Living Coast Discovery Center
Field Trip Resource Packet

Footprints on the Marsh

In this packet you will find lessons and resources related to your Living Coast field trip. The first two activities are intended to bookend your trip, followed by additional resources.

Career Focus: Ornithologist

I study the behavior, physiology and conservation of birds and their habitats. I conduct research to understand migration routes and habitat needs. I also monitor assess the status of a particular population of birds, track their movements, analyze data, and assess the impact that humans and the climate may have on bird populations.

Table of Contents

Other Resources

Observation Game

Lesson Objectives:

- Students will be able to explain how observation helps scientists study animals
- Students will be able to define ornithologist

Standards:

- 2.LS4.1. Make observations of plants and animals to compare the diversity of life in different habitats
- SL.2.1.A. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).

Outline:

Let students know that on their virtual field trip they are going to be ornithologists. An ornithologist is a scientist that studies birds! They will be learning all about the different habitats that birds live in and how they find their food. When ornithologists go out into nature, first they have to find the birds! Where would you look for a bird? (in a tree/bush, on the ground, flying in the sky, swimming, etc.) Once the scientist has found the bird, they need to look closely to try and figure out what kind of bird it is. How could you tell different birds apart? (size, color, beak shape, behavior etc.)

To help us practice being excellent observers, we are going to play a game! The game is as follows:

- Students sit facing a partner
- One student is the observer, the other is the subject. Have the observer spend a minute noticing everything they can about the subject.
- Have both partners turn their backs. The subject should change three things about their appearance (hair, roll up sleeve, take on/off accessory, etc.)
- Partners turn back to face, observer guesses what has changed
- Switch roles

Distance Learning Adaptations

- The game can be played with any size group of students in a video chat. Choose one child to be the subject, all others are observers
- Subject moves off camera or turns off camera to make changes
- Observers raise hand and are called on by teacher to make guesses. Mute all students who are not guessing to prevent shouting out.

Birds on a Line

Lesson Objectives:

- Students will be able to explain how observation helps scientists study animals
- Students will be able to answer simple value, put together and compare questions using a bar graph

Standards:

- 2.LS4.1. Make observations of plants and animals to compare the diversity of life in different habitats
- 2.MD.D.10. Draw a picture graph and a bar graph to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph

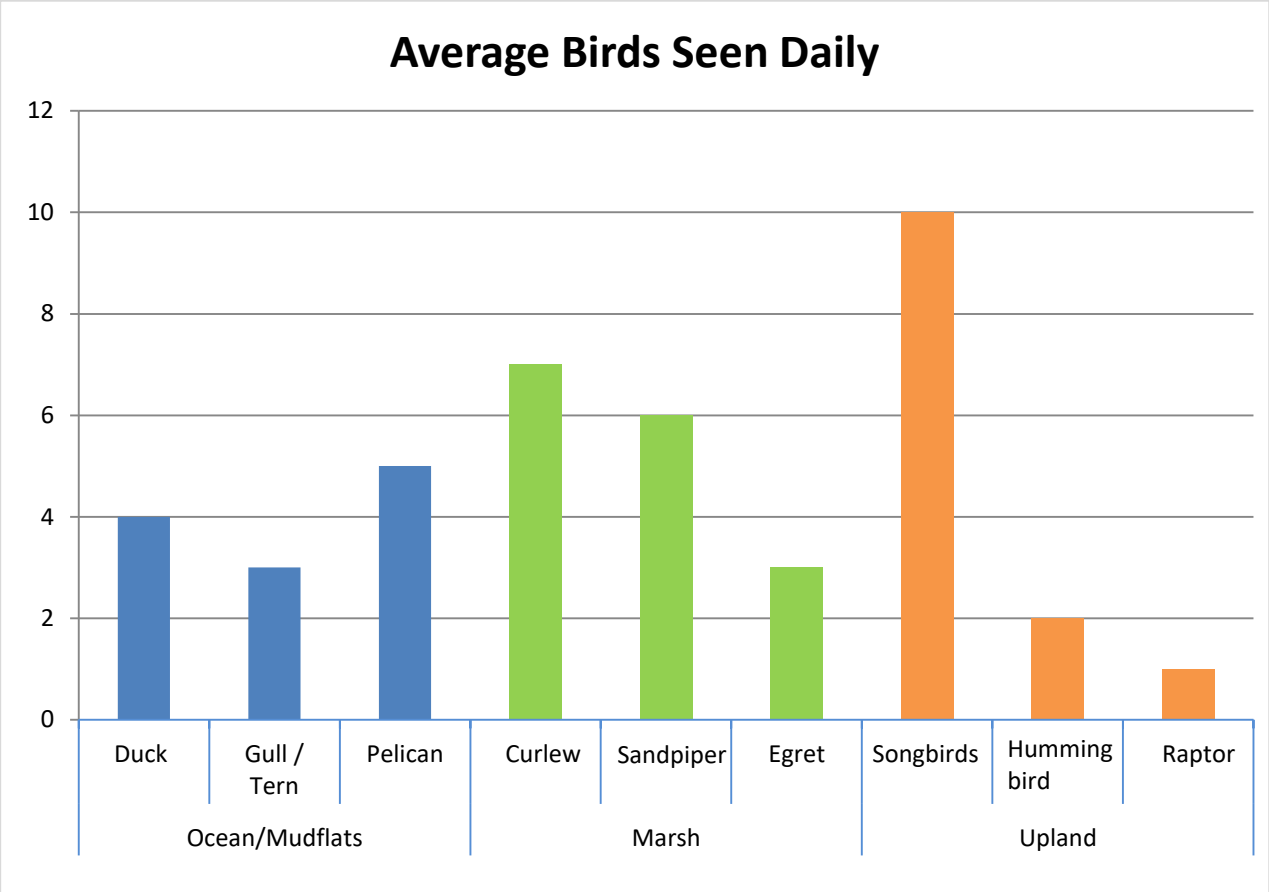
Materials:

- Graph image

Outline:

The graph below is a sample of the average birds students would see on a walk as shown in the field trip video. The bird categories on the x-axis should correlate with the bird types and habitats from the video. Students should use the graph to answer the questions, either guided by a teacher or as an independent activity.

