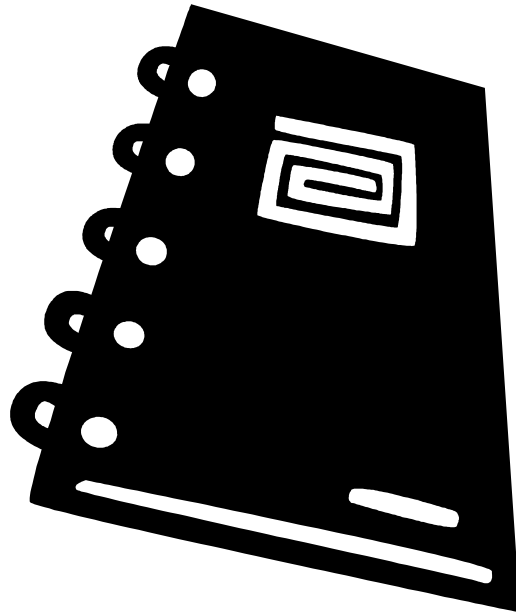


WATERSHED STEWARDS FIELD NOTE PAGES



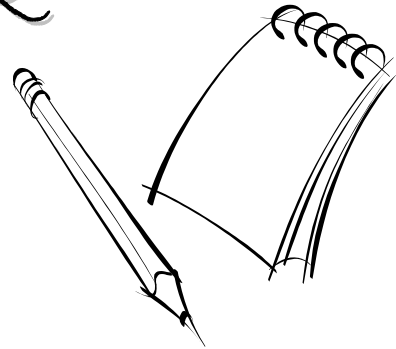
Explore your watershed and help it stay clean for you and wildlife.



Supported by the
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Whale Tail License Plate Grants Program



CHOLLAS CREEK SCHEDULE



9:30 – 9:50 Introduction

9:50 – 1:00 Break

10:00 – 10:45 Field Discovery Rotation #1

10:45 – 11:30 Field Discovery Rotation #2

11:30 – 12:15 Field Discovery Rotation #3

12:15 – 12:45 Lunch

12:45 – 1:15 Review and Survey



FIELD PROJECTS

① INTRODUCTION (20 minutes)

Chollas Creek Overview
Meet Your Partner

② PLANT DISCOVERY (45 minutes)

Plant Quest
Native Planting



③ BIRD DISCOVERY (45 minutes)

Bird Bingo
Bird Watching

④ WATERSHED DISCOVERY (45 minutes)

Watershed Model Experiments

⑤ REVIEW AND SURVEY (20 minutes)



INTRODUCTION

Chollas Creek

Background:

A watershed is the area that drains to a common waterway, such as a stream, lake, estuary, wetland, or even the ocean. We all live in a watershed.

The Chollas Creek Watershed winds its way down from the cities of Lemon Grove and La Mesa before moving through the City of San Diego and ending in the San Diego Bay. Along the way this waterway collects pollutants unhealthy to aquatic life and humans. The EPA (Environmental Protection Agency) has identified this Creek as an impaired water body because of its high level of toxins and metals. Some of the toxins include diazinon, coliform, and the metals are cadmium, copper, zinc and lead. Unfortunately the Creek has also become littered with trash and debris.

The creek drains 16,273 acres, and is the principal tributary to the San Diego Bay. Urban development in the Chollas Creek watershed has resulted in channelization of segments of the creek, floodplain encroachment and the loss of associated wetland habitats. Numerous projects have started that involve extensive outreach as well as habitat restoration and water quality monitoring components aimed at reducing water pollution and improving riparian habitats within the Chollas Creek Watershed.





Timeframe: 10 minutes

Materials: Schedule

Instructions:

1. Point out the restrooms and trash/recycle bins.
2. Remind students to be good researchers they need to:
 - Be good guests while in the habitat (home) of wildlife
 - Speak softly. Tread lightly. And leave only footprints.
 - Respect others when they are talking and raise your hand if you want to speak.
 - It is a privilege to visit this endangered creek.
3. Review with students some facts about the Chollas Creek and their goal to help clean up this polluted



creek by planting native plants that will help to filter out toxins and metals.

