills*  
Students learn about different local birds and create their own field identification cards.
3. **Using Binoculars** - *Identification/observation skills, using scientific equipment*  
Students practice using binoculars in the classroom to hone skills prior to using them on the field trip.

4. **Campus Bird Exploration** - *Identification/observation skills, using scientific equipment*  
Students will observe the various habitats on their school campus and Identify which birds are found in each habitat
5. **Bird Beak Buffet** - *Adaptations, ecological niche*  
Students use stimulated beak types to pick up different food sources to show the importance of beak adaptations.
6. **Migration Hopscotch** - *Wetland values, data collection*  
Students learn the challenges of bird migrations and the important roles wetlands play in this annual event.
7. **History of Neary Lagoon** - *Changing environments, adaptations*  
Students learn the history of Neary Lagoon using a timeline in the classroom.
8. **Wetland Draw Along** - *Changing environments, wetland values*  
Students follow along with the teacher in learning the flow of wetlands through different scenarios.
9. **Building a Wetland\*** - *Wetland values*  
This activity builds on the Bill Nye video using modeling to show the values of wetlands. **(the kit does not include the materials for this activity as they are highly single use, however the materials are easy to come by and relatively inexpensive)**
10. **Bird Report** - *Adaptations, data, research*  
Students pick a local bird and do a research report on it
11. **“Who Am I” Game** - *Adaptations*  
Students play 20 questions to try to figure out what animal identity they have been given.
12. **Importance of Wetlands** - *Wetland values*  
This activity reviews the classroom presentation covering the 6 reasons why wetlands are important.
13. **Seasonal Bird Migration** - Students will be able to explain why some birds migrate, describe how migration is tied into seasonal shifts, and analyze graphs of average temperature, average day length, and bird population. Students will analyze and interpret data looking for patterns.

The Educational Kit includes the visual aids and materials for all activities, unless otherwise noted, and suggestions for extension activities and writing prompts which encourage deeper understanding.

For a detailed list of NGSS standards that each activity supports please see the Program Overview on the [kit description page](#).

# Wetland Walk Classroom Presentation Outline

## Why do we provide a classroom presentation?

Our classroom presentations use a combination of powerpoint slides, small group discussion, short activities, and simple games to familiarize your students with topics presented in the Wetland Walk field trip. It provides background knowledge for the topics we will be studying at Neary Lagoon and it helps students know what to expect and what to bring on their field trip. The Wetland Walk classroom presentation introduces students to several important vocabulary words including **Refuge, Wetland, Lagoon, and Migration**. Students are also introduced to the history of Neary Lagoon, why wetlands are important, why birds migrate, and the history of California's Wetlands. Students will learn what they can do to protect wetlands. Lastly the presentation will help prepare students for the field trip by introducing them to the data they will be collecting, and what they need to bring on the field trip.

## List of Key Concepts Covered

**What is a Wildlife Refuge** - Neary Lagoon is a Wildlife Refuge. Students will discuss what they think the word refuge means and what a wildlife refuge is.

**What is a Wetland** - Through discussion and games students will learn how to identify Wetlands.

**What is a Lagoon** - By viewing maps, photos, and video students will learn what makes a Wetland a Lagoon and will discuss why Neary Lagoon is NOT a Lagoon.

**Neary Lagoon History** - Students will look at historical drawings and maps to learn about the history of Neary Lagoon and how humans affected Lagoon health and how the Lagoon affects human health.

**Loss of California Wetlands:** Students will compare two maps, one from the 1890s and one from the 1990 and look at the percentage of wetlands in the Central Valley. They will discuss what might have led to these changes in land use and how they can help restore California's wetlands today.

**Why are Wetlands Important** - Students will learn about Wetlands roles in decreasing water pollution, preventing flooding, and providing historic and modern human communities with food and other important resources.

**Migration** - Through a game, discussion, and animations students will learn about bird migration and how wetlands play an important role in providing habitat for migratory birds.

**Plan for the field trip** - Students will learn about the data they will collect on the field trip as well as what they should, and should not bring. Students will have the opportunity to ask questions so they can be better prepared and more comfortable on the field trip.



## Additional Resources

**[Guide to Exploring Neary Lagoon](#)** While on our walk we will cover some of the information on the Neary Lagoon interpretive signs but we do not have time to read them all. On this webpage your students can explore the Neary Lagoon interpretive signs at their own pace.

**[Video: Natural Disasters In Santa Cruz County](#)** Teachers may find clips from this 2 hour video useful. Especially some of the historical photos of flooding.

**Activity: [Create your own field guide](#)** While at Neary Lagoon students will use field guides to identify birds. Here is their chance to make their own field guide! Creating a field guide is a great way to become an expert on a location. It is also a great way to share information with others. Choose a location to become an expert on! It can be your backyard, neighborhood, or any other outdoor spot that interests you. Once you have chosen your spot you may choose to focus on plants, animals, or both! Depending on how much time you have and what makes you most excited about learning. Combine with the Cultivating Natural Awareness activity and [Science Illustration kit](#) to extend the learning further.

**Activity: [Cultivating Nature Awareness](#)** So much can be revealed to us when we immerse ourselves in our surroundings and give our undivided attention to nature! When we slow down and focus our senses, our awareness deepens and we begin to notice more. Noticing, in turn, leads to connection, familiarity, a desire for stewardship, a sense of place, and so much more. By familiarizing ourselves with nature in this way we can also learn to recognize patterns and relationships that exist all around us. Combine with the Create your own field guide activity and [Science Illustration kit](#) to extend the learning further.

**[Guide: Animal Tracking](#)** We often see tracks in the mud at Neary Lagoon even when we don't see the animals themselves. Print out the [Santa Cruz Animal Tracking Checklist](#) or have it downloaded on your phone to reference out in the field. Bring along tools such as a camera or ruler to assist in recording and identifying tracks. Look around your own neighborhood or walk along a local trail. Great places to look include patches of dirt, mud, or sand that animals could have left their tracks in

**[Activity: Skull Detective.](#)** On our field trip we examined two bird skulls for clues about what the birds eat. Now it's your turn to solve the mystery of what these three mammals eat! Can you follow the clues and solve the puzzle?

**[Coyote skull activity:](#)** Coyotes are widely known as clever animals. Commonly heard, less commonly seen, and rarely surprised, coyotes are able to survive in all kinds of habitats thanks to their ability to eat lots of different foods. Explore a coyote skull and learn about how these tricky creatures are able to adapt to eating different foods, and how teeth and skeletons can tell

us a lot about how an animal survives! Bring this lesson to life with our rentable [coyote specimen and kit](#).

**[Activity: Bird Beak activity](#)** On our field trip we discussed two birds' beaks and how they used them to get food, but there are so many more beaks of different sizes and shapes! Explore different bird species through this short presentation and figure out what they eat by making careful observations of their beak shape. The next time you go outside, try paying close attention to any birds you see – what does their beak look like? What are they eating? You might start to notice all kinds of interesting behaviors and adaptations! Add more interest to this lesson with some of our [rentable bird specimens](#)