2nd Grade Curriculum

Platform: Wetlands

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2nd Grade Curriculum Overview

Ocean Discovery Unit

Guiding Concept: Students will study why wetlands are important; how animals utilize the wetlands as wildlife housing; and how we can protect wetlands in the future.

Science Discovery Process Focus:

- Make a Difference
- Explore and Wonder

NGSS Alignment

Next Generation Science Standards:

Cross Cutting Concept:
Systems and systems models – students understand that a system is a group of related parts that make up a whole and can carry out functions its individual parts cannot. They can also describe a system in terms of its components and their interactions.

Overarching Responsibilities of Fellows:

- Set-up and breakdown of supplies for all lessons.
- Classroom management & timing of lesson.
- Execution of all lesson material in this curriculum.
- Lead discussions & ask guiding questions to get students thinking about science.
- Use Belief and Science Discovery Process exploration language during lesson.
- Provide rules for activities.
- Encourage participation from all students to create an inclusive environment.
- Determine floor management with team BEFORE the start of the lesson.
- Always using the principles of Accountability – Safety – Communication.
- Model whatever you are asking the students to do.

2nd Grade Story

External – Students

I am excited to continue my journey with Ocean Discovery Institute in 2nd grade by learning about wetlands and the plants and animals that live there. Over the years, Ocean Discovery has helped me believe that science is something I can do, and a science leader is someone I can be.

On our first day, I meet the Ocean Discovery staff when they come to our classroom. We work together to build a model wetland and fill it with drawings of plants and animals that live there. A wetland has so many different plants and animals! Later on we learn some fun dances that relate to all the things science leaders do and I even get to create my own dance that represents me as a science leader.

I am so excited when we get to the Living Coast Discovery Center to explore a REAL wetland! We see so much cool stuff and spend the whole day talking about how different animals use the wetland as a home. We call it – Wildlife Housing! I discover that all kinds of animals, including invertebrates, birds, and sharks live in the wetlands. I even get to touch a shark! Pretty cool!

On our last day we go to the Living Lab and explore a wetland that is right in my own neighborhood. Who knew we all lived so close to a wetland? We dress up as wetland biologists and explore. We take a closer look at some of the animals that live in the canyon by using bug boxes and other tools. One of my favorite parts of the day is when we collect water from what looks like an ordinary puddle and bring it back to the lab to look at it under a microscope. Wow- there are all kinds of tiny things living in the water! Before lunch, we get to meet a real science leader who tells us about how they got to be a science leader and lets us ask questions about their job and what kinds of things they do. It gets me thinking that I might want to be a science leader someday. At the end of the day we get to share how much we love wetlands and how important they are, by painting a rock that is placed along a trail in the canyon so other people can learn how important this place is too. I really like making a difference and helping my new wetland friends!

I can't wait to be a part of Ocean Discovery in 3rd grade!

2nd Grade Story

Internal – Staff and Teachers

Students learn the importance of wetland ecosystems and explore how living things utilize the wetlands as a habitat.

During the classroom day, students are introduced to the wetland ecosystem and the organisms that live there by building a classroom wetland and populating it with native plants and animals. Students build belief that they are unique individuals who belong to the community of science by learning what science leaders do and creating an action that represents them as an individual science leader.

During the Exploration Day at Living Coast Discovery Center, students build belief that they can recognize and do science, as they explore a real wetland and use scientific tools to investigate how birds, underwater animals, and insects use the wetlands as a habitat.

During the Make a Difference Day at the Living Lab, students discover and explore wetlands located within their community. Students experience being a Wetland Biologist by using their imagination and dressing up to explore the local canyon and by collecting and studying microorganisms that live in pond water. Students share the importance of wetlands with their community by painting a stone and placing it along a trail in the canyon to communicate the importance of the ecosystem and their love of the wetlands. Students meet and talk with science leaders who share their career pathways, challenges, and obstacles they have faced along the way. Collectively, these experiences build students' belief that science is important and relevant, that a career in science is a possibility for them, and that they can make a difference in the world.

Throughout the program, students love becoming wetland biologists, exploring the outdoors, using scientific tools, getting to know real science leaders, and making a difference in the world!

Community Building Day

In-School Experience

Goal: Students establish belief that they are a unique individual contributing to the community of science.

Supplies:

- All found: \\vmfile01.aquatic.com\Master Files\Curriculum\SI New\Lower Elementary (K-2)\2nd Grade\Community Building Day Visuals
    - 2nd Grade Community Building Day PowerPoint **-OR-**
        - Community Agreements poster (1)
        - Wetland Poster (1)
        - Wetland Video (1)
        - Science Discovery Process poster w/ Velcro pieces (1)
    - Chart paper
    - Sharpies (3)
    - Giant butcher paper drawing of wetland
        - Protocol for creation in SI Manual
    - 6-8 Plastic Bins with minimal art supplies
        - Multiple pieces of colored & white paper in small squares (1 per student)
        - 20-30 markers of various colors
        - 2-3 safety scissors
    - Laminated "Wetland Plant ID Card" (8)
    - Laminated "Wetland Land Animals ID Card" (8)
    - Laminated "Wetland Birds ID Card" (8)
    - Laminated "Wetland Water Animals ID Card" (8)
    - Rolls of tape (2)

Timing:

Time	Activity	Learning Cycle
0:00 – 0:15	Introduction & Discovery Dances	Engagement
0:15 – 0:20	Wetland Intro	Exploration
0:20 – 0:35	Create Wetland Plants & Animals	

Next Generation Science Standards: **LS4.D: Biodiversity and Humans** **There are many different kinds of living things in any area, and they exist in different places on land and in water.** **25**		
0:35– 0:50	Populate the Wetland	Guided Analysis
0:50 – 1:00	Reflection	Reflection

Instructor Notes & Setup:

- With Classroom Teacher:
  - Introduce yourself.
  - **Collect waivers.**
  - Ask teacher if they would prefer you to write on board or chart paper.
  - Invite teacher to participate and explain when you will need their help.
- Use attention getters whenever necessary.
  - Ex. Transitioning from activity to activity, when giving a set of directions, when bringing the class together to share out, etc.
- Set-up for Teaching:
  - Cue up 2nd Grade Community Building Day PowerPoint from teacher portal.
  - Check that external video sources are enabled to play in PowerPoint (or directly from YouTube).
  - Set up chart paper and sharpies at front of room (if using chart paper).
    - Write the word "Wetlands" on the board/chart paper.
  - Tape butcher paper 2D Wetland near the front of the room.

Introduction & Discovery Dances

Timing

- Introductions and Community Agreements (5 min)
- Discovery Dances (10 min)

Introductions:

- All staff take 30-60 seconds to introduce themselves.
- Introduce Ocean Discovery Institute.
    - Give a very brief overview of the program (3 days, 1 class visit, 1 exploration day, etc.).
    - Some students have had Ocean Discovery since Kindergarten and for some students it's their first year.
    - We are excited to have everyone join us!
- Introduce the concept of being a science leader with Ocean Discovery Institute:
    - When you work with Ocean Discovery – you are a science leader.
    - Ask students: What do you think a science leader is?
    - Science leader: A person of any age who use science to make a difference in their community and our world.

Community Agreements:

- As science leaders we all must agree to follow a certain set of expectations when we work together.
- At Ocean Discovery we believe everyone should Be Their Best Self.
    - (Show Community Agreements slide.)
- **To Be Your Best Self**, you should:
    - **Be curious!**
        - Ask questions, make observations, and share your thoughts and ideas.
    - **Be respectful!**
        - Respect people, living things, and the environment around you.
    - **Be safe!**
        - Take care of yourself and others.
- Ask students to give a thumbs up or a verbal "yes" if they can agree to be their best self when working with Ocean Discovery.

Science Discovery Process:

- What science leaders do:
    - Today you are a science leader.
        - Ask: What are some things you think science leaders do?
    - Introduce the Science Discovery Process.
        - (Show Science Discovery Process poster.)
        - This is a process science leaders use to do science!

- Science Leader Dances & Brief Descriptors of the Science Discovery Process:
  - (Go through each part of the Science Discovery Process provide a brief explanation and show the movement associated, then have students copy the movement.)
    - Example: Science Leaders Explore and Wonder! (Add Explore and Wonder to the poster.) Science leaders are always wondering about the world around them and asking questions- just like many of you said. They make observations about things they see and hear while exploring the natural world. To remember that science leaders Explore and Wonder we cross our arms, rub our chins, and make a questioning face as we explore and wonder. Let's practice this. Can everyone say, "Explore and Wonder!" Great! Can everyone show me Explore & Wonder?
  - Explore and Wonder*: Science leaders are always wondering about the world around them and how it works. Science leaders ask lots of questions and take time to explore.*
    - **Dance move**: Crossed arms/rub your chin/ make a questioning face.
    - **Sound**: Wonder!
  - Investigate*: Science leaders like to make lots of observations and collect information when exploring. They can do this using any of their senses like seeing, hearing, touching, tasting and smelling.*
    - **Dance move**: Hands up to eyes like binoculars & look side to side.
    - **Sound**: Investigate!
  - Analyze*: Once science leaders make observations, they like to look for patterns and try to come up with explanations for their questions.*
    - **Dance move**: Typing on keyboard.
    - **Sound**: Analyze!
  - Communicate*: Science leaders know it is really important to share the things they learn with other people.*
    - **Dance move**: Put your hand up to your mouth as if you are shouting/trying to amplify the sound.
    - **Sound**: Communicate (say it with your hand up to your mouth as if to amplify/shout)!
  - Make a Difference*: This is the most important part of the Science Discovery Process. Science leaders work to make the world a better place with the things they learn. This is the goal of science!*
    - **Dance move**: Stand like a superhero with legs apart and hands-on hips.
    - **Sound**: Make a difference!