Worksheets:



Use the graph to answer these questions:

1. How many hummingbirds did the ornithologist see?

   _____

2. How many ducks did the ornithologist see?

   _____

3. What kind of bird did the ornithologist see the most of? How many were there?

   _____

4. What kind of bird did the ornithologist see the least of? How many were there?

   _____

5. How many birds did the scientist see in the marsh?

   _____

Reading a Bird Booklet

Printable informational booklet about bird adaptations

Booklet Folding Instructions:

1. Begin with the page vertically

2. Fold in half "hamburger" style

3. Fold in half again, so that the title page is at the front

4. Open the booklet to view the inside pages and cut along the solid lines

Reading a Bird!

You can learn to read a bird,
almost like a book!
You won't see a printed word,
just feet and beaks,
and feathers -- look!

CHULA VISTA NATURE CENTER

The Job of Feet

Webbed feet swim.

Sharp claws or
talons catch animals.

Long legs wade in
the water.

The Job of Beaks

Short, thick beaks
crack...

Sharp beaks
catch...

Pointy beaks
make holes in
trees.

Wide beaks that
look like saws
can catch...

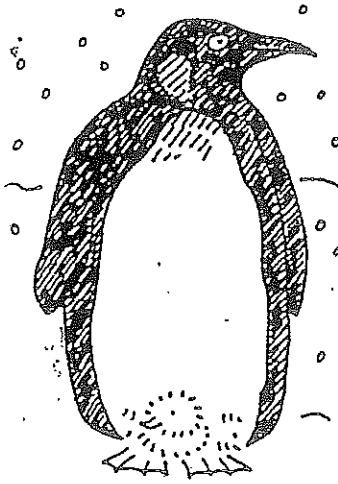
The Job of Feathers

Flight feathers help
birds push the air so
they can fly.

Small, fluffy down
feathers help birds
stay warm

What bird has no flight
feathers, only down feathers?

Cut

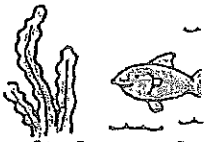


Penguins live
where it's cold.
They don't fly.
They swim.
Down feathers
keep them warm!

seeds

animals

insects

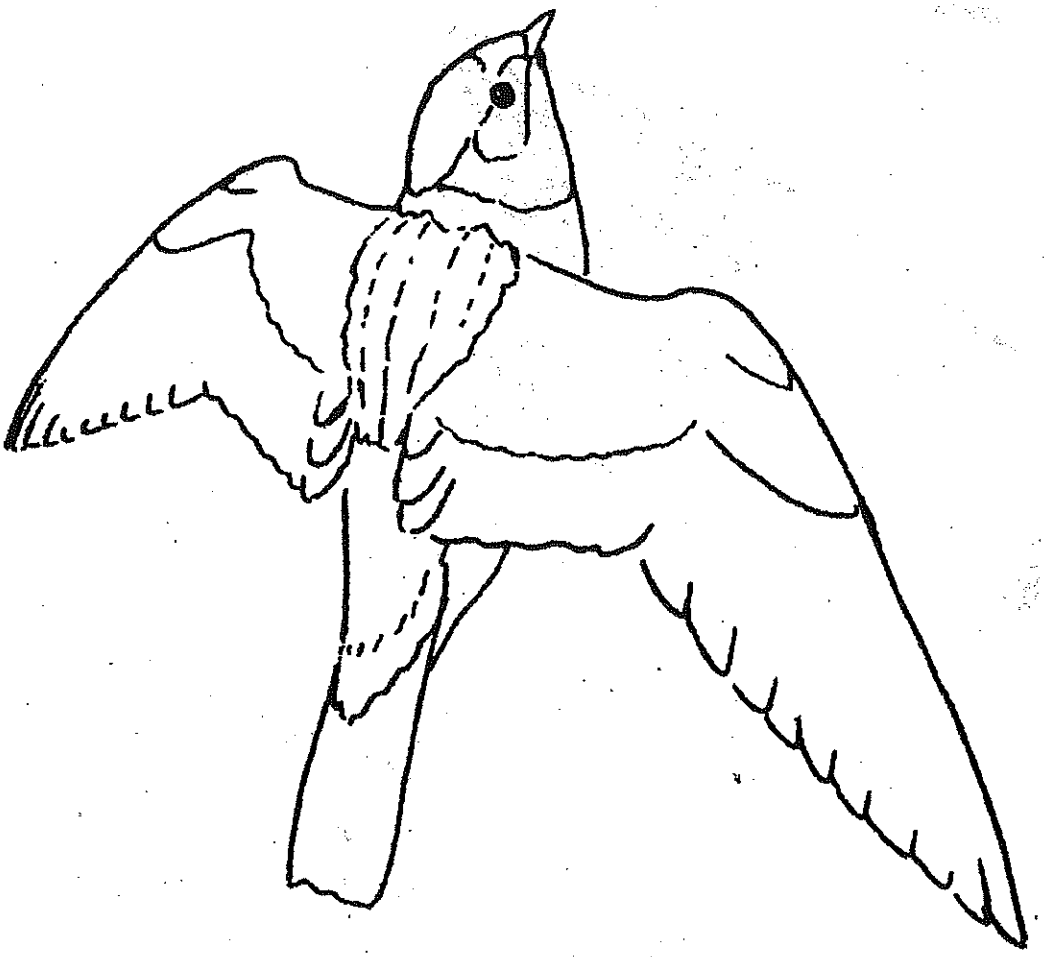


fish and
plants

Native Birds Coloring Sheets

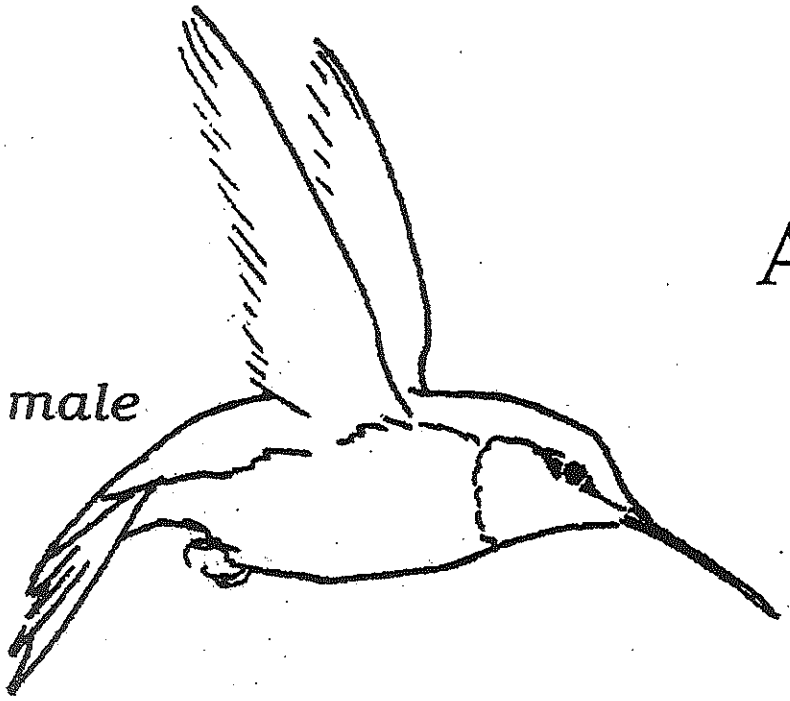
Coloring sheets with birds native to San Diego County. Challenge students to look up birds and color them in accurately!