4. Review with students the activities they will do while at the Chollas Creek.

MEET YOUR PARTNER

Timeframe: 10 minutes

Materials:

Bird Sound Cards – 15

Instructions:

1. Provide a bird sound card to each student in your group of 20 students.
2. Tell them that they will find their partner by making the sound on their card that is of a bird found in their watershed.
3. Count to three and then have students make their bird sound and find the other student making the same sound.
4. Once pairs meet one another discuss how important the health of the watershed is for birds, other wildlife and humans.



PLANT DISCOVERY

PLANT QUEST

Background:

Identifying plants:

First look at the size and shape of the plant and compare it to an image. Examine the size, color and shape of the leaves. Use these questions to best identify a plant:



- How are the twigs or stems arranged on the plant?
- Are the leaves arranged alternate, opposite or whorled?
- Are the leaves hairy or smooth?
- Are their fruits or flowers visible on the plant or nearby?

Native plants:

Native or indigenous plants naturally occur in the region in which they evolved. They are adapted to local soil, rainfall and temperature conditions, and have developed natural defenses to many insects and diseases. Because of these traits, native plants will grow with minimal use of water, fertilizers, and pesticides. Wildlife species evolve with plants; therefore, they use native plant communities as their habitat. Using native plants helps preserve the balance and beauty of natural ecosystems.



Invasive plants:

Non-native or exotic plants introduced from other parts of the world or other parts of the country have degraded many natural ecosystems. Although many non-native plants are considered beneficial and do not escape into the natural environment, it is difficult for most gardeners to know the risks of every ornamental plant. Some of these introduced plants are invasive, meaning that there are few or no naturally occurring measures such as insects or competitors to control them. Invasive plants can spread rapidly and smother or out-compete native vegetation. Ecosystems impacted by invasive, non-native plants have a reduced ability to clean our air and water, stabilize the soil, buffer floods, and provide wildlife food and shelter.

Invasive plants are

- Destroying wildlife habitat and forage. Wildlife needs a variety of forage to thrive. Unfortunately, because of aggressive growing habits, invasive weeds often out-compete native plants, replacing plant diversity with sometimes poisonous monocultures.
- Damaging endangered species and native plants. Two-thirds of all federally-listed species, and many native plants, are threatened by weeds.
- Increasing soil erosion. This damages vital streams that provide habitat for fish, including threatened and endangered species such as salmon
- Increasing groundwater loss. Infested areas have higher water runoff and some weeds have a higher rate of evapo-transpiration, which means that less water is stored in the ground and less water is available to wildlife.



- Blocking access to recreational sites. Some noxious weeds are poisonous, producing irritating rashes after human contact. Others have 2-inch-long thorns that will pierce all but the most rugged materials. Invasive plants do not respect property boundaries.
- Are destroying wildlife habitat and forage. Wildlife needs a variety of forage to thrive. Unfortunately, because of aggressive growing habits, invasive weeds often out-compete native plants, replacing plant diversity with sometimes poisonous monocultures.
- Are damaging endangered species and native plants. Two-thirds of all federally-listed species, and many native plants, are threatened by weeds.
- Are increasing soil erosion. This damages vital streams that provide habitat for fish, including threatened and endangered species such as salmon.

Timeframe: 20 minutes

Materials:

- Plant Quest Guide (8.5 x 11) – 15
- Velcro Markers

Instructions:

1. Review with students how to identify different plants based on the structure of a plants leaves, color of its flower and size.
2. Review with students the difference between a native and invasive plant.
3. Provide each pair of students a Plant Quest card.
4. Tell students that their challenge is to find as many of the plants on their cards within the next ten minutes.



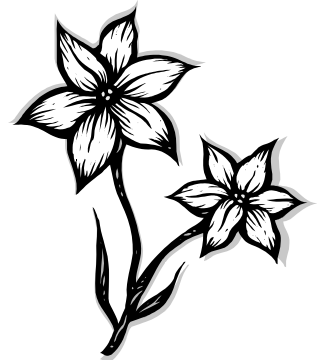
5. Let students know that some of cards have native cards and some have invasive plants. The group will discuss the differences at the end of the quest
6. Show students how they should place a Velcro marker on each of the plant pictures as they identify them.
7. Let students know that they will need to be able to share with the group where the plant is located and the cool fact on the back of their card when the quest is done.
8. Review with students what they found and discuss the different characteristics between a native and invasive plant.

NATIVE PLANTING

Timeframe: 20 minutes

Materials:

- Gloves
- Watering Cans
- Water Source
- Colored Pencils
- Student Worksheet – *Bring Back the Natives*
- Clipboards



Instructions:

1. Tell students that they will have the opportunity to help the watershed by planting native plants.
2. Ask students how they think planting natives helps out the watershed.
 - *Cleans out pollutants*



- *Protects the land from erosion (mudslides, sediment build up)*
 - *Provides habitat for wildlife*
 - *Keeps the soil moist and keeps helpful nutrients running through it*
3. Provide each pair of students with gloves, a plant and a watering can.
 4. Demonstrate to students how they will plant their native:
 - First soak the hole for the plant completely with water.
 - Then gently remove the plant from the container by tapping the sides of the container. (Careful not to pull on the plant or tear the roots).
 - Next place the plant in the hole, move soil around and into the whole.
 - Lastly, water the plant again with a full water can.
 - Show students where to return their tools and pick up worksheets to draw their plants.
 5. Student pairs will then plant their plants.
 6. Once they are done, they will return their tools and use the provided worksheet to illustrate and describe their plant.
 7. Make sure to assist students will transitioning from planting to picking up their clipboards and colored pencils for documenting their work.

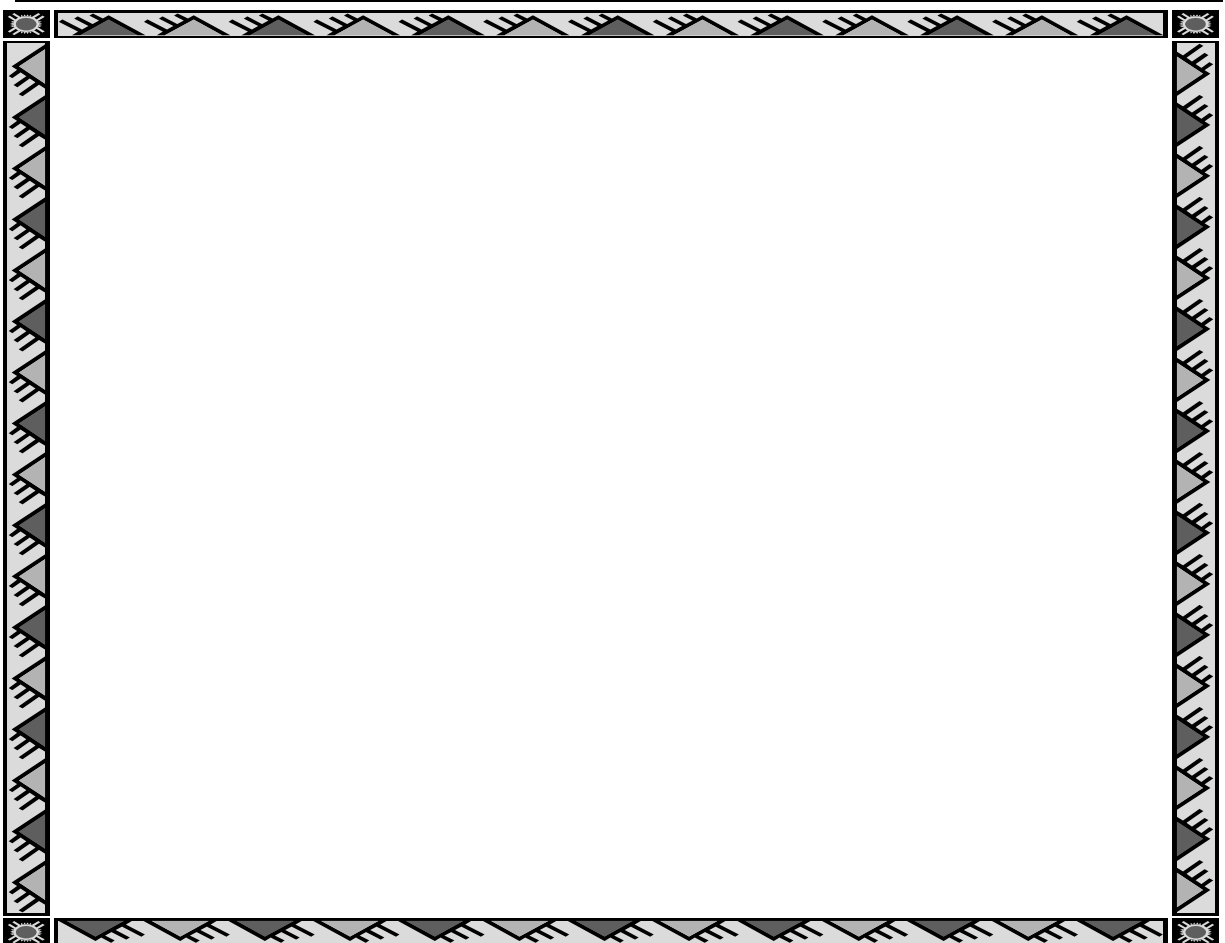


STUDENT WORKSHEET BRINGING BACK THE NATIVES



Name, describe and draw your plant.

- What does your plant feel like?
- What does your plant smell like?
- Describe what your plant looks like?



BIRD DISCOVERY

WILD BIRD BINGO

Timeframe: 20 minutes

Materials:

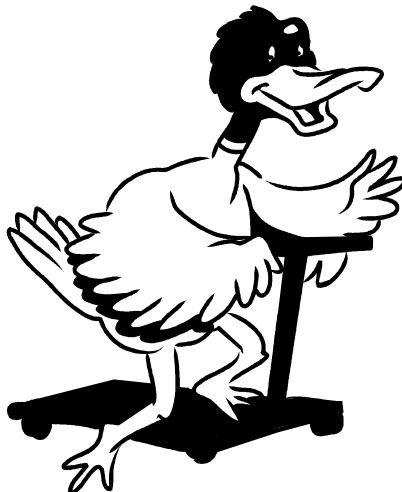
Bingo Markers (*student pairs can collect items or hand out candy markers*)

Wild Bird Bingo Bandanas (*one per pair*)

Instructions:

1. Provide each student pair with a Wild Bird Bingo Bandana.
2. Read the instructions with them and the object of the game.
3. Provide student pairs to independently find four bird-related items in a row.
4. After the first pair wins, have the winners discuss what they found.
5. Play again, if time allows.

(See bandana for more details)



BIRD WATCHING

Background:

San Diego's Endangered Bird Species:

- More than 260 species of birds migrate through San Diego County each year.
- San Diego County has more bird species than any other County in the United States.
- 90% of diving ducks have disappeared from San Diego South Bay since the 1960s.
- 1,000,000 shorebirds die each year from plastics.

Fun Stuff:

- Herons have special feathers that break up into a powder!
- Cormorants will stand on sandbanks to dry their wings out because their plumage is not completely waterproof.
- Baby grebes are fed both fish and their parent's feathers! Scientist think this helps prevent fish bones from injuring the baby bird's stomach.
- There are 200 species of wading birds who feed on soft mud and sand.

Bird Watching Identification:

- First notice your habitat (water = wading birds, coastal = shorebirds...)
- What size is the bird?
- Note the shape of its beak
- Look at the color and patterns of its feathers
- Look at the shape of its feet
- Look at the shape of its wings



Timeframe: 20 minutes

Materials:

Binoculars (*one per student pair*)

San Diego Birds Guide (*one per student pair*)

Clipboards

Bird Watching Worksheet

What to Look For (handout - share with students)

Instructions:

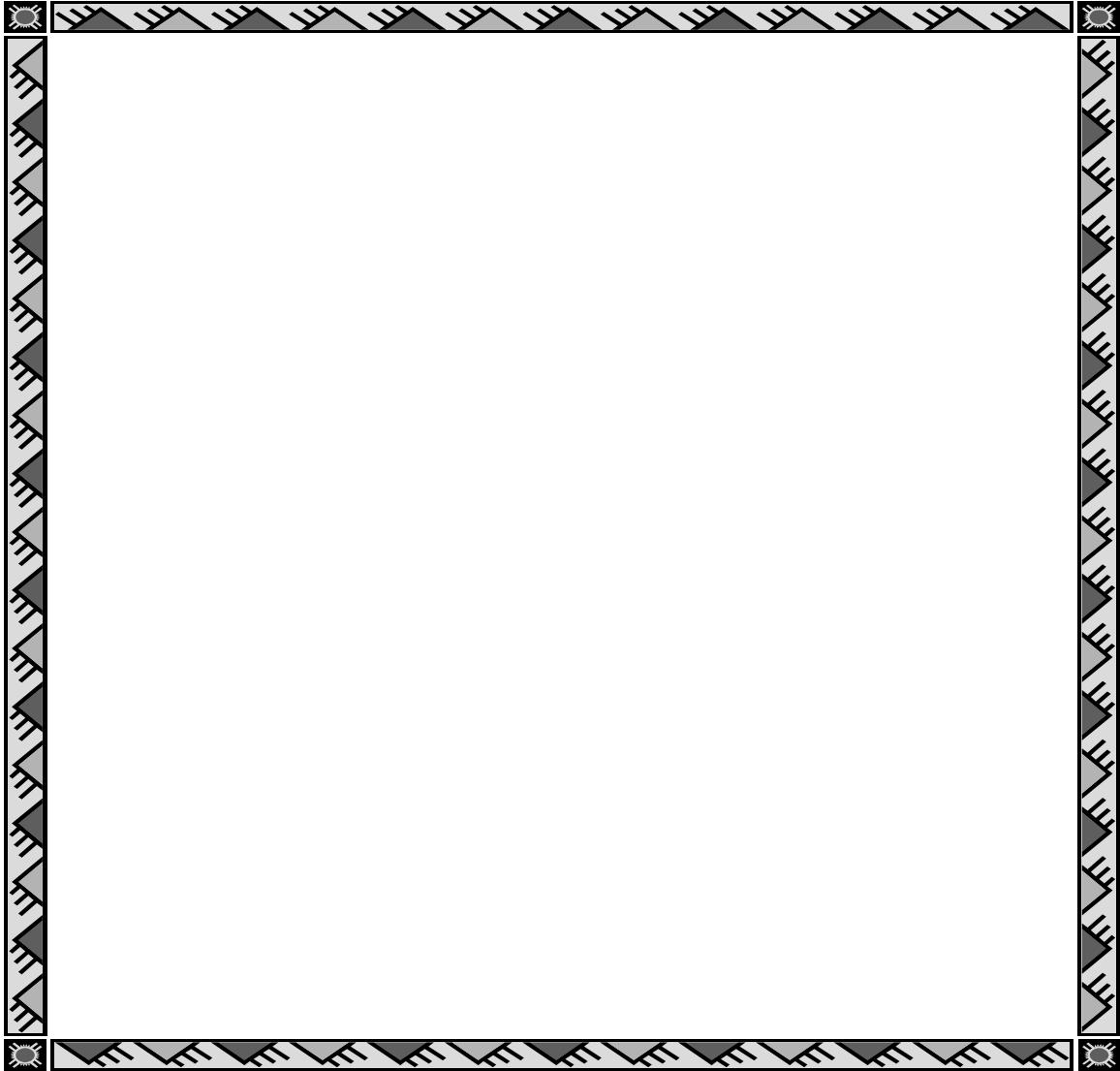
1. Hand out binoculars, bird guides, clipboards and worksheets to each pair of students.
2. Review the What to Look for handout with students.
3. Tell students to pick a bird to observe for 10 minutes in the watershed.
4. Tell students to answer the following why they observe:
 - What does the bird look like?
 - What is the bird doing?
 - Is the bird making any call or sound?
5. After ten minutes, ask the students to write down their observations on the Bird Watching worksheet provided.



STUDENT WORKSHEET BIRD WATCHING



Draw your bird in the space below:



DRAW OR DESCRIBE THE FOLLOWING:

Behavior: What your bird is doing?



Beak: What does its beak look like?

Feet: What does its feet look like?

What color are the feathers of your bird?



Using your bird field guide see if you can identify your bird. What bird are you studying?

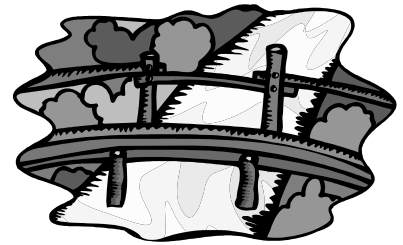
Identify other birds in the wetlands using your bird field guide and list what you see below:



WATERSHED DISCOVERY

WATERSHED MODEL EXPERIMENTS

Background: A watershed is an area draining to a particular body of water. Watersheds drain rainfall and melting snow into the nearest water body (a river, lake, pond, or ocean) that lies at the lowest point of the watershed. Most watersheds are interconnected, eventually draining to the ultimate water body—a bay, gulf, or ocean. Water pollution comes from many different sources—what students will see here are non-point sources of pollution. They come from human activities on the land, and occur when rainfall (or melting snow) carries contaminants, such as fertilizers and pesticides, oils, animal waste, grease and trash from yards, fields and roads to the nearest water body (our ocean).



Instructions: Use the watershed model to try the following experiments.

- Sprinkle about 1 tsp cocoa on the areas of the watershed model that are painted brown (dirt, soil, sand).
- Sprinkle about 1 tsp of green drink mix (fertilizer) on the green areas (lawns, parks).
- Sprinkle about 1 tsp of red drink mix (pesticides) on the green spaces.



- Place some soy sauce (oil from cars and trucks) on the roads and driveways.
- Mix cocoa with soy sauce to make manure, and place this on green spaces to represent pet waste.
- Use the spray bottle to make it rain. What happens?
- Is the rainwater picking up anything on the land?
- Where is this coming from?
- Did we apply too much pesticide (red powder) or fertilizer (green fertilizer) to our lawn or golf course?
- Where's the manure?
- What's happening to the oil (soy sauce) on the roads from cars and trucks?
- Is there enough grass by our stream banks?
- Notice how the rain runs off the streets, parking lots and land areas. Pay attention to how the rain picks up the soil and contaminants, carrying them to the rivers, streams or creeks and to the ocean.
- Now empty the water body and remove the excess dirt and drink mixes from the watershed model with a sponge or paper towel.
- Place felt pieces (grass and vegetation) at the edges of the brown areas to hold the soil.



- Add some more cocoa to the brown areas.
 - This time, add a little bit less drink mix (fertilizers and pesticides) to the green areas.
 - Make it rain again.
 - Does the grass (felt strips) planted help to hold the soil and prevent it from washing off with the rain? What about the fertilizer and pesticides?
-



WATERSHED STEWARDS STUDENT SURVEY

1. What is a watershed?

2. List three ways can you save water at home.

3. Is your watershed polluted? (*Circle your answer*)

a. Yes

b. No

c. I do not know

4. What types of things pollute your watershed, especially after rain?

5. What can you do to protect animals that live in your watershed?

6. List two ways you can help sea turtles.



7. List at least three ways you can help save your watershed.