- Practice Science Discovery Process:
  - Have students go through the series of Science Leader Dances while saying the words a couple of times.

- You can change it up by doing slow motion, speed up version, super quiet, super loud, etc.

- Uniqueness and Belonging
  - We are all science leaders, but we are not all the same.
    - Each of us unique.
    - Ask students: What does unique mean?
    - Define unique: different, the only one of its type.
    - We all think differently and have different ideas and that makes us each unique!
  - When we have lots of unique science leaders, we say there is diversity.
    - Define diversity: many different kinds.
    - We always want there to be diversity in the science community because it means we have more thoughts, opinions and ideas which can lead to more ways to Make a Difference in the world!
  - You will have a chance to create your own dance move to represent you as a unique individual.
    - Your dance move can be any movement you want or can be one of the three we suggest.
    - Suggested dance moves:
      - Science leader investigating animals in the wild, so I need to be quiet and hide.
        - Movement: Peeking through the bushes.
      - Science leader examining something they found with a hand lens.
        - Movement: hold something in your hand and the other hand is holding a hand lens.
      - Science leader exploring the DNA of two animals to see if they are related.
        - Movement: pouring liquid from one test tube to another.
  - Ask students to close their eyes for a moment and picture themselves exploring as a science leader.
    - Remind students that they can make up their own movement or use one of the three options provided.
    - (Give students 20-30 seconds to think silently about how they want to represent themselves as a science leader.)
  - *In a moment, I will say the words "Be a science leader!" and you will show me your dance move while saying the words "I'm a science leader!"*
    - *Let's try it. "Be a science leader!"*
  - (Students should show their dance move and yell out "I'm a science leader!". You may need to practice this a few times.)

- (If time allows go through all Science Leader dance moves again and add their personal science leader movement in.)

- Explain "Be a science leader!" will be an attention getter for the day.
  - When I say, "Be a science leader!" you say, "I'm a science leader!", show me your science leader movement, and wait quietly for instructions.

Wetland Intro

- Introduce wetlands.
  - We will be Exploring and Wondering about a special ecosystem here in San Diego called wetlands.
    - (Point to Explore and Wonder on Science Discovery Process poster and do the "Explore and Wonder" science leader dance).
  - Introduce "Wetland Video".
    - Ask students to explore and wonder by making observations while watching.
      - (Point to Explore and Wonder on Science Discovery Process poster and do the "Explore and Wonder" science leader dance.)
  - (Show "Wetland Video".)
    - (Show "Wetland Poster" if technology is an issue.)
  - Review video and define a wetland.
    - (Show Wetlands slide or poster.)
    - Ask students: What observations about the wetland did you make?
    - Ask students: What do you think the definition of a wetland is?
      - (Write "Wetland" on the board.)
      - Definition of a wetland: where water and land meet, wet-land
  - Brainstorm types of plants and animals that might live in a wetland.
    - Plants, scrubs (not a lot of trees), flowers
    - Insects, rays, birds, rodents, butterflies, fish, etc.
  - Plants and animals can be found all around the wetlands.
    - In the water, on the land, or where the water meets the land.

Create Wetland Plants & Animals

Timing:

- Intro (3 min)
- Creating plants & animals (10 min)
- Clean up (2 min)

Instructor Notes & Set Up:

- Place laminated "Wetland Plant and Animal ID Cards" on table (1/student)
  - Try to get a variety of cards at each table.
- Place 1-2 art bins on the center of each table.
  - Add a small piece of paper for each student to the bin.
- Write these sentence frames on board/chart paper in large handwriting, "My plant/animal is a _____." "I think it lives _____ because _____."

Intro:

- Okay science leaders! It is time to Investigate what kind of plants and animals live at the wetlands.!
  - *o* (Point to "Investigate" on the Science Discovery Process poster and put your hands up to your eyes like binoculars & look side to side.)
- This is the start of your wetland!
  - o (Point out 2D Wetland and point out the water and the land.)
  - o You might have noticed that our wetland is missing plants and animals – so we need your help!
- You will receive a card that shows several different plants and animals that live in the wetland.
  - o (Show an example of the card.)
  - o You can investigate all the plants and animals on the card and choose one to create and add to the wetland.
    - You can choose any plant or animal on the card even if you can't say their name yet – we can help you with this.
    - Plants are such an important part of any ecosystem.
      - Without plants, animals could not exist!
      - Don't be shy about choosing a plant to add to our wetland.
    - Everyone will get a piece of paper and can use anything in the art bin to help you create your plant or animal.
    - Plants and animals do not need to be perfect but need to be complete when time is up.
    - The goal is to have as many plants and animals in the wetland as possible because this wetland will remain in your classroom!
    - You will have 10 minutes to work.

- (Pass out Wetland ID cards.)
  - (Give students 30 seconds to look over their ID cards and pick a plant or animal they want to create.)
  - (Have students give a thumbs up when then have decided on a plant or animal.)
  - (Have all students take a piece of paper out of the art bin and let them know they can get started on creating their plant or animal.)

Creating Plants & Animals:

- (Put a visual timer up on the board and tell students to begin working.)
  - (Give students lots of verbal reminders of time.)
  - (Walk around the classroom and help students decide which plant/animal to make.)
  - (Help students create organisms, encourage students who are struggling to get started.)
- (As students are working stop and ask them the following questions so they are ready to place their organism in the wetland when it is time.)
  - What plant or animal are you building? Why did you choose that?
  - Where do you think your plant/animal lives in the wetlands? Why?
  - What do you wonder about this plant/animal?
  - What questions do you have about this plant/animal?
  - What are you excited to explore in the wetlands?
- (If a student finishes early, they can create another plant or animal.)
- (Tell students when time is up.)

Clean Up:

- (Collect art supplies.)
  - (Throw away any old/used up art supplies.)
  - (Collect Wetland ID cards.)

Populate the Wetland

Timing:

- Pair-Share (3 min)
- Populate the 2D Rocky Seashore (5 min)
- Process Reflection (2 min)

Instructor Notes & Setup:

- Give each adult a roll of tape.

Pair-Share:

- Sharing information:
    - Remember all good science leaders take time to share what they have learned with others.
        - (Point to Communicate on Science Discovery Process poster and do the "Communicate" science leader dance).
    - Let's take a moment to share the plants and animals we created with another science leader near us.
        - Two things to share: The name of your plant or animal and a question you have about that plant or animal.
        - (Direct students' attention to sentence frames on the PowerPoint/chart paper.)
            - (Read the sentence frames out loud twice.)
            - My plant/animal is a _____." "I think it lives in (land/air/water), because _____."
        - Give an example.
            - My animal is a great white heron. I think it spends most of its time in the air because it is a bird and has wings to fly.
        - If you have trouble saying the name of your plant or animal, you can point to it on your card.
    - (Give students 30 seconds to silently think about how they want to fill in their sentence frames on the board.)
        - (Pair students up.)
        - (Explain which partner will share first. Example: Partner with the shortest hair will go first.)
            - (Give the first partner 30 seconds to share.)
        - Let students know it is time for the other partner to share.
            - (Give the second partner 30 seconds to share.)
        - (While students are sharing, hand out a piece of tape to each student.)

Populate 2D Wetland:

- Introduce how to populate the classroom wetland:
    - Invite one table at a time to place plants and animals in the wetland.
    - Students will use their piece of tape to stick their plant or animal in in the wetland.
    - Students should place their plant or animal in the area they think it spends the most time.
    - Once a student has taped their animal they can return to their seat.

Process Reflection:

- It is time to analyze what we have learned!
    - (Point to "Analyze" on the Science Discovery Process poster and mime typing on keyboard.)
- Diversity.

- Take a look at our wetland – do we have a lot of different plants animals?
  - Ask students: What do we call it when we have lots of different types of something? Diversity.
    - We have lots of different types of plants and animals.
  - Ask students: Do you think it is important to have a diverse wetland? Why or why not?
    - A healthy wetland has a diversity of plants and animals because it allows the wetland to remain balanced.
- Similarly, a healthy science community has a diversity of science leaders.
  - Earlier today we talked about how we are all science leaders, but we are each unique individuals with different thoughts and ideas – that makes a diversity of science leaders!
  - A diversity of science leaders allows us to make more of a difference in the world!

Self-Reflection

Timing:

- Self-reflection (7 min)
- Closing (3 min)

Self-reflection

- Introduce why we do reflection:
    - Reflection is a part of every Ocean Discovery Institute experience.
    - Reflection gives you time to think about what you experienced and learned today and how it fits into the things you already know.
    - Reflection can highlight ways your thoughts, ideas, and feelings change over time as you learn and experience new things.
    - We will end each Ocean Discovery experience with time for reflection.

- Think-Pair-Share:
    - (Lead students through the Science Leader dances including their individual "Be a Science Leader!" movement.)
    - Lead students through at Think-Pair-Share using the question:
        - Ask: Which of the Science Leader movements is your favorite and why?
        - Ask: What do you like about being a science leader with Ocean Discovery so far?

Closing:

- Remind students that they will be visiting the Living Coast Discovery Center with Ocean Discovery to continue exploring the wetlands on ____ date.
    - **REMINDER TO STUDENTS**: Do not bring personal backpacks on the Ocean Discovery field trip. We will provide a backpack full of scientific tools for you to use that day.
- Thank you for doing science with us today!
- Please share your "Be a Science Leader! dance move and everything you learned about the wetlands with your friends and families.
- (Show Believe! Achieve! Lead! slide.)
    - At Ocean Discovery Institute we **BELIEVE** that science is something you can do and a science leader is someone you can be, that you can **ACHIEVE** in science and think critically about our world, and you can **LEAD** in science and conservation and make a difference in the world. Because we believe this, we do a "Believe! Achieve! Lead! Go Awesome!" cheer at the end of every program so that you will continue to do awesome things after we leave.
    - On the count of three we will yell "Believe! Achieve! Lead! Go Awesome!"

