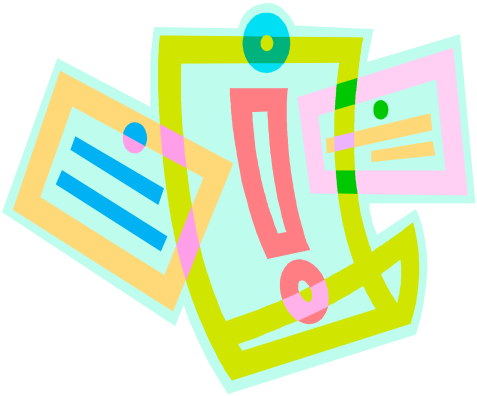
Habitats of the Santa Monica Bay:

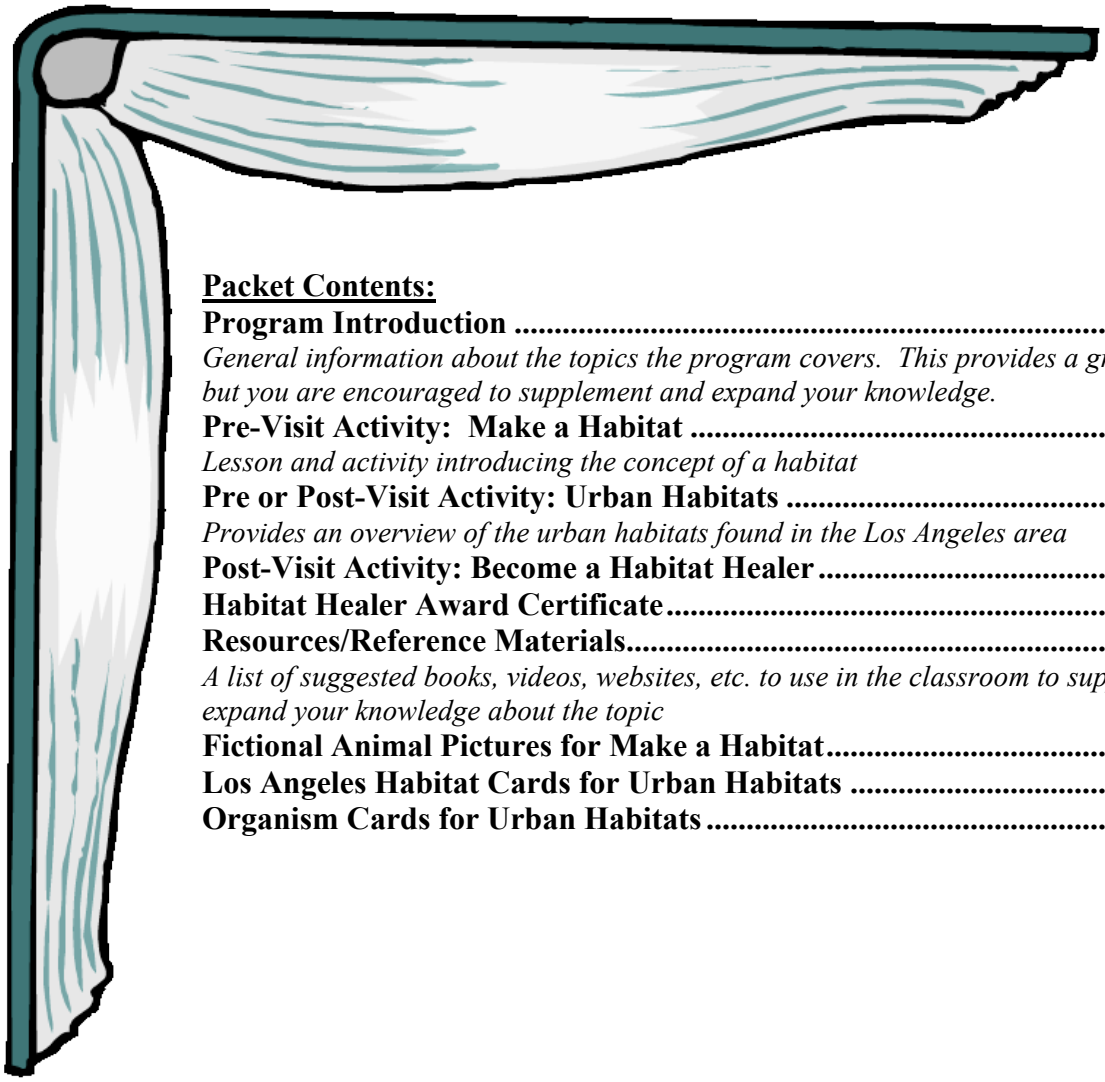
Teacher Packet

1st Grade



Notes for the teacher:

Thank you for picking the Santa Monica Pier Aquarium as your field trip destination! We are very excited that you will be visiting our facility. This packet was developed to help you, as the classroom teacher, and your students get the most out of your visit. Enclosed in this packet, you will find information and activities that correlate to the program you will be attending with your class. You are encouraged to complete as many of the activities as you can as they will help your students gain a better mastery of the CaliforniaState Standards.



Packet Contents:

Program Introduction for the Classroom Teacher

The Santa Monica Pier Aquarium's *Habitats of the Santa Monica Bay* Program teaches about the four main habitats found off the Southern California coast. It is based on California State Science Standard 2 for Grade 1 on Ecology (Life Sciences). A solid understanding of the concept of habitats will enhance your student's experience while at the Santa Monica Pier Aquarium. The following background information and activities are designed to provide a foundation for their visit.

Our world, both terrestrial and aquatic, is comprised of many different and unique habitats. A *habitat* is defined as the "physical conditions that surround a species, or species population, or assemblage of species, or community (Clements and Shelford, 1939)," or, more simply, where an animal lives.Every inch of planet Earth is a habitat. Habitats that are familiar to many of us include forests, deserts, swamps and grasslands. Each of these habitats is a home for a distinct set of animals and plants. Even our cities and houses have become habitats for certain animals. These habitats all have a characteristicset of physical factors such as temperature, moisture level, and what they are made of that will dictate what animals and plants can live there. Fishes live in water and have certain things about their bodies,adaptations that help them survive there. Their fins help propel them through the water, and their gills enable them to breathe underwater. These same fishes would not be able to survive in trees as their fins are useless for climbing and they would not be able to breathe. Conversely, a monkey that is very well suited to living in trees would never survive under water. Its hands and arms are suited to climb and swing in trees, not swim, and it would not be able to breathe underwater as it has lungs, which do not function under water. Every habitat on earth is a bit different and therefore has different organisms living there.

The Los Angeles area has many different habitats within its limits. They range from the steel and cement buildings found downtown, to the sandy beaches of Santa Monica, and to the chaparral in the surrounding hills. Each of these habitats is home to a different group of plants and animals.
Some examples of habitatsin the greater Los Angeles area, their characteristics,and some typical inhabitants, include (see map for reference):

1-Sandy Shore (Inhabitant = Western Gull):

- Comprised of sand
- Adjacent to the ocean
- Always changing because of the tides and waves
- Heavily used by humans
    - The Western Gull has webbed feet that help it swim as well as walk on the soft sand. It eats crabs, dead fish, mussels or any other debris that washes ashore.

2-Oak Woodland (Inhabitant = Deer):

- Big trees – Oak
- Trees are spread out and are surrounded by bushes and grasses
- Acorn, from the oak trees, are food for many animals
    - Deer eat grasses, leaves and acorns and use the trees for cover, but can run fast in the open to escape predators.

3-Downtown (Inhabitant = Pigeon):

- Tall buildings
- Lots of metal, concrete and wires
- Noisy
- Hot in the summer, cold and windy in winter

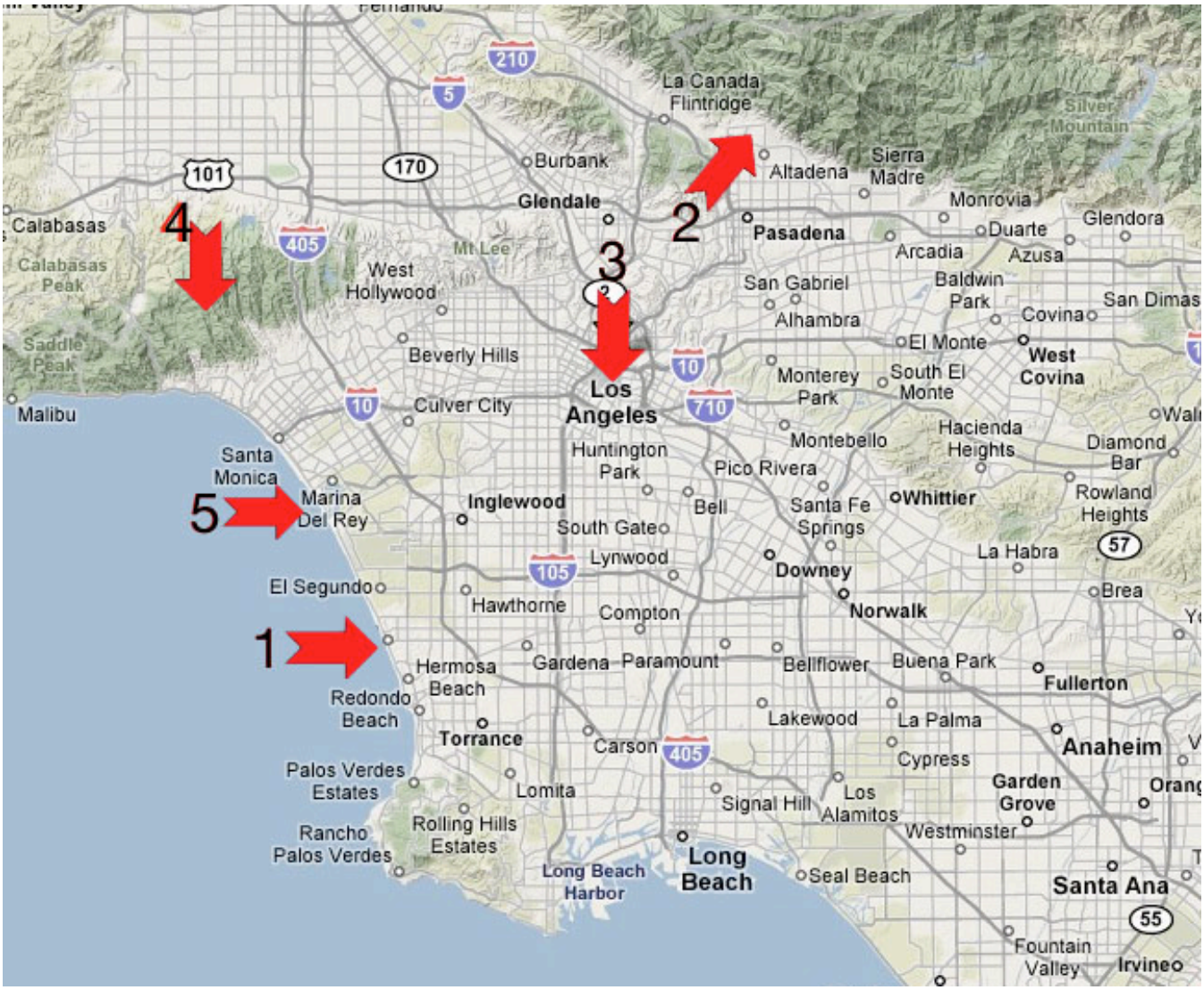
- Pigeons have feet adapted to hold onto branches and wires, and roost on windowsillsand rooftops. Their small beak is used for eating a variety of small seeds and bits of food.

4-Chaparral (Inhabitant = Ground Squirrel):

- Steep hills
- Very Dry
- Low bushes and grasses
  - The ground squirrel lives underground and has claws usedfor digging. They eat seeds, bugs and plants.

5-Salt Marsh (Inhabitant = Heron):

- Found by the coast
- Partly inundated by shallow salt water
- Covered by grasses
  - The heron has long legs for wading and a long pointy beak for catching small fish. The heron nests in the tall marsh grasses.



The animals that live in each of these habitats are generally suited to live in that habitat only (some exceptions apply). Their bodies, or their behaviors, would not allow them to survive in another habitat. Prior to the human population explosion and massive development that followed in the Los Angeles area, these habitats flourished and supporte Heal the Bay/Santa Monica Pier Aquarium • 2008 • (310) 393-6149 • www.healthebay.org/smpa

d a wealth of life.As more and more humans arrived in Los Angeles, we have built houses, grocery stores, gas stations and stores. This development has destroyed the existing habitats, and therefore displaced the animals that lived there. Some habitats, like the sandy shore, marsh, and oak woodland were greatly impacted because they are areas desired most for development. Chaparral habitats were affected less becausesteep terrain was less suitable for building. We need to learn about and understand the many different habitats in the Los Angeles area, so that we may preserve the unique animals and plants that live there.

This education is crucial not just here in Los Angeles, but all over the world. Many habitats have been decimated, many organisms have become extinct, and many others are endangered. By understanding what is going on around our home, we will be better equipped to look beyond our local environment and make positive changes.

Clements, Frederic E., and Victor E. Shelford. 1939. *Bio-ecology*. John Wiley & Sons, New York. 425 pp.

Pre-Visit Activity: Make a Habitat

Level

1st grade

Abstract

In this lesson, students will learn about habitats, and the characteristics that separate one habitatfrom another. Students will create their own habitat by drawing a picture, based on a fictional animal. They will need to include the living and non-living components and have to explain why they are there and how they all relate.

Objectives

Students will:

- ✓ Be able to define habitat
- ✓ Recognize that all living things have basic survival needs
- ✓ Create a habitat based on a creature that might inhabit it

Targeted Standard(s)

California Science Standards, Grade 1

Plants and animals meet their needs in different ways. As a basis for understanding this concept:

a. *Students know* different plants and animals inhabit different kinds of environments and have external features that help them thrive in different kinds of places.

b. *Students know* both plants and animals need water, animals need food, and plants need light.

c. *Students know* animals eat plants or other animals for food and may also use plants or even other animals for shelter and nesting.

Environmental Principles & Concepts (EEI) corresponding learning objectives:

- *Recognize that natural systems (environments) provide the resources (goods and ecosystem services) for survival for plants and animals.*
- *Describe human activities that can influence the function of natural systems and the availability of resources for plants and animals.*
- *Explain that if there are significant changes to natural systems (environments) plants and animals may not be able to survive in those areas.*
- *Recognize that to survive, plants and animals (including humans) need resources including water, food, air and light.*
- *List the resources animals (including humans) need to survive.*
- *Provide examples of things that humans do that can influence the availability of resources needed by plants and animals (including humans).*
- *Provide examples of things that humans do that can influence the availability of materials animals (including humans) use for food, shelter and nesting.*

Materials:(per student)

- Dry erase board and dry erase pens
- Fictional animal picture (provided)
- Sheet of paper
- Assorted crayons

Implementation Overview

- Ask the students what they need to stay alive? (Write answers on the board)
  - Target answers:

    - *Food: Plants and animals are used for energy to live and grow*
    - *Water: Needed to help us live and grow*
    - *Clothes: To keep us warm and comfortable*
    - *A house/apartment (shelter): made out of wood, stone and metal to keep us warm, dry and safe.*
- Ask them if they could survive with only one of these things? Or could they survive without one of these things?
    - Target answer:
        - No
- Have the students name one of their favorite animals. Where does it live and what is it like there (hot or cold, dry or wet, trees or sand, etc)? (Write them on the board)
- Ask them if this animal could live in a different place?
    - Cold instead of hot?
    - Dry instead of wet?
    - Sandy instead of trees?

    - Target answer:
        - No
- Explain that these animals all need a special set of things or conditions, in order to survive. These things and conditions are what make up their home, or what scientists call a HABITAT. The definition of a habitat is: *the place or environment where a plant or animal naturally or normally lives and grows, or, more simply, where an organism lives.*
- Everything a plant or animal needs to survive can be found in its habitat!
- Ask the students if any of them have a pet?
- What does their pet need to survive?
    - Some possible answers may include:
        - Dog: water, food, air, space to run…
        - Goldfish: clean water, food…
        - Hamster: water, food, wood chips for a nest…
- Explain that these are all things that help make up their pet's habitat. A habitat is made up of both living things (plants and animals) and non-living things (rocks and water). All living things on this planet live in a habitat. And all the living things in a habitat make that habitat work.
- Let's make our own habitat
- Ask the students:
    - *What makes one habitat different from another?* The things in it and what it is like there (hot, cold, wet, dry).
    - *Do you find different animals in different habitats?* Yes.
- Explain that different animals need different things in their habitat to survive.
    - Food: each habitat will have different plants and animals present that are food items
    - Cover: each habitat has different vegetation or types of places for animals to hide and live
- Let's meet an animal you have never seen before. *Show the students a picture of one ofthe fictional animals.* Walk the students through some of the animal's external features and what they might be good for.
    - Fins for swimming, big ears for good hearing, beaver tail for slapping as an alarm, long legs for wading, etc.
- Tell the students that they are going to make up a habitat for this fictional animal and draw it. They can make it however they like, but they must be able to explain why it is the way it is (ie. The fictional animal is red and has big claws for climbing. Thefruit bearing plants are red and tall, because red helps the animal camouflage, and the big claws help the animal climb the tall plantsto eat the fruit). Make sure that the students add food, water and shelter into their habitat as well and can explain how their animals get their necessities.

- Give the students 10 – 15 minutes to draw their habitat. Make sure to walk about and prompt the students with questions (ie. What would the animal eat? Why are the plants red?)
- When time is up,have students share their habitats and explain how their fictional animal lives there.
- When each student has explained their habitat, tell them that people have changed something about it (cut down trees, taken the fruit, removed an animal, etc), and ask them what would happen to their animal?
    - Target Answer: Their animal would have to move or it would not survive.
- Follow this with what we could do to help keep their animal in their habitat (plant more trees, not take all the fruit, leave all the animals, etc).

Suggested Grading Rubric

	1	2	3	4
Picture	Picture not drawn.	Picture incomplete.	Picture of habitat is drawn with detail and in a neat manner.	Picture of habitat drawn with detail and in a neat manner, including color.
Food	Food not present in picture.		Food present in picture.	Multiple food sources present in picture.
Shelter	Shelter not present in picture.		Shelter present in picture.	Shelter present in picture with details, such as a place for sleeping and protection from the elements.
Water	Water not present in picture.		Water present in picture.	Water present in picture and placed in a location that is logical (in a lake, or river).

Pre or Post-Visit Activity: Urban Habitats

Level

1st grade

Abstract

Los Angeles is filled with many different habitats. These habitats range from city parks to mountains, from ponds to the beach, and all of them have different factors that make them unique. By looking at different areas in and around LA students will be able to learn about their community, what makes it unique as well as what organisms are suited to live there.

Objectives

Students will be able to:

- ✓ Identify different habitats in and around Los Angeles
- ✓ Describe some of the major habitats found in Los Angeles
- ✓ Recognize external features necessary for survival in one habitat vs. another
- ✓ Identify an animal's habitat based on its external features
- ✓ Recognize a 2-D representation of Los Angeles

Targeted Standards

California Science Standards, Grade 1

Plants and animals meet their needs in different ways. As a basis for understanding this concept:

d. *Students know* different plants and animals inhabit different kinds of environments and have external features that help them thrive in different kinds of places.

e. *Students know* both plants and animals need water, animals need food, and plants need light.

f. *Students know* animals eat plants or other animals for food and may also use plants oreven other animals for shelter and nesting.

Environmental Principles & Concepts (EEI) corresponding learning objectives:

- *Recognize that natural systems (environments) provide the resources (goods and ecosystem services) for survival for plants and animals.*
- *Provide examples of the external features of plants and animals that help them live in a particular environment and obtain the resources they need to survive there.*
- *Describe human activities that can influence the function of natural systems and the availability of resources for plants and animals.*
- *Explain that if there are significant changes to natural systems (environments) plants and animals may not be able to survive in those areas.*
- *Provide examples of things that humans do that can influence the availability of resources needed by plants and animals (including humans).*

Materials

- Large fold out map of Los Angeles (Such as the Borch fold out Los Angeles map)
- Long rope or chalk (to draw on blacktop)
- Los Angeles Habitat Cards
- Organism Cards

Implementation Overview

Class Structure:

- Hold up a large fold out map of Los Angeles and point out where they live/are and where the beach and mountains are (it is crucial that students understand the map and where they are on the map before preceding).
- Point out some of the key features that the students might know in order to give them reference, such as the beach, downtown, and their neighborhood.
- Lay the map down on the floor in a large open space. Take the rope or chalk and create an outline of Los Angeles around the map (make it large enough where students can walk around inside it).
- Point out the same locations (beach, downtown and their neighborhood) on the larger outline.
- Hold up a habitat card and ask the students to *describe what they see*. Ask them *if they know where in Los Angeles they might find that particular habitat?* (If students do not know, help them find the location in Los Angeles that the habitat can be found)
- Next,locate their Los Angeles habitat on the map and place it in the corresponding area on the large chalk/rope outline.
- Once all of the cards have been placed, give the students a few minutes to walk around and take a virtual tour of LA.
- After the student have had enough time to take the virtual tour ask them what some of the differences are among the various areas.
- Take out the organism cards, show the picture,and read the back of the card to find out the animal's needs.
- Point out some of the external features of the animal. Ask the students: what is it used for? Which habitat would be the best home for this animal?
- After each card is read,have a few students stand in the Los Angeles habitat where they think that animal is likely to live. Have the students explain why they chose one habitat over another.
- If students select different habitats for the same organism, begin a discussion about the organisms adaptations and where they will be best suited.
- If students select an incorrect habitat correct them by asking questions that help them determine the correct answer. Such as:
    - What does your animal eat and is it found there?
    - Can they get enough water?
    - Is there a good place for them to hide? Where?
    - Ask students what a certain feature on an animal would be good for? (heron's long legs are good for wading.)
- When all organisms have been shown and placed in their proper habitat, remind the students that all of the habitats are located in their city of Los Angeles.

Discussion

- Have students offer other habitats (or animals)in Los Angeles and have them point out where they may find them.
- Remind students that even a city like Los Angeles can have a variety of habitats.
- Select a habitat and tell the students that people have changed it.
    - Explain what the change is (cut down trees, build a parking lot, dumped trash, etc) and ask if the animal that lived there would still be able to survive? What would it do?
- Have the students find solutions to the problem (pick up trash, not build a parking lot, plant trees, etc.)

Post-VisitActivity: Become a Habitat Healer

Level

1st grade

Abstract

We constantly impact our local habitats just by living in or near them. This activity is designed to inspire students to make that impact a positive one. Students will be tasked with looking to find something that negatively impacts the habitat near their home or school and to seek out a solution. This will actively get the student involved with their local community as well as showing them how simple it is to do so.

Objectives

Students will be able to:

- ✓ Identify different habitats in and around Los Angeles
- ✓ Identify human actions that harm the habitat
- ✓ Demonstrate ways in which we can remediate the harm

Targeted Standards

Environmental Principles & Concepts (EEI) corresponding learning objectives:

- *Describe human activities that can influence the function of natural systems and the availability of resources for plants and animals.*
- *Provide examples of things that humans do that can influence the availability of resources needed by plants and animals (including humans).*

Materials

- Habitat Healer Award

Implementation Overview

Class Structure:

- Ask students what they think are some things that are hurting their local habitats.
- Have each student think up something that they can do to help.
- When they have a solution report it to a teacher for approval
- Have the students work with their parents to fulfill their activity (picking up litter, etc)
- When they have completed their activity have them report to the class on what they did and how it helped the local habitat.