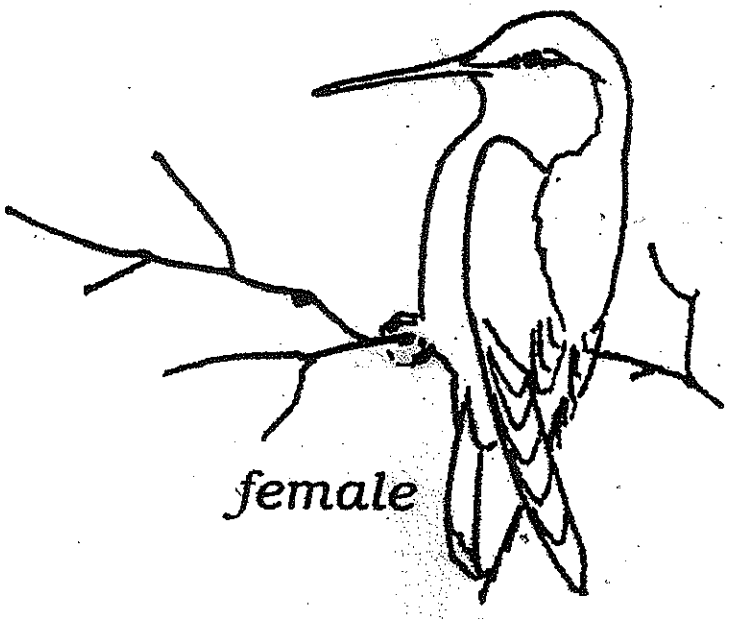
Cliff Swallow

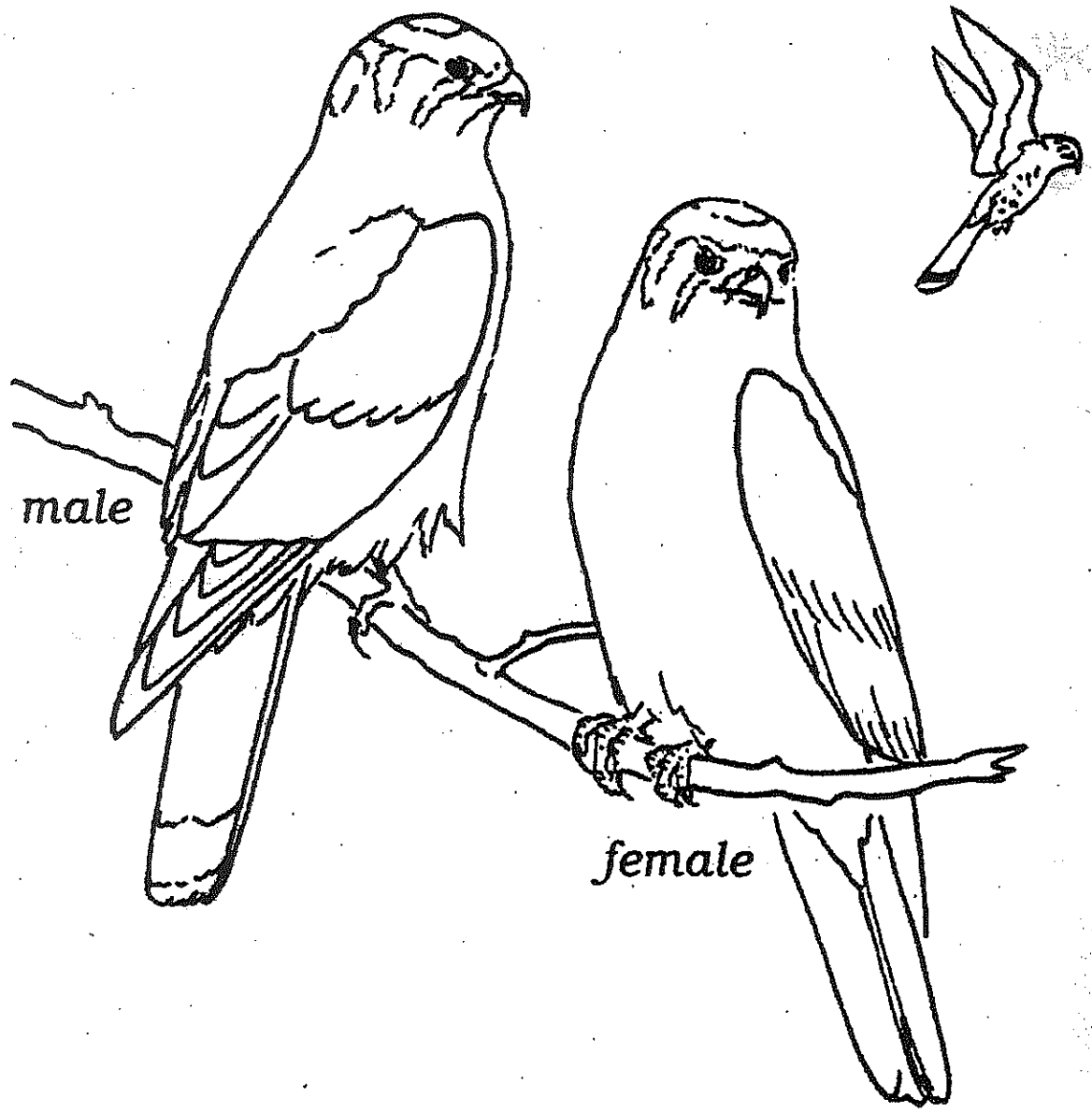


Northern Mockingbird

Anna's Hummingbird

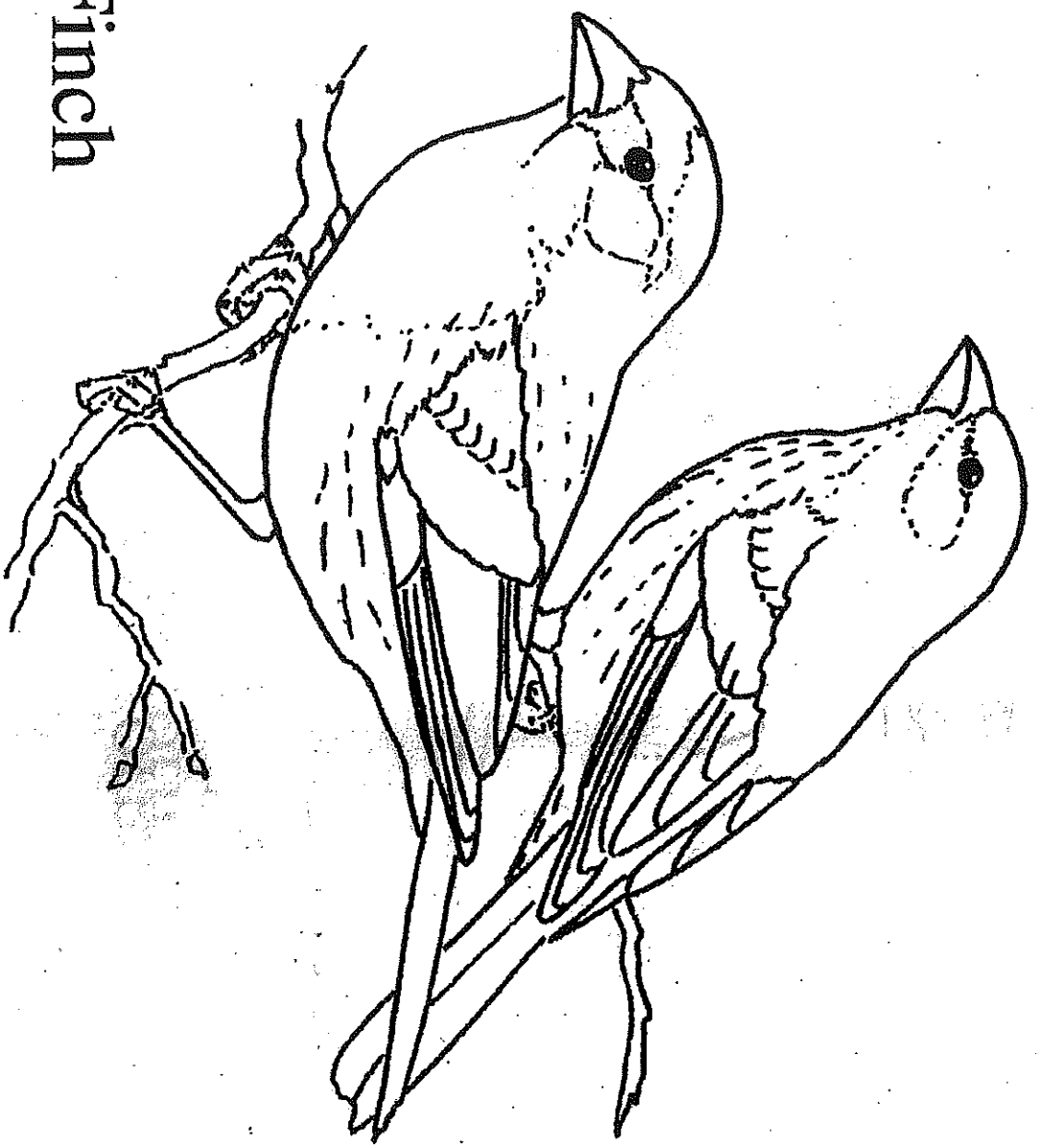


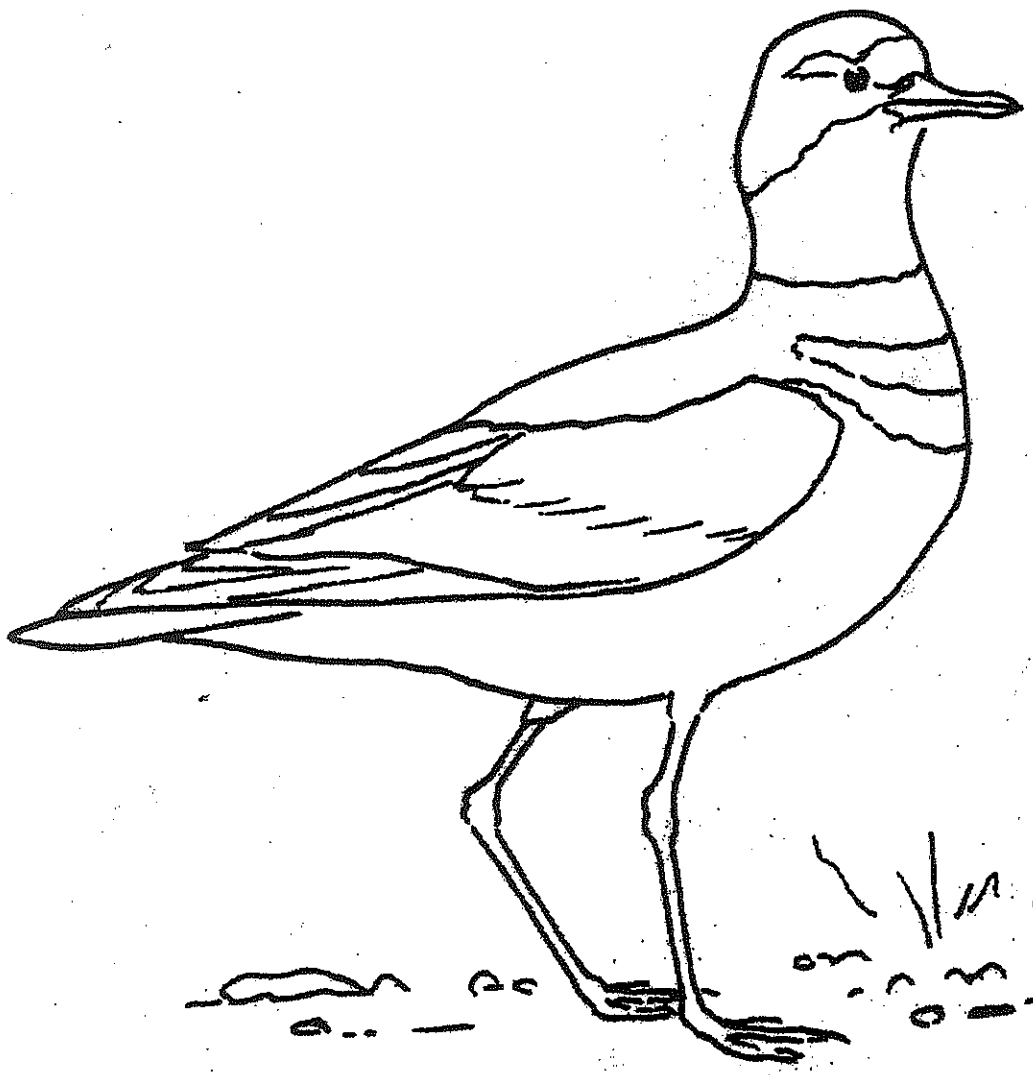




American Kestrel

House Finch





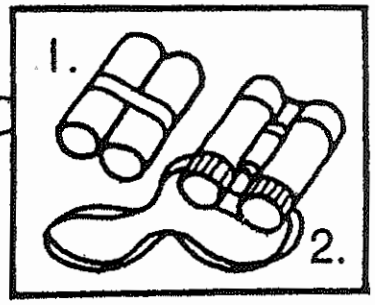
Killdeer

Binocular Craft

While they won't have a "zoom" function, students can print out this template and tape/glue it around two toilet paper tubes to make their own pair of binoculars.

Fine motor skills

A Bird Watcher's Tool



paste

Name

Teacher: Reproduce this page on construction paper. Fold around 2 cardboard toilet paper rolls.

Resources

Merlin Bird ID App
This is an easy-to-use website and app that helps identify birds that you see using descriptions or pictures. It is produced by the Cornell Bird Lab. Encourage your students to try and spot birds that they see on walks with their families.
https://www.allaboutbirds.org/guide/

Live Bird Cams
Observe bird nests and chicks in the wild from Cornell BirdLab:
https://www.allaboutbirds.org/cams/

Endangered Burrowing Owls and California Condors from the San Diego Zoo:
https://zoo.sandiegozoo.org/live-cams?gclid=CjwKCAjwqJ_1BRBZEiwAv73uwDon9LLgO_e9wPEuMIDILzmkxFHVvjHvEQ0buoapGFOGuH2ZjFEPNBoCg-UQAvD_BwE

Bird Song Hero
Learn about bird songs in this online game from Cornell BirdLab
https://academy.allaboutbirds.org/features/bird-song-hero/bird-song-hero-tutorial

Printable Activity Book
https://www.birds.cornell.edu/k12/free-resources/

Outdoor Family Fun with Plum
App from PBS Kids providing families with challenges to complete outside by exploring nature in their yard or neighborhood.0
https://pbskids.org/apps/outdoor-family-fun-with-plum.html

Living Lab Lesson Plan

Program Title: Graphing a Field Trip	**Age Range:** 2nd grade
Date Written: Summer 2015	**Adapted by:** Janani Sivasankaran

Objectives:

1. Students will be able to compare the data presented on two different graphs
2. Students will be able to discuss at least one reason why one habitat would have more birds than others
3. Students will be able to explain why the number of birds in a habitat may vary over time.

Next Generation Science Standards Covered

- **2.LS4.1.** Make observations of plants and animals to compare the diversity of life in different habitats
    - **LS4.D.** There are many different kinds of living things in any area, and they exist in different places on land and in water.

Common Core Content Standards

- **2.MD.D.10.** Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.

Materials & Prep

Materials in Classroom:

- Student Lab Sheets (from field trip)
- Graph Templates
- Chart Paper/Whiteboard (for whole class graph)
- Colored Pencils/Crayons/Markers
- Pencils

5 Minutes **Introduction**

Ask your students what they remember about their trip to the Living Coast Discovery Center. Remind them that during their trip, they were able to collect data about the different kinds of birds that live on the wildlife refuge!

Ask them if they think they would see the same birds or number of birds if they went back during a different season, during the night-time, or next year. Discuss as a class what they think and why they think they would see the same birds or not

15 Minutes **Graphing**

One of the ways that scientists learn about new things is by writing down what they see – like you did on the trip! This information is called data. Scientists look at data in different ways to look at patterns - one of those ways is by drawing a graph to represent the data visually. Just like modeling a math problem can help you find an answer, drawing a graph can sometimes show scientists a pattern in the data.

Have the students create a bar or picture graph of the data they collected (referring to their lab sheets for the numbers) and the graph template provided. The graph worksheets are in a separate document, linked to on the website. Make sure all the categories are different colors so they are easy to tell apart! Students can answer the questions titled “My Graph” on the sheet.

15 Minutes **Comparisons**

Students should compare their graphs to a partner’s or within a small group. As a team, have them fill out the questions titled “Comparing Graphs.” What is different about their graphs? Why do they think they may have seen different numbers of birds, even though they were in the same place?

As a class, make a large graph to represent their findings. Instead of adding the numbers together, possibly choose the most common number in each category – you can explain to the students that they probably saw many of the same birds and that adding all the numbers together would actually give a much higher number than you really saw. Discuss with the whole class some reasons that each person may have seen different birds (looking in different directions, the birds move really fast, etc.)

If you went on the trip with another class, compare your class graph with theirs. Did the classes see different birds? What are some reasons you may have seen different birds (different time of day/tide level/day of the week)

Look at the data from Citizen Science, and compare the data to what your class saw on your trip.

Extension

Do some bird watching around your school, and keep track of what species you see. You can upload your data to eBird, and have your students contribute to research on bird migration! (http://ebird.org/content/ebird/about/)

Name: _____

Graphing Data

My Graph:

1. What habitat did you see the most birds in?

   _____

   _____

   _____

   _____

2. Why do you think that habitat had the most birds when you visited?_____

   _____

   _____

   _____

3. Do you think that habitat will always have the most birds in it? Why do you think that?

   _____

   _____

   _____

   _____

Compare your graph with a partner's.

1. Did you and your partner see the same number of birds for all the bird types? How about for some of the bird types?

   _____

   _____

   _____

2. Name 2 reasons that you and your partner may have seen the same numbers of certain birds.

   _____

   _____

   _____

   _____

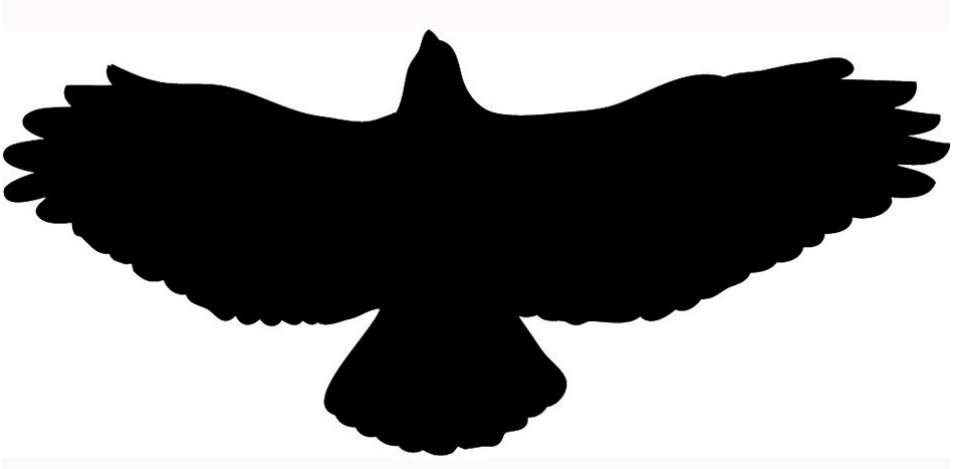
3. Name 2 reasons that you and your partner may have seen a different number of certain birds.

   _____

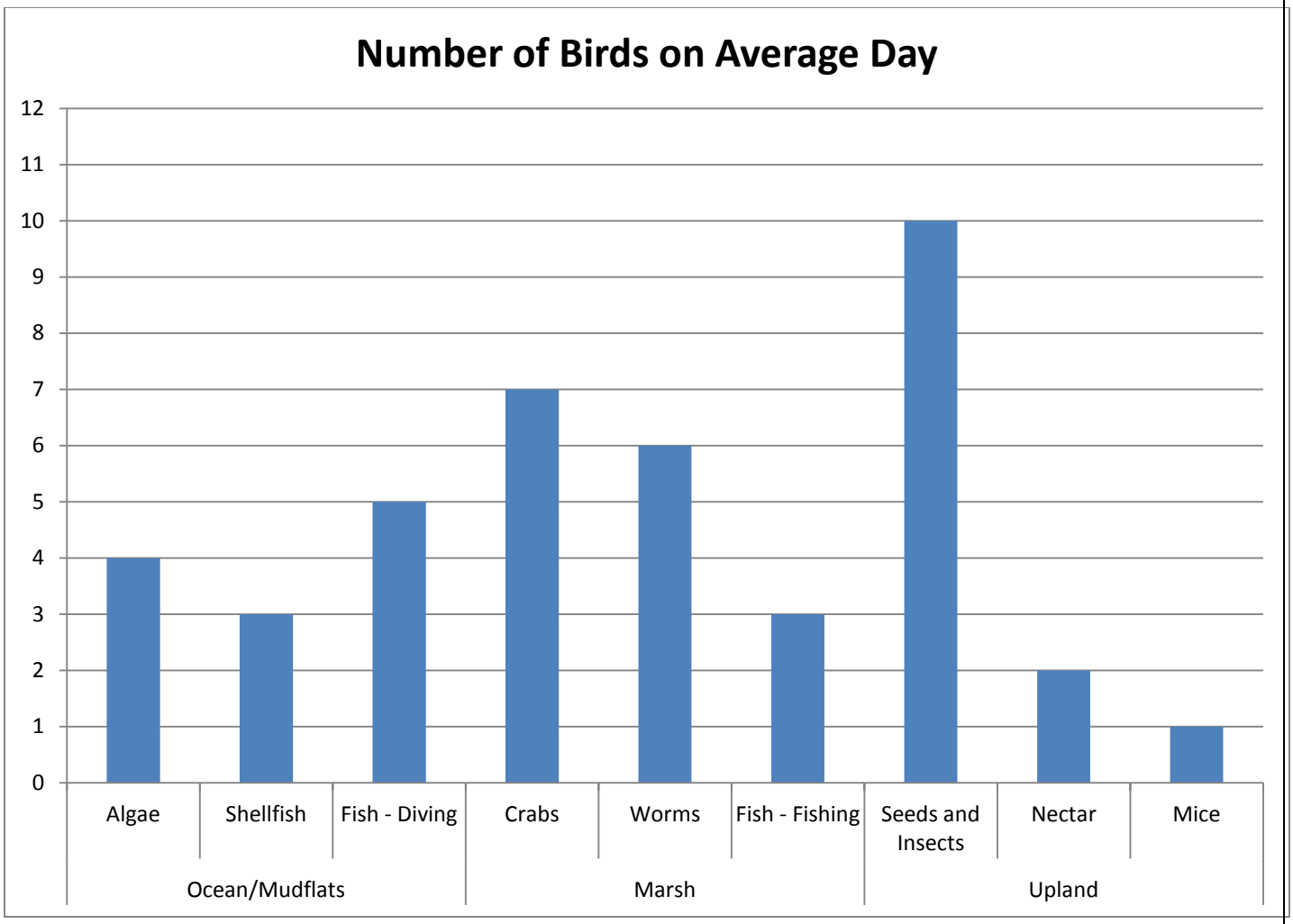
   _____

   _____

   _____

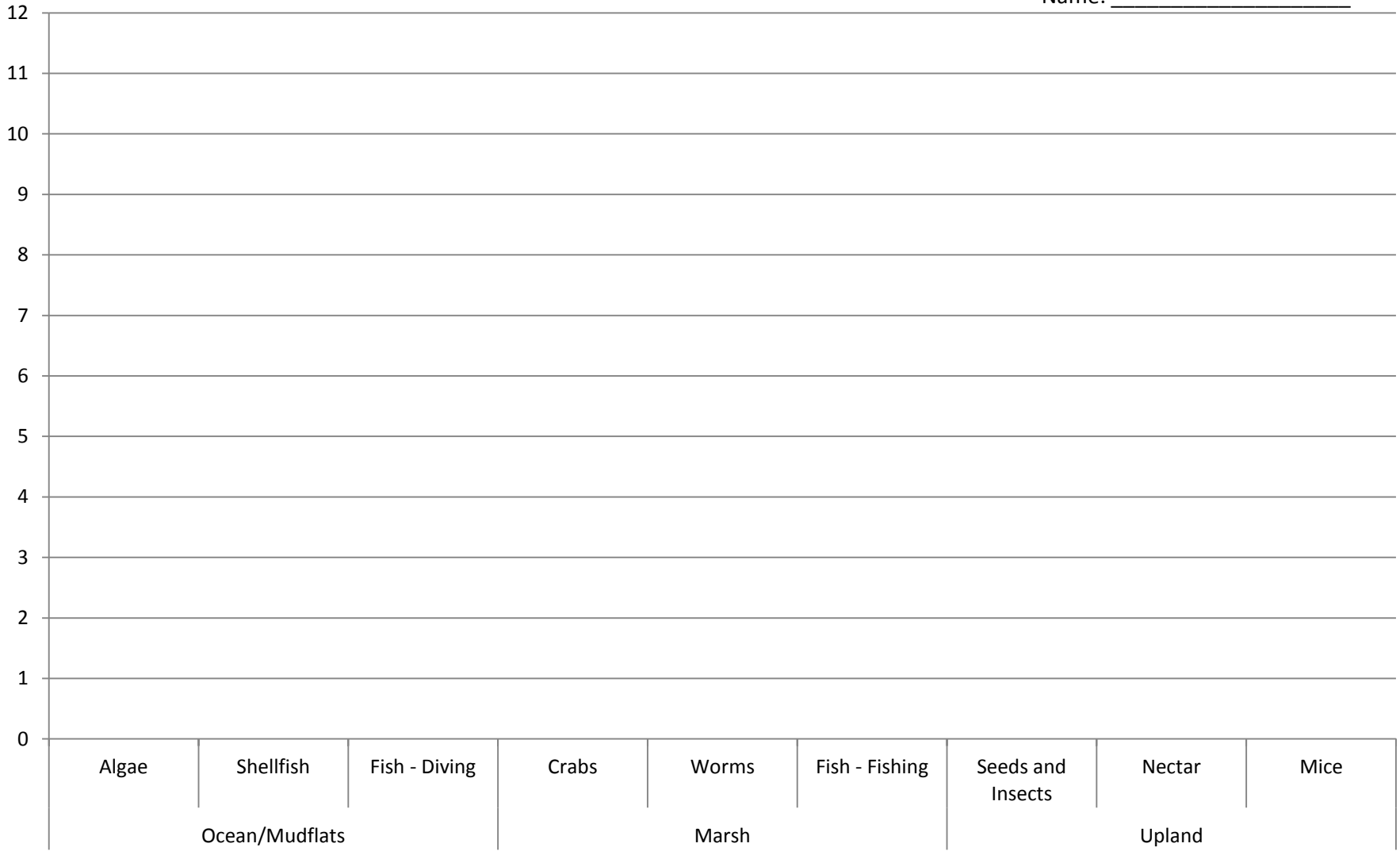


eBird Data from the Living Coast Discovery Center



Birds Seen on _____

Name: _____



Living Lab Lesson Plan

Program Title: Habitat Match	**Age Range: 2nd Grade**
Date Written: Summer 2015	**Adapted by: Janani Sivasankaran**

Objectives:

1. Students will be able to define a habitat.
2. Students will be able to explain why a bird would live in a certain habitat.

Next Generation Science Standards Covered

- **2.LS4.1.** Make observations of plants and animals to compare the diversity of life in different habitats
    - **2.LS4.D.** There are many different kinds of living things in any area, and they exist in different places on land and in water.

Common Core Content Standards

- **SL.1.1.** Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.
- **SL.1.2.** Ask and answer questions about key details in a text read aloud or information presented orally or through other media.

Materials & Prep

Materials in Classroom:

- Refuge Habitats Worksheet
- Refuge Birds Worksheet
- Scissors
- Colored Pencils/Crayons/Markers

10 Minutes **Introduction**

Ask your students what they know about where birds live. Write down their ideas on the board. When you have several ideas, introduce the term “Habitat” and ask students if they have any ideas what this word means (if you’ve already taught habitats in class, review their ideas of a habitat). *A habitat is a place where a plant or animal lives. Many different kinds of animals may share a habitat. That good habitat has all the things an animal needs – food, water, shelter.* Connect the idea of a habitat to the list on the board – they are all different bird habitats. Ask if there are any of those habitats that could be found in San Diego – circle or underline those.

30 Minutes **Habitat Match Activity**

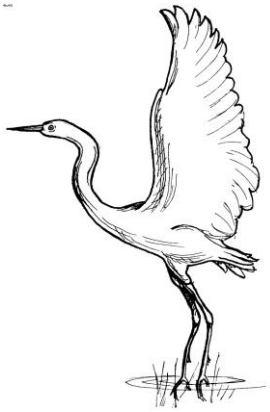
The place you will be visiting on the field trip has several different habitats where birds live (add to the board if already mentioned): the ocean, beach, mudflats (when there’s mud instead of sand at the beach), Marsh (where ocean and rivers mix together and form something like a swamp), and upland (dry habitat like a desert with few trees and lots of bushes). There are different kinds of birds that can live in all of these habitats! Discuss what students see on their habitat pictures, and what different parts of the habitats might be good for different birds (water for swimming, crabs in the mud, bushes for nests, etc.). Point out that different birds live in different habitats because birds eat all sorts of different food.

Students can look at the different birds on their sheets – those are examples of the different types of birds they may see on their trip. The birds are labeled with the food that they eat, instead of by species, because there are multiple species that eat the same type of bird and look similar to each other. There are two groups of birds that eat fish, but one catches fish by standing in the water and fishing, while the other dives into the water to scoop up fish.

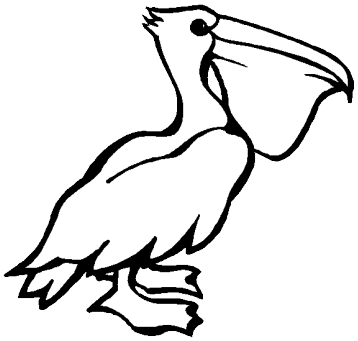
Students can color in their habitats and birds. Working individually or in small groups, students can cut out their birds, and decide what habitat they would live best in. They should answer the questions on their sheet about the choices they made.

Examples of Birds found at Living Coast Discovery Center

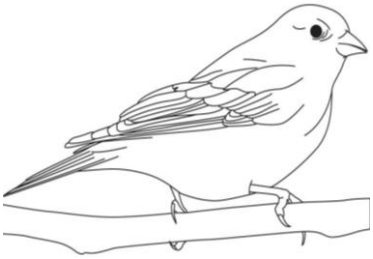
Meat



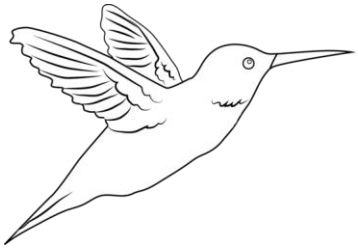
Fish – Fishing



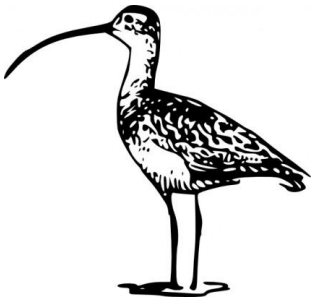
Fish – Diving



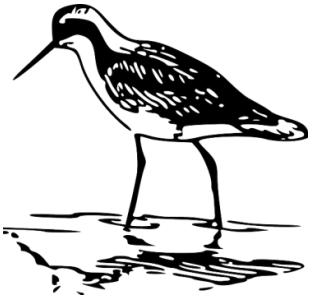
Seeds and Bugs



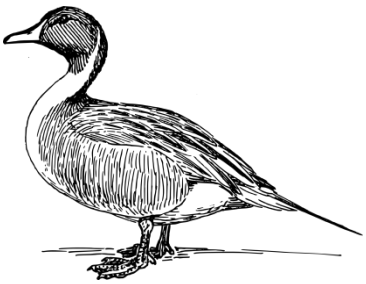
Nectar



Worms



Crabs



Algae

Shellfish

Habitats at the Living Coast Discovery Center – Example Images

Ocean and Mudflats

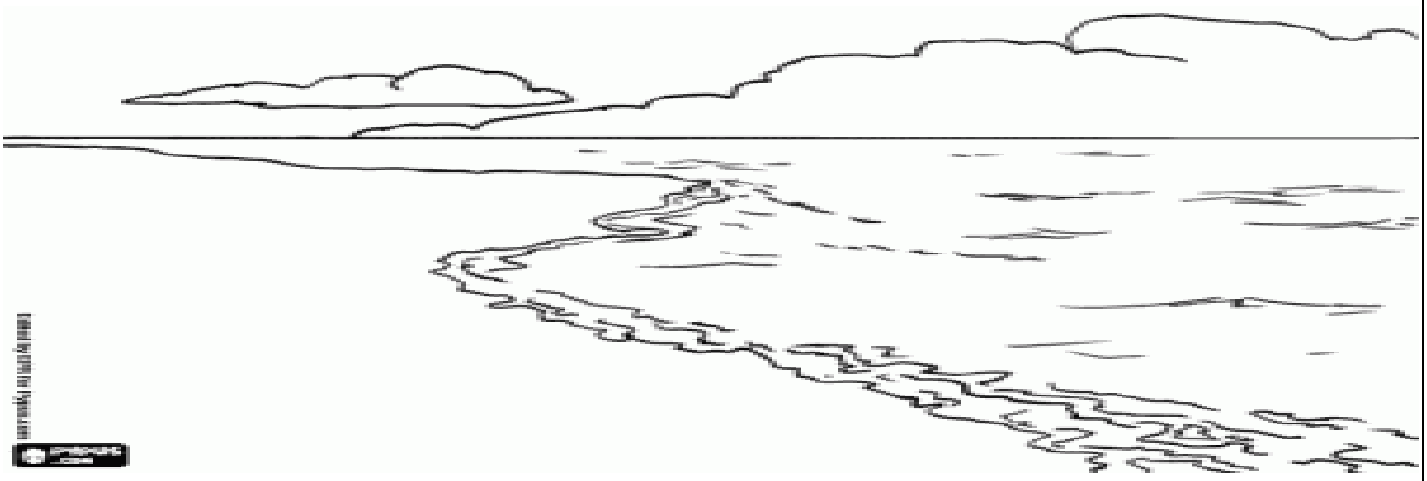
Marsh

Upland

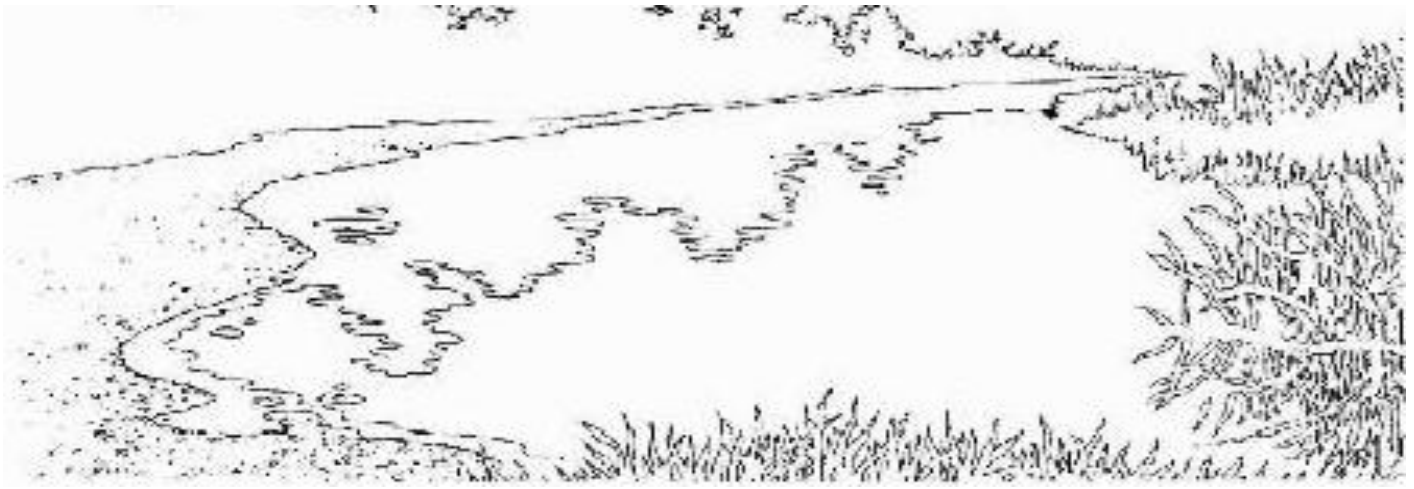
Habitats at the Living Coast Discovery Center

Name: _____

Ocean and Mudflats



Marsh



Upland