Exploration Day

Coastal Field Experience

Goal: Students build belief that they can recognize and do science and how animals use the wetlands as wildlife housing while exploring the Living Coast Discovery Center.

Supplies:

- Ocean Discovery Institute Field Trip Volunteer Card print out (1/adult volunteer)
- Cover sheet (1/class)
- 1 visor (1/student + 1 adult)
    - 4 colors (so each group has their own color visor)
- Explorer Backpacks (1/student)
    - Binoculars
    - Hand lens
    - Wetland Plant and Animal ID Card (Laminated)
    - Pencil
    - Science Notebook
    - Clipboard
- Fellow backpacks (1/group)
    - Bottle of hand sanitizer (1)
    - First Aid Kit (1)
    - White Board + Marker + Eraser (1/1/1)
    - Laminated Emergency Protocol & Phone Numbers (1)
    - Incident Report Sheets (12)
    - 20-30 colored markers
    - Black trash bags (4)
    - Bottle of hand sanitizer (1)
    - Lens cleaning cloths (5)
    - Pencils (1/student + 5 extra)
    - Pencil Sharpener (1)
    - Wet Bag (1)
- Manila folder (1/class)
    - To store student science notebooks to be returned on Living Lab day
- General Bin – to be stocked with extra materials for backpacks (1)
    - Living Coast Discovery Center Count Slip (50)
    - Extra visors
    - Extra binoculars
    - Extra hand lenses

  - Extra Wetland Plant and Animal ID Cards
  - Extra Pencils
  - Extra Science Notebooks
  - Extra Clipboards
  - Extra trash bags
  - Extra bottles of hand sanitizer
  - Extra lens paper
- Tarps (4)

2nd Grade Explore Timing – Living Coast Discovery Center

On Time:

*Station times include walking time (be sure to leave 5 minutes to walk between stations)

**Tables and outdoor classroom (reserved for Ocean Discovery) are alternate back-up areas to use if any of the below areas are being used by the general public or another school.

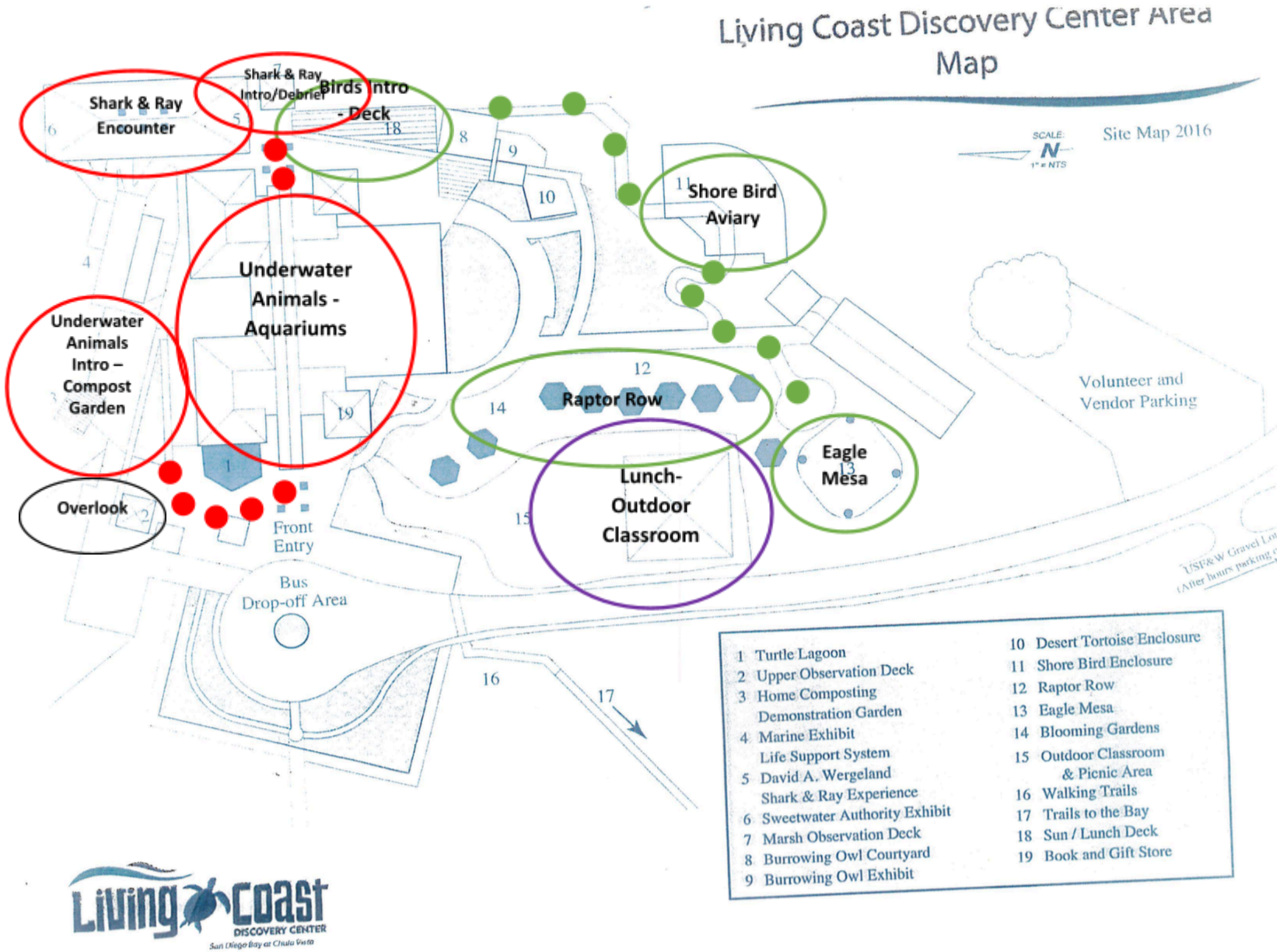
On Time	Group 1	Group 2	Group 3
9:45 – 9:55AM	Arrival		
9:55-10:15AM	Introduction **USFWS Breezeway**	Introduction **Overlook**	Introduction **Compost Garden**
10:15-11:00AM	Insects **USFWS Trail**	Birds **Bird Row**	Underwater Creatures **Shark & Ray Encounter - TBD** ***Ideal: 10:45 -10:55AM***
11:00-11:25AM	Lunch + Bathroom **Outdoor Classroom**		
11:25-12:05PM	Underwater Creatures **Shark & Ray Encounter - TBD** ***Ideal: 11:45-11:55AM***	Insects **USFWS Trail**	Birds **Bird Row**
12:05-12:50PM	Birds **Bird Row**	Underwater Creatures **Shark & Ray Encounter - TBD** ***Ideal: 12:20-12:30PM***	Insects **USFWS Trail**
12:50-1:10PM	Self-Reflection **Pollinator Garden**	Self-Reflection **Compost Garden**	Self-Reflection **USFWS Breezeway**
1:10-1:15PM	Clean up + Goodbye + Load Buses		

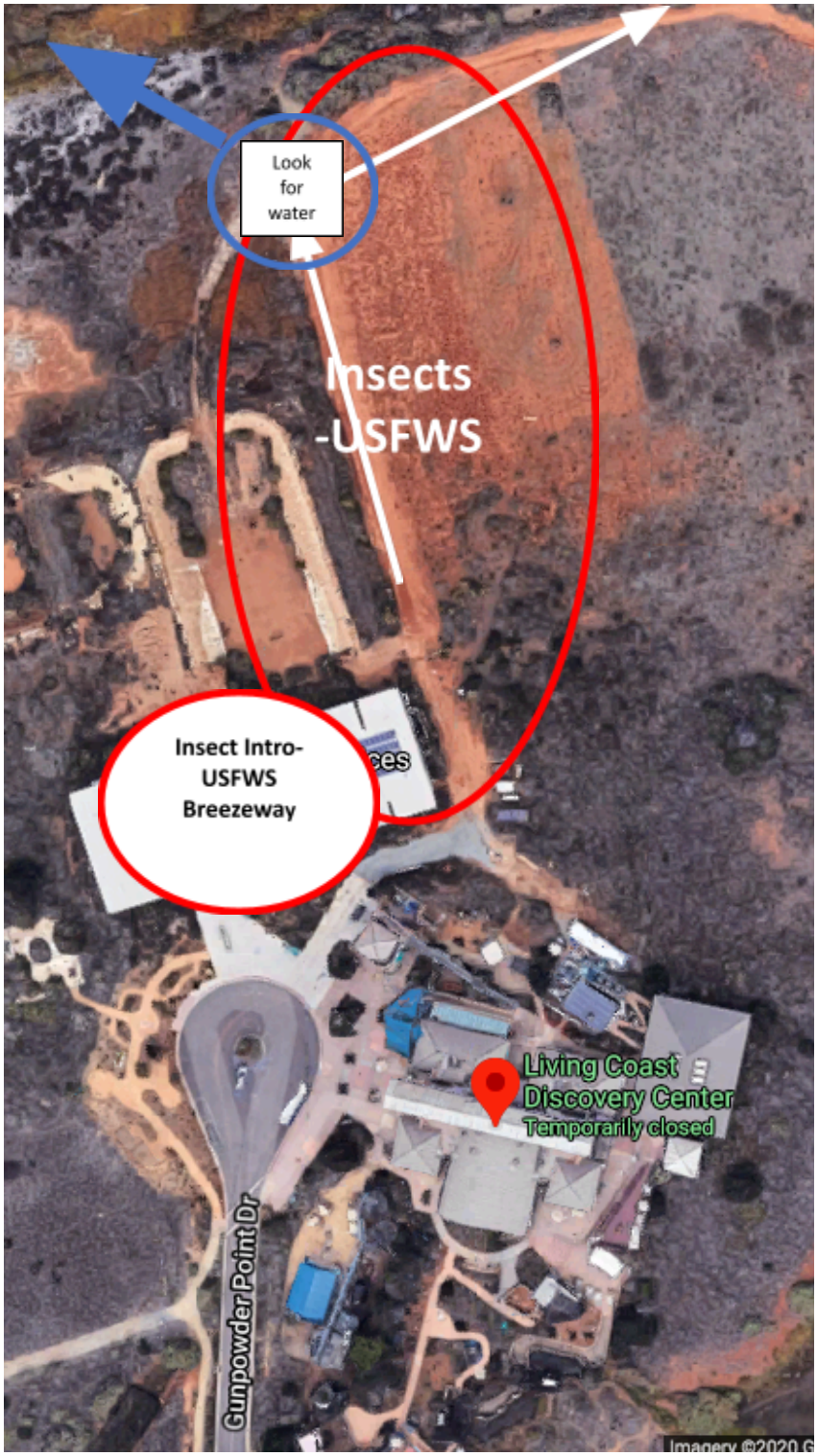
On Time with Two Lunches:

*Station times include walking time (be sure to leave 5 minutes to walk between stations)

**Tables and outdoor classroom (reserved for Ocean Discovery) are alternate back-up areas to use if any of the below areas are being used by the general public or another school.

On Time	Group 1	Group 2	Group 3
9:45 – 9:55AM	Arrival		
9:55-10:15AM	Introduction **USFWS Breezeway**	Introduction **Overlook**	Introduction **Compost Garden**
10:15-11:00AM	Insects in the Wetlands **USFWS Trail**	Birds in the Wetlands **Bird Row**	Underwater Creatures **Aquarium** **Shark & Ray Encounter - TBD** ***Ideal: 10:35 -10:55AM***
11:00-11:25AM	Lunch + Bathroom **Outdoor Classroom**	Insects **USFWS Trail**	Birds **Bird Row**
11:25 – 11:55 AM	Underwater Creatures **Aquarium** **Shark & Ray Encounter - TBD** ***Ideal: 11:45-12:05PM***	Lunch & Bathroom **Outdoor Classroom**	Lunch & Bathroom **Outdoor Classroom**
11:55-12:10PM		Insects **USFWS Trail**	Birds **Bird Row**
12:10-12:55PM	Birds **Bird Row**	Underwater Creatures **Aquarium** **Shark & Ray Encounter - TBD** ***Ideal: 12:30-12:50PM***	Insects **USFWS Trail**
12:55-1:10PM	Self-Reflection **Pollinator Garden**	Self-Reflection **Compost Garden**	Self-Reflection **USFWS Breezeway**
1:10-1:15PM	Clean up + Goodbye + Load Buses		


Living Coast Discovery Center Area Map
Site Map 2016
SCALE: N 1" = NTS
Shark & Ray Encounter
Shark & Ray Intro/Debrief
Birds Intro - Deck
Shore Bird Aviary
Underwater Animals - Aquariums
Underwater Animals Intro – Compost Garden
Raptor Row
Eagle Mesa
Lunch- Outdoor Classroom
Overlook
Front Entry
Bus Drop-off Area
Volunteer and Vendor Parking
1 Turtle Lagoon
2 Upper Observation Deck
3 Home Composting Demonstration Garden
4 Marine Exhibit Life Support System
5 David A. Wergeland Shark & Ray Experience
6 Sweetwater Authority Exhibit
7 Marsh Observation Deck
8 Burrowing Owl Courtyard
9 Burrowing Owl Exhibit
10 Desert Tortoise Enclosure
11 Shore Bird Enclosure
12 Raptor Row
13 Eagle Mesa
14 Blooming Gardens
15 Outdoor Classroom & Picnic Area
16 Walking Trails
17 Trails to the Bay
18 Sun / Lunch Deck
19 Book and Gift Store
Living Coast DISCOVERY CENTER
San Diego Bay at Chula Vista


Look for water
Insects -USFWS
Insect Intro- USFWS Breezeway
Living Coast Discovery Center
Temporarily closed
Gunpowder Point Dr

Arrival

Program Set Up:

- € Before Trip Departure:
  - o Make sure all staff know how they are getting into the Living Coast Discovery Center.
  - o You will need to carpool (2-3 cars) from the facility parking lot (outside the gate) to the Living Coast staff lot (inside the gates) or the CVNC spots that are in the FWS lot.
  - o Make sure everyone knows the speed limit inside the preserve is 15 MPH.
- € Before students arrive:
  - o Go inside the LCDC Education Office and confirm lunch spot (should be outdoor classroom), confirm Shark and Ray times (should be as listed on curriculum but communicate any changes to staff), and look at board for any updates.
  - o Decide where each group will meet when students get off the bus.
  - o Discuss with Ocean Discovery staff who will take on each of the **Arrival Tasks** (see below).
- € At group meeting areas set out:
  - o Explorer backpacks (1/student)
  - o Water bottles (1/student)
- At Introduction stations (Birds, Insects and Underwater Creatures) set out:
  - o Community Agreement poster (1)
  - o Visors (1/student+ 1/adult)
- € At bus meeting location set out:
  - o Ocean Discovery Institute Field Trip Volunteer Cards
- € At Insects Station:
  - o Place terns down in a square so that students can sit on them

- Trip Lead:
  - **o** Meet buses at Living Coast Discovery Center, introduce yourself to teachers and bus driver.
  - **o** Welcome students to Living Coast Discovery Center.

- Begin Arrival Tasks.
  - ***o*** *Note: The below should take place simultaneously.*
  - ○ Trip Lead (1)
    - Dismiss all chaperones on the bus to meet with the instructor doing the **Chaperone Introduction**.

- Take teachers off buses and have them note any students absent on the roster and sign a cover sheet stating they've collected all waivers to the best of their ability.
- Unload students to groups and send student to their instructor.
    - Each group will be one full class.
- Fill out and turn in Living Coast Discovery Center Count Slip.

o Fellows (2)

- Help the bus driver unload the lunches.
- Place lunches in front of each bus so that one lunch can be handed to each student as they disembark.
- Each fellow should stand outside one bus to pass out lunches to students.

o Fellow (1)

- Take adult chaperones aside and discuss expectations for the day.
- Provide each one with an "Ocean Discovery Institute Field Trip Volunteer Card" and explain how they can be most helpful today:
    - No cell phones unless snapping a quick picture.
    - Interact with the students. Ask them questions. Don't be worried if you don't know the answers to things, that is okay!
        - **o** On your card there is a short list of some questions you can ask students.
    - Participate with the group. Sit in the circle with the students. Do dances, answer questions, be a partner with a student during pair-shares.
    - Please no side conversations while the instructor is talking.
    - Have fun!

o Fellows (additional)

- Meet students in their group as they get off the bus.
-

Introduction

Timing:

- Staff and Volunteer Intros (3 min)
- Review Community Agreements (2 min)
- Review Wetlands & Science Leader Dances (5 min)
- Intro Science Leader Tools (4 min)
- Visors and Team Name (5 min)
- Theme of the Day (1 min)

Staff and Volunteer Intros:

- Staff and volunteer introductions:
  - All staff + volunteers take 30 seconds to introduce themselves and share their story.

Review Community Agreements:

- While exploring the wetlands today, we will all abide by the same Community Agreements we did in the classroom.
  - Ask: Does anyone remember any of our Community Agreements?
- To Be Your Best Self, you should:
  - (Show Community Agreements slide.)
  - **Be curious!**
    - Ask questions, make observations, and share your thoughts and ideas.
  - **Be respectful!**
    - Listen when others are speaking.
    - Touch animals gently.
  - **Be safe!**
    - Take care of yourself and others.
    - Walk everywhere and stay within the boundaries.
- Ask students to give a silent thumbs up if they can agree to be their best self today.

Review Wetlands & Science Leader Dances:

- Overview of LCDC:
  - The Living Coast Discovery Center was founded in 1987 but it was called the Chula Vista Nature Center back then.
  - The LCDC's goal is to inspire people to learn about and visit this natural environment.
  - Over 300 people work and volunteer here.

- Introducing the Living Coast as a wetland.
  - Ask students: Who remembers what a wetland is?

        - Define wetland – where land and water meet.
    - Ask students: Do you think you are in a wetland?
        - Yes! We are next to San Diego Bay and surrounded by Sweetwater Marsh which is a protected wetland.
        - You may not be able to see water right now but you will at some point today.
    - Ask students: Does anyone remember any of the plants or animals we put in our wetland habitat back in your classroom?
        - Ask students to name the ones they remember.
    - Ask students: Do you think you will see any of those plants and animals today?
        - Maybe! They all live here but we will need to use our senses to find all of them!
    - Because the area around us is a protected wetland, we practice – Leave no Trace.
        - We leave nothing behind but footprints and we clean up all our trash.
        - We cannot take anything home with us including rocks, shells, etc.

- Science Leader Dances
    - We will be science leaders exploring the wetlands.
    - Review the Science Leader Dances.
        - *(See Community Building Day Curriculum.)*
        - Go through motions a few times, you can change it up by doing slow motion, speed up version, super quiet, super loud, etc.

Introduce Science Leader Tools:

- Notebooks and Explorer Backpacks:
    - To make observations, science leaders need tools!
- Explorer backpacks have tools for exploring.
    - You may use any tool at any point today to make observations about the wetlands.
    - Review one example tool.
        - Hand lens:
            - Hand lenses are used to look at things up close.
            - Have all students practice using hand lens.
            - (Choose an item close by for all students to look – fingers, nails, end of hair, etc.)
    - Science leaders treat all tools with respect. Be sure to return them to your backpack when you are finished using them.
    - You are responsible for your backpack all day.
- To make observations, science leaders need a place to draw or write their observations and ideas.
    - Science leaders use notebooks for recording observations, questions, and thoughts they have.
    - They can be used anywhere- in the lab, in the field, at home.
    - You can write, draw, or sketch in your science notebook at any time today.

  - At the end of this program your science notebook will be yours to take home.
  - Inside each of your backpacks is a science notebook for you.
- (Give students time to look through backpack.)

Lunches & Personal Backpacks:

- If students brought their own backpacks, they need to place their backpack inside their Explorer Backpack.
  - Have all students place their lunch in their Explorer backpack.
- Distribute a water bottle to any student who needs one.

Visors & Team Name:

- Visors
  - Science leaders work as a team.
  - Even though we are unique individuals with our own thoughts, ideas, and questions, we must be able to work as a team.
  - Look around you- these are your fellow science leaders.
  - We will all have the same color visor to signify our unity as a team.
  - Adults have visors as well because they are also part of the scientific team.
  - Feel free to ask any adult questions throughout the day!
  - (Pass out visors and markers to students and adults.)
    - Have students and adults write their name on visor (not too large because they will decorate later today).
- Team Name
  - Tell students their team name.
  - Explain that the team name is an attention getting signal.
  - Example:
    - When you here "Blue!"
    - You all shout "Egrets!"
    - (Practice call and response a few times.)

Theme of the Day:

- Wildlife Housing
  - Last time we met we created a wetland for your classroom and learned that lots of plants and animals make the wetlands a home.
    - What are some things you do at home? (Eat, sleep, watch tv, hang out with family, etc.)
    - Many animals do the same kinds of things here in the wetlands because this is their home!

- Animals find food to eat, live with their families, sleep, rest, etc. here in the wetlands. The wetlands are wildlife housing for animals.
    - (Introduce Wildlife Housing dance move.)
    - (Have students practice wildlife housing a few times.)

- Throughout the day we ask questions and make observations about how different types of animals use the wetlands as wildlife housing.
- You will visit three different stations. One station will focus on insects, one will focus on underwater animals, and one on birds; however, as we work today and walk from station to station, don't hesitate to make observations about anything in the wetlands.

Insects

Timing for this station:

- Intro (5 min)
- Walk along path towards water (12 min)
- At Bend in the Trail (6 min)
- Walk back to Intro Area (12 min)
- Debrief (5 min)

Intro:

- Introduce Insects – Wildlife Housing:
    - Remember that science leaders Explore and Wonder.
        - (Do the Scientific Dance for Explore and Wonder.)
    - At this station we will explore how the wetlands are used as wildlife housing by insects and record our observations in our science notebook.
        - (Do the Wildlife Housing dance move.)
    - While we walk along this trail your job is to explore and investigate (Do the Explore and Investigate Science Leader Dances) and to write down two observations and one question in your science notebook that the wetlands are wildlife housing for insects and one question you have while exploring.
        - (Show student the page they will write on "Wildlife Housing – Insects".)
        - Share an example with students (i.e. you see a spider web on a bush- that is evidence that a spider is living here in the wetlands.)
        - Ask students: What is a question?
            - Question – something we ask to get more information.
        - Ask students: What is an example of a question?
            - Get 2-3 examples of a question.
    - Writing vs. Drawing
        - You may record your observations or questions using words or sketches – whatever is easiest for you.
            - Example: You could sketch a plant you observe versus writing down all the details of the plant.
        - Sketches are simple drawings – they do not need to be perfect!
    - You can use any of the tools in your backpack to help you.
    - You will have 20 minutes to explore while we are walking.

- Review Community Agreements:
    - Be Safe!
        - While we are exploring you need to stay between myself and xx.
        - You may stop and look and anything as long as you don't get ahead of me or behind xx.

Walk along path towards water:

- (Fellows should spread out and give students lots of space to explore.)
- (Fellows should interact with students as much as possible. Remember the goal is for students to feel like they **recognize and do science** so phrase questions accordingly!)
- Potential questions to ask students include:
    - How are you using science to look at this?
    - What are you wondering about?
    - What evidence are you finding of insects living in the wetlands?
    - Why do you think these insects would want to live here?
    - What tool(s) are you using to help you explore?
    - What have you written in your scientific notebook?

At the Bend in the Trail:

- (When you get to the bend in the trail stop the group and have them look for the water.)
    - Once they find it, remind them they are in a wetland.
- Let students know you will be walking back to where they started and that by the time you get back they must have at least two observations that the wetlands are wildlife housing for insects and one question in their science notebook.

Walk back to Intro Area:

- Students should continue recording observations and questions about insects in their science notebooks.

Debrief:

- (Once you have returned to the tarps have students put all tools back into backpacks and sit in a circle on the tarps.)
- Debrief with students.
    - Must ask questions:
        - How are insects using the wetlands as wildlife housing?
        - What questions about insects did you write in your science notebook?
    - Additional questions if time allows:
        - While you were doing science which tools did you use from your backpack and why?

        - Were there any other types of animals you saw evidence of besides insects?
- Great job science leaders! It's time to explore another area!

Underwater Animals

Timing:

- Intro (5 min)
- Walk Through Aquarium (15 min)
- Shark & Ray Intro (5 min)
- Shark & Ray Encounter (10 min)
    - ***Please note your time slot for the Shark & Ray Encounter on the schedules above. You must be in and out of the exhibit during this timeframe.***
- Debrief (5 min)

Intro:

If this is your first station, do "Science Notebook" section from Insects above, if it's not your first station skip to the Introduce Underwater Animals- Wildlife Housing below.

- Introduce Underwater Animals – Wildlife Housing:
    - At this station we will explore how the wetlands are used as wildlife housing by underwater animals.
        - (Do the Wildlife Housing dance move.)
    - While we walk through the aquarium exhibits we will explore and investigate (Do the Explore and Investigate Science Leader Dances) how underwater animals use wetlands as wildlife housing.
        - You need to write down two observations related to underwater animals using the wetlands as wildlife housing and one question you the animals you see.
            - (Show student the page they will write on "Wildlife Housing – Underwater Animals".)
            - Share an example with students (i.e., you see a fish hiding in some algae - that is evidence that fish is using underwater plants in the wetlands as a home at least some of its life.)
        - Ask students: What is a question?
            - Question – something we ask to get more information.
        - Ask students: What is an example of a question?
            - Get 2-3 examples of a question.
    - Writing vs. Drawing

- You may record your observations or questions using words or sketches – whatever is easiest for you.
  - Example: You could sketch an animal you observe versus writing down all the details of the animal.
- Sketches are simple drawings – they do not need to be perfect!

- You can use any of the tools in your backpack to help you.
- You will have 20 minutes to explore while we are walking.

- Review Community Agreements:
  - Be Safe!
    - We will break into smaller groups to explore inside the aquarium.
      - Break students into groups based on the number of adults you have (include teachers, chaperones, etc. The smaller the group the better.)
    - Your group will travel together so stay together.
  - Be Respectful!
    - Use indoor voices.
    - Wait your turn to see an exhibit. If someone is there before you be patient.
    - Animals live inside – do NOT tap on glass, place hands or other times (like pencils) into the exhibits.
  - Be Your Best Self
    - If you are struggling to Be Your Best Self we will ask you to exit the exhibit and sit outside with you teacher until we are finished.

Walk Through Aquarium:

- (Let all adults know what time to be at the back door.)
  - Walk students into the aquarium in small groups.
  - One Fellow should be the first group and one Fellow should try to be the last group.
- Potential questions to ask students include:
  - How are you using science to look at this?
  - What are you wondering about?
  - What evidence are you finding of underwater creatures living in the wetlands?
  - Why do you think these animals would want to live here?
  - What tool(s) are you using to help you explore?
- (Lead Instructor should give a 5- and 2-minute warning. Remind all students that they need to have recorded two observations and one question about how underwater animal use the wetlands as Wildlife Housing.)

Shark & Ray Intro:

**It is okay to enter the Shark and Ray exhibit if people from the public are visiting but if there is another school group inside, wait until they leave to enter.*

- Review behavior for Shark and Ray Exhibit:
    - Student will see lots more underwater animals here be able to touch some of them.
    - Rays will not bite or sting but no one has to touch them if they don't want to.
- Review Community Agreements:
    - Be Respectful!
        - Use indoor voices.
        - Walk inside the exhibit.
        - Review two finger scientific touch.
            - (Hold up fingers to demonstrate how.)
            - (Have students practice petting the back of their hand using science fingers.)
            - You MUST wash your hands before putting them in the water with the stingrays.
                - There is sink inside the exhibit for this.
        - Wait your turn to see an exhibit. If someone is there before you be patient.
        - We will not use any tools inside.
            - (Have students place all scientific tools inside backpacks.)
    - Be Your Best Self
        - We will divide into two groups.
            - One group will go with me to look at and touch sting rays first.
            - One group will go with (xx) to look at the underwater section first.
            - Halfway through our time we will switch locations so everyone gets to do and see everything.
            - (Pause and make sure all binoculars and lenses have been put away and backpacks are securely on backs.)
- Checks for Understanding:
    - Should we use any tools in our backpack inside?
    - How many fingers can we use to touch the rays?
    - How can we be our best selves?

Shark & Ray Encounter:

- (Be sure students wash hands before putting them in the sting ray/shark exhibit.)
- (When time is half-way up, switch areas.)

Debrief:

- Find a quiet (and if possible shady) spot and have students sit/stand in a circle.
- Debrief with students.
    - Remind students to use appropriate volume and to speak slowly and clearly when addressing their classmates.
    - Must ask questions:
        - How are underwater animals using the wetlands as wildlife housing?
        - What questions about underwater animals did you write in your science notebook?
    - Additional questions if time allows:
        - What do you wonder about sharks and rays?
        - What other questions did you have about anything you saw in the aquarium?
- Great job science leaders! It's time to explore another area!

Birds

***Please see Instructor Supplement for information on birds found at Living Coast Discovery Center.*

Timing:

- Intro (10 min)
- Shorebird Aviary (10 min)
- Eagle Mesa & Raptor Row (10 min)
- Debrief (5 min)

Intro:

If this is your first station, do "Science Notebook" section from Insects above, if it's not your first station skip to the Introduce Birds – Wildlife Housing below.

- Introduce Birds - Wildlife Housing:
  - At this station we will explore how the wetlands are used as wildlife housing birds.
    - (Do the Wildlife Housing dance move.)
  - While we walk through the aviary we will explore and investigate (Do the Explore and Investigate Science Leader Dances) how birds use wetlands as wildlife housing.
    - You need to write down two observations related to birds using the wetlands as wildlife housing and one question you the birds you see.
    - (Show student the page they will write on "Wildlife Housing – Birds".)
    - Share an example with students (i.e., you see a bird using its beak in the sand - that could be evidence of that bird looking for food – which is an example of birds using the wetlands as wildlife housing.)
  - You can use any of the tools in your backpack to help you. You will have ~10 minutes to explore.

- Review Community Agreements:
  - Be Safe!
    - While we are exploring you need to stay between myself and xx.
    - You may stop and look and any birds as long as you don't get ahead of me or behind xx.
  - Be Respectful!
    - We will use whisper voices in the aviary.
      - Why do you think it is important to be quiet around the birds?

Shorebird Aviary:

- (Walk students to the Shorebird Aviary.)
    - Tell students to stay within the aviary.
    - Give them time to explore the birds.
- (Fellows should interact with students as much as possible. Remember the goal is for students to feel like they **recognize and do science** so phrase questions accordingly!)
    - How are you using science to look at this?
    - What are you wondering about?
    - What evidence are you finding of birds living in the wetlands?
    - Why do you think these birds would want to live here?
    - What tool(s) are you using to help you explore?

Eagle Mesa & Raptor Row:

- Repeat what you did in the Shorebird Aviary.
- Reminds students that if they haven't drawn a bird yet they should stop now and choose a bird to draw.

Debrief

- (Find a quiet (and if possible shady) spot and have students sit/stand in a circle.)
- Remind students to use quiet voices if you are still near the aviary.
    - Must ask questions:
        - How are birds using the wetlands as wildlife housing?
        - What questions about birds did you write in your science notebook?
    - Additional questions if time allows:
        - What do you wonder about any of the birds you saw?
        - While you were doing science which tools did you use from your backpack and why?
- Great job science leaders! It's time to explore another area!

Lunch & Bathroom Break

- Before lunch begins:
    - Have students take a bathroom break and refill water bottles.
    - Remind students of “Leave No Trace”
        - The area around us is a protected wetland, so we practice – Leave no Trace.
        - We leave nothing behind but footprints and we clean up all our trash.
        - Point out trash, recycling, and compost bins and briefly explain what goes in each, if you have a question ask a staff member.
    - Students need to keep volume down because they are very close to the bird aviaries.
    - Pass out hand sanitizer to each student before lunch.
- During lunch:
    - Monitor noise level and trash throughout lunch.
    - Assign staff members to monitor the trash area to be sure students are correctly putting items into trash, recycling, and compost bins.
    - Give students a five-minute warning before clean-up.
- End of Lunch:
    - Remind student that we strive to leave an area cleaner than when we found it.
    - Have students take two minutes to walk around and clean up their area.
    - At the end of lunch perform a trash sweep of the lunch area.

Self-Reflection

Timing for this Station**:**

- Think-Pair-Share (5 min)
- Visors (10 min)
- Share Out of Visors (5 min)

Think-Pair-Share

- Have students sit down in a circle.
- You have done a lot of science with Ocean Discovery today!
- Lead them through a **think-pair-share** for the following prompt.
    - Describe to your partner a time when you were doing science today. Describe what you were doing, any tools you were using, and what you were thinking about.

Visors:

- Everyone did a great job a science leader today.
    - I heard so many observations and questions!
- Now we are going to take a moment and capture ourselves as science leaders doing science on our visors.
- You can draw yourself doing what you just described to your partner or you can draw another picture of yourself when you were doing science today. It's up to you.
- Expectations for visor drawing:
    - Draw a picture of yourself doing science today.
    - Your picture does not have to be perfect.
    - You will have about five minutes to work.
    - Once you've drawn yourself doing science you may add any other decorations to your visor that you wish.
        - You could even draw some of the animals you saw today.
    - Science leaders are respectful: if you need a certain color marker wait patiently until the other person is done with it.
    - Science leaders are thoughtful: do you best work even if you don't think you're a great artist.
- Give students time to draw on visors.
    - Hand out markers.
    - Give students 5-7 minutes to draw on their visors.
    - Collect and put away markers.

Share-Out of Visors:

- Invite students to share their drawing with the group and ask follow-up questions. Potential questions include:

- What are you doing in this picture?
- Why did you feel like a science leader in that moment?
- Did you like doing science?
- Did you like being a science leader today?
- Do you think science is important? Why?

Clean up + Goodbye + Load Buses

**** If using the "A Little Late" or "A Lot Late" schedule just do Clean up – Science Notebooks, but have kids line up backpacks in that way that will make it easier for you during clean up (straight line, multiple lines of a few, etc.) and do "Go Awesome!" cheer.**

Clean up - Science Notebooks

- Have students sit in a circle and take out their Science Notebooks.
- Have student hold notebooks up and make sure every notebook has a first, last and teacher's name on it.
- Collect notebooks and let students know they will get them back when they come to the Living Lab.
- Collect all notebooks and place in a folder with school and teacher's name on it.

Clean up - Water Bottles & Explorer Backpacks

- Collect water bottles.
- Clean out explorer packs.
    - Have students empty out their backpacks onto the grass.
    - Have students make sure they have each of the following:
        - ___Binoculars (1)
        - ___Hand lens (1/pack)
        - ___Pencil (1/pack)
        - Wetland Plant and Animal ID Card (1)
    - If anyone has extras of anything collect them. If anyone is missing something replace it.
    - Have students throw any garbage from their explorer packs into the trash bags.
    - Have students' clean binoculars and hand lenses:
        - Give each pair of students a piece of lens paper to clean off eye pieces of binoculars and hand lens. Demonstrate.
        - Throw all used lens paper into garbage bin.
        - Make sure these go in the correct bags.
    - Have students replace everything into their bags.

Goodbye:

- Remind students that you will see them one final time when they come to the Living Lab where they will continue to do science and explore a wetland in their own neighborhood.
- Thank you for being your best self today!
- At Ocean Discovery Institute we **BELIEVE** that science is something you can do and a sciece leader is someone you can be, that you can **ACHIEVE** in science and think critically about our

world, and you can **LEAD** in science and conservation and make a difference in the world. Because we believe this, we do a "Believe! Achieve! Lead! Go Awesome!" cheer at the end of every program so that you will continue to do awesome things after we leave.

- On the count of three we will yell "Believe! Achieve! Lead! Go Awesome!"
- Walk students back to bus area.

Clean Up & Return to Lab

- Report to the Program Coordinators any supplies that are running low in the General Bin visors, notebooks, etc.)
- Place folders with science notebooks into file box in Living Lab.
- Organize explorer packs (if there wasn't time for students to do this).
- Restock backpacks:
  - Science notebooks
  - Visors
- Empty garbage and paper into recycling can.

Make a Difference Day

Living Lab Experience

Goal: Students build belief that science is important and relevant, that they can make a difference, and that a career in science is a possibility for them.

Make a Difference Actions:

- (Today) I love the wetlands and teach others about it.
- (Tomorrow) I am a wetland biologist who explores the wetlands.
- (Imagination Station) I am a wetland biologist who explores the wetlands.

Supplies:

Arrival:

- Ocean Discovery Institute Field Trip Volunteer Card (1/chaperone)
- Cover sheets & rosters (1/class)
- Stop signs (2)

Introduction:

- 2nd Grade Make a Difference Day PowerPoint
    - Papi://Curriculum/SI New/Upper Elementary (3-5)/5th Grade/5th Grade Visuals
- Science Discovery Process Poster (3)
- Science Notebooks (1/student)
- Pencils (1/student)
- Water coolers (filled w/ water) (2)
- Water cups (1/student)
- Sharpies (4)

Make a Difference Today

- Large white board + easel (1)
- Dry erase markers (2)
- Whiteboard eraser (1)
- Portable 1st Aid Kits (1/instructor)
- Tarps (3-4)
- Foldable tables (5)
- Butcher Paper (1/roll)
- Blue tape (3/rolls)
- Paint pens (50)
- Art bins (5)
- Laminated Word Banks (10)

Make A Difference Tomorrow

- Microscopes (13)
- Videoscope (1)
- Protoslo (1 bottle)
- Eyedroppers (6)
- Petri dishes (15)

Imagination Station:

- Hand Lens (1/student)
- Canopy (3)
- Water bottle (1)
- Cleveland Sage
    - Enough for each student to rub some on their arm to smell
    - Check fridge first for Ziplocs to lessen waste and harm of plant
- Clipboard (1)
- Tarps (4)
- Pencils (20)

Self-Reflection:

- Speaker + iPod (with multiple kids ocean songs, like Baby Shark and Under the Sea) (3)
- Laptop w/ teacher survey (3)
- BELIVE Survey (1/student)
-

Timing:

On Time:

Time	Group 1	Group 2	Group 3
9:30 – 9:40	**Arrival** Watershed Plaza		
9:40 – 10:00	**Introduction** SciTech Lab	**Introduction** Eco Lab	**Introduction** Leadership Alcove
10:00 – 10:35	**MAD Tomorrow** SciTech Lab	**MAD Today** Eco Lab/The Commons	**Imagination Station** Leadership Alcove /Canyon
10:35 – 10:55	**Science Leader Student Connection** Sci Tech Lab	**Science Leader Student Connection** Eco lab	**Science Leader Student Connection** Leadership Alcove
10:55 – 11:20	**Lunch + Bathroom Break** The Commons and Rock Amphitheater		
11:20 – 11:55	**Imagination Station** Leadership Alcove /Canyon	**MAD Tomorrow** SciTech Lab	**MAD Today** Eco Lab/The Commons
11:55 –12:30	**MAD Today** Eco Lab/The Commons	**Imagination Station** Leadership Alcove /Canyon	**MAD Tomorrow** SciTech Lab
12:30 –12:50	**Self-Reflection + Teacher Survey** Group 1: Eco Lab Group 2: Leadership Alcove Group 3: Sci Tech Lab		
12:50 –1:00	**Clean Up + Goodbye**		

A Little Late:

**Shortened timing*

Time	Group 1	Group 2	Group 3
9:45 – 9:55*	**Arrival – brief general welcome** Watershed Plaza		
9:55 – 10:05*	**Introduction** SciTech Lab	**Introduction** Eco Lab	**Introduction** Leadership Alcove
10:05 – 10:35*	**MAD Tomorrow** SciTech Lab	**MAD Today** Eco Lab/The Commons	**Imagination Station** Leadership Alcove /Canyon
10:35 – 10:55	**Science Leader Student Connection** Sci Tech Lab	**Science Leader Student Connection** Eco lab	**Science Leader Student Connection** Leadership Alcove
10:55 – 11:20	**Lunch + Bathroom Break** The Commons and Rocky Amphitheater		
11:20 – 11:55	**Imagination Station** Leadership Alcove /Canyon	**MAD Tomorrow** SciTech Lab	**MAD Today** Eco Lab/The Commons
11:55 –12:30	**MAD Today** Eco Lab/The Commons	**Imagination Station** Leadership Alcove /Canyon	**MAD Tomorrow** SciTech Lab
12:30 –12:50	**Self-Reflection + Teacher Survey** Group 1: Eco Lab Group 2: Leadership Alcove Group 3: Sci Tech Lab		
12:50 –1:00	**Clean Up + Goodbye**		

Very Late:
**Shortened timing*

Time	Group 1	Group 2	Group 3
10:00 – 10:05*	**Arrival – split into classes upon arrival** Watershed Plaza		
10:05 – 10:10*	**Introduction** SciTech Lab	**Introduction** Eco Lab	**Introduction** Leadership Alcove
10:10 – 10:35*	**MAD Tomorrow** SciTech Lab	**MAD Today** Eco Lab/The Commons	**Imagination Station** Leadership Alcove /Canyon
10:35 – 10:55	**Science Leader Student Connection** Sci Tech Lab	**Science Leader Student Connection** Eco lab	**Science Leader Student Connection** Leadership Alcove
10:55 – 11:20	**Lunch + Bathroom Break** The Commons and Rocky Amphitheater		
11:20 – 11:55	**Imagination Station** Leadership Alcove /Canyon	**MAD Tomorrow** SciTech Lab	**MAD Today** Eco Lab/The Commons
11:55 –12:30	**MAD Today** Eco Lab/The Commons	**Imagination Station** Leadership Alcove /Canyon	**MAD Tomorrow** SciTech Lab
12:30 –12:50	**Self-Reflection + Teacher Survey** Group 1: Eco Lab Group 2: Leadership Alcove Group 3: Sci Tech Lab		
12:50 –1:00	**Clean Up + Goodbye**		

Program Set Up:

Arrival (Watershed Plaza/Discovery Gallery)

- € Bring out stop signs from transitional storage.
- € Collect rosters, cover sheets, and walking maps from transitional storage.
- € Open all shades in Discovery Gallery.
- € Print visitor badges for teachers (see rosters for names).

General (Ecolab, SciTech lab, The Commons)

- € Open all windows and shades.
- € Set up seven tables with four chairs each (additional chairs off to the side).
- € Set out a Science Discovery Process Poster.
- € Turn on Smartboard.
  - o Log into Zoom.
    - ▪ Test camera angle.
  - o Open PowerPoint.
    - ▪ Test sound on videos.
- € Pull out hand sanitizer and pencils from cabinet.
- € Put ~30 clean cups in the "clean" bin on top of water cooler. Place "dirty" bin next to it.
- € Ensure water cooler is filled with water.
- € Create a Word Wall using a long piece of butcher paper that can be taped up close to the Smartboard.
  - o Set out sharpies near "Word Wall".
- € Set up two laptops with teacher surveys.
- € Make sure you have enough printed Believe surveys.
- € Spread one classes' science notebooks out on a table (one class at each location).
- € Write on whiteboard for Reflection: "One thing I enjoyed about being a science leader today was…"
- € Set up iPod + speaker with fun song cued up.

Make a Difference Today (The Commons)

- € Retrieve supply bins from transitional storage.
- € Gather rocks from pre-gathered rock pile for painting (1/student + 1/adult).
- € Place tarps on the ground in The Commons area.
  - o Place folding tables on top of tarps (to catch any paint).
  - o Cover all tables with butcher paper.

Program Set-up Continued:

Make a Difference Tomorrow (SciTech Lab)

- € Set up and test microscopes (13)
- € Microscopic Organism Key (13)
- € Protoslo (1 jar)
- € Eyedroppers for Protoslo (2-3)
- € Slides w/ dip for water sample (20)
- € Eyedroppers for pond sample (10-12)
- € Videoscope plugged in and tested (1)
- € Pond organism ID card (25)

Next to Pond

- € Collect a water sample from the pond and divide it up so that each group gets part of the sample to look at.

Imagination Station (Fisler Family Tree)

- € Set up tents near Fisler Family Tree
- € Set up tarps next to tent for students to sit on.
- € Check refrigerator for leftover sage from previous program, if necessary, collect fresh sage (2-3 large stalks)
- € Inside tents set up:
  - o Hand lens
  - o Water bottle
  - o Clipboard + Pencil
  - o Camouflage head bands
  - o Sage

Lunch (Courtyard by the Rocks & Commons)

- € Retrieve blanket bin from downstairs storage (use hand cart to transport)
- € Spread out 6 blankets on the ground (concrete) in the Commons
- € Place 2 blankets on the ground (dirt) near the Fisler Family Adventure Tree
  - o Do not put blankets on the boulders

Science Leader Student Connection:

Arrival

If bus is 10 minutes late – contact dispatch and update staff on timing.

Trip Lead Notes:

- € Discuss with Ocean Discovery staff who will take on each of the **Arrival Tasks** (see below).
- € Ask Jo details about next upcoming camp to share with students.
  - o Share these with Instructors.

- If walking with school, Trip Lead:
  - Introduce yourself to teachers and volunteers.
  - Take teachers aside and note any students absent on the roster.
  - Sign cover sheet stating they've collected all waivers to the best of their ability.
- If arriving by bus:
  - Two staff should be waiting at bus stop (corner of Thorn & 42nd) 10 minutes prior to arrival time
- (Meet buses or students walking.)
  - Take students and have them sit in the Watershed Plaza.
- (Begin Arrival Tasks.)
  - (Note: The below should take place simultaneously so students are getting an intro while the classroom teachers are dealing with rosters.)
  - Trip Lead (1)
    - For bus schools only: Take teachers aside and note any students absent on the roster.
    - Sign cover sheet stating they've collected all waivers to the best of their ability.

  - Fellow (1)
    - Take adult chaperones aside and discuss expectations for the day.
    - You will be asked to introduce yourself – name, how you got involved with Ocean Discovery, etc.
    - Provide each one with an "Ocean Discovery Institute Field Trip Volunteer" card and explain how they can be most helpful today:
      - Be your best self: be present- no cell phones; sit & participate in activities with students; be a partner with a student during pair-shares.
      - Be safe: help students make good choices concerning their safety
      - Be respectful: don't have side conversations when instructors are teaching
      - Be curious: ask questions of students and try to engage students who seem disengaged.
        - On your card there is a list of questions you can ask students.

- Fellow (1)
  - Review Community Agreements:
    - We are working as a team of science leaders and we all must agree to follow a certain set of expectations.
    - At Ocean Discovery we believe everyone should Be Their Best Self.
      - (Show Community Agreements slide.)
    - **To Be Your Best Self**, you should:
      - **Be curious!**
        - Ask questions, make observations, and share your thoughts and ideas.
      - **Be respectful!**
        - Respect people, living things, and the environment around you.
      - **Be safe!**
        - Take care of yourself and others.
    - Ask students to give a silent thumbs up if they can agree to be their best self when working with Ocean Discovery.
  - Introduce Living Lab
    - Even though they will be passing by offices and people, they do NOT need to be quiet. They are welcome to talk in a normal voice.
    - The Living Lab is theirs & should be a place they feel comfortable being themselves & exploring.

- Fellows (2)
  - Take lunches to the Achievement Alcove and then return to Watershed Plaza.

- Once all staff members have returned Trip Lead will dismiss students and teachers by group (each class is a group) and instructors will walk them to their Introduction area.
  - Students high five ODI statue on the way past.
-

Introduction

Timing for The Commons	Timing the Eco Lab:	Timing for the SciTech Lab:
• Enter & find science notebook (2 min) • Staff, volunteer, and Living Lab intros (3 min) • Bathroom Break (5 min) • OL Video + Debrief (5 min) • Review Science Leader Dances/Wetlands/ Make a Difference (5 min)	• Bathroom Break (5 min) • Enter & find science notebook (2 min) • Staff, volunteer, and Living Lab intros (3 min) • OL Video + Debrief (5 min) • Review Science Leader Dances/Wetlands/ Make a Difference (5 min)	• Enter & find science notebook (2 min) • Staff, volunteer, and Living Lab intros (3 min) • OL Video + Debrief (5 min) • Review Science Leader Dances/Wetlands/ Make a Difference (5 min) • Bathroom Break (5 min)

Science Notebook:

- As students enter the space have them find their science notebook and then take a seat.
- Show students where reusable cups and water are.
- Show students where dirty cups go – try to hold onto your cup throughout the day.

Staff and Volunteer Intros:

- Staff and volunteer introductions:
  - All staff + volunteers take one minute each to introduce themselves and share their story.
- Review Community Agreements.
  - (Show Community Agreements slide.)

Living Lab Intro:

- Welcome students to the Living Lab.
  - Ask students: Has anyone visited the Living Lab before?
  - The Living Lab is your Ocean Discovery Home.
  - It is a place where you can learn science and being a science leader.
  - We want everyone to feel welcome at the Living Lab and we want to encourage you to come back again, so at the end of the day I will share about upcoming opportunities to return.

Introduce Ocean Leader Video

- I'd like to introduce you to a science leader who grew up in City Heights and did programs with Ocean Discovery just like you are.

- Meet Mary Cozy, who is a Biologist.
    - I am going to play a short video where Mary shares about her journey as a science leader.
    - (Play Ocean Leader video on PowerPoint.)

Debrief Ocean Leader Video:

- Potential whole group questions include:
    - In what ways is Mary like you?
- Think-Pair-Share for the following question:
    - Do you think you COULD be a science leader if you wanted to? Why or why not?
        - For some students you may need to clarify: You don't have to want to be a science leader. The question is, could you if you wanted to?
    - Have 2-4 students share their thoughts. Follow up questions could include:
        - What kind of science leader would you like to be?
        - Do you think it could by challenging to become a science leader? In what way?

Science Leader Dances:

- Remind students that they are science leaders.
    - Review what science leaders do using the Science Leader Dances.
    - Go through motions a few times, you can change it up by doing slow motion, speed up version, super quiet, super loud, etc.

Make a Difference

- Today we will focus on ways we can Make a Difference as science leaders by looking at wetlands in our own community.
- Review definition of wetland.
    - Wetland = where water and land meet.
    - Ask students: What ways do you remember animals using the wetlands as wildlife housing?
- Canyons as Wetlands
    - There are wetlands here in your neighborhood!
        - (Have students look out into the canyon.)
    - It may look dry now but when it rains water collects in the canyon creating a stream.
        - Although the canyon is not exactly the same as the Living Coast (where there is water from the San Diego Bay present all the time) water can collect in the canyon when it rains making a wetland environment.
        - (Show students "Rain in the Canyon Video" in PowerPoint.)
    - Over the last few weeks, you have learned a lot about the wetlands and the plants and animals that live there.
        - Ask students: Do you think wetlands are worth protecting? Why or why not?

- There are many canyons in City Heights which are wetlands, not just this one.
  - Ask student: Do you think all the people who live in City Heights know that these canyons are wetlands?

- Communication and Make a Difference
  - One important part of being a science leader is sharing your knowledge with other people.
    - (Have students show you Science Leader dance for Communication.)
  - By sharing your knowledge of the wetlands with other people in the community – "Communicating", you can help them understand how important and valuable the wetlands are.
  - When people understand how special a place is, they will also want to protect it, this is Making a Difference because you are teaching other people to protect the wetlands.
    - (Have students show you the Science Leader dance for Make a Difference.)

Make a Difference Today

Timing for this Station:

- Wetland Intro & Imagery (15 min): Leadership Alcove
- Paint Station (10 min)
- Rock Pathway (5 min)
- Process Reflection (5 min)

Wetland Intro & Imagery

- Art and Science
    - At this station we are going to learn how we can make a difference in the world today, by using art to communicate.
    - Art and science are closely related.
    - Both science and art are human attempts to understand and describe the world around us.
    - Both artists and science leaders try to see the world in new ways, and to communicate that vision.
    - When they are successful, the rest of us suddenly 'see' the world differently.

- Introduce using art to communicate:
    - Art is a visual way to communicate thoughts, feeling, ideas, beliefs, etc. with other people.
    - Art can draw on people's emotions while sharing important information.
        -
        - Consider using the Walter Monk map. How does this map highlight conservation.
        - Seaturtle art work – connection at LCDC. Visit this and talk about how it is a way to make a difference

- Your artwork to tell a story
    - Today we will use art to inspire others to want to protect wetlands the way you want to protect the wetlands.
    - Each person will have the chance to paint a single rock with words or images that can help other people understand why the wetlands are important and should be protected.
    - All of the rocks will then be placed along a path in the canyon where people walk every day.
        - (Make a Difference Today – Art in the Canyon slides.)
    - Rocks are small so something you will need to consider is how to express your ideas about the importance of wetlands in just a word or two.

- Brainstorm Wetland Words:

- Brainstorm Round 1
  - We will work together to brainstorm some words you can use on your rocks.
    - (Have students turn to the "Make a Difference Today" page in their science notebook.)
    - This is where we will brainstorm our words.
  - Let's start by brainstorming words that describe our emotions when we are in the wetlands.
    - Emotion words are words that describe our feelings.
      - Example: happy, excited, frustrated, peaceful, etc.
    - I am going to show you a video of the wetlands.
    - While you are watching it write down some emotion words that describe how you feel about the wetlands.
      - o There are no wrong words.
      - o Words do not have to be in English.
      - You can draw emotions rather than writing the word.
    - (Play "Wetland Video".)
- Brainstorm Round 2
  - This time when you watch the video try to write down words that you think could help explain how important wetlands are and why we should protect them.
    - Review a couple of examples: animals, open space, explore
    - (Play "Wetland Video".)
- Create a Word Bank
  - Have students share out words they wrote down from either round.
  - Write them on a whiteboard so all students have a bank of words to choose from.

- Choosing 1-2 Words:
  - Now you need to choose 1-2 words to share.
  - These are the words you will paint on a rock for people in the community to see.
    - You do not need to pick a word from the list we brainstormed – you can choose another word.
    - You can choose a word that
  - Many people in City Heights speak languages other than English.
    - You may choose to write your word in another language.

    - Staff can help with translation if you need help.
  - I will play the video on more time and during that time you will circle the one or two words you want to paint on your rock.
    - (Play the Wetland Video again.)

- Rock Painting:
  - Once you have chosen a word call an adult over to look at it.
    - *Instructor Note: The only reason to not approve a word is because it is inappropriate.*
    - If a student would like to write their word in another language and need help with that, they can ask an adult who will help them use Google translate.
  - Once your word is approved meet (xx) on the tarp to paint your rock.

Paint station

- Have students choose a rock to paint.
  - Choose a rock you like or feel connected to.
  - Ask students: What do you like about this rock? Why are you connected to this rock?
- Provide them with a pencil.
  - Sketch your word on the rock using the pencil first.
  - When ready select a paint pen color.
  - You will not be able to erase or start over but it's okay if it's not perfect.
  - If they have additional time, they may decorate their rock.
    - Example drawings of the wetland or plants or animals.
  - Once they are done, they should return the paint pens.

Rock Pathway

- We are going to add our rocks to a pathway in the canyon so that when people are walking in the canyon or visiting the Living Lab, they will see all the words that make us think of the wetlands.
  - (Walk students down and help them place rocks along the pathway.)
- Have students admire the work they have done and let them know that other 2nd graders from their school and other elementary schools in City Heights will all add to this trail.

Process Reflection

- Great job science leaders!
  - You have now left a piece of yourself here in the canyon!
  - You can come back anytime to see your rock and you can bring family or friends too!
- Think-Pair-Share for the following question:
  - Why do you think it is important for science leaders like us to share what we know and love about the wetlands with other people?

- How does it feel to help make a difference in the world?

- Thank students for making a difference by sharing their knowledge of the wetlands with other people so that those people will also want to protect these neighborhood wetlands.

Make a Difference - Tomorrow

Timing for this Station:

- Intro (5 min)
- Visit Pond (10 min)
- Microscopes (12 min)
- Videoscope and Debrief (8 min)

Intro

- At this station we are going to learn how to Make a Difference in the future.
  - This means thinking about how you can help the wetlands when you are older.
  - One way you can do this is by becoming a science leader yourself so that you can share what you know about the wetlands and why it is important to protect them with other people.
  - One type of science leader that works in wetlands is a wetland biologist
- Explain what a wetland biologist studies.
  - A breakdown of the words wetland biologist.
    - *Wet-land: Wet- land- where water and land meet*
    - *Bio ology: bio – life ology – study of*
    - Wetland biologists study the living parts of a wetland.
  - Review what living things they have seen that use the wetlands as wildlife housing.
    - (Remind students of their trip to the Living Coast Discovery Center if they need help.)
  - Today we are going to become wetland biologists!
- Local wetlands.
  - Even though it doesn't look like the Living Coast Discovery Center this canyon is a wetland.
    - Ask students: Do you remember the video that showed rainwater collecting in a small stream.
  - Additionally, there is a small pond right outside the lab that has water when most of the rest of the canyon is dry.
  - As wetland biologists we will investigate this pond to see if any animals are using it as wildlife housing.
    - (Have students show the wildlife housing movement.)

Visit Pond

- (Walk students outside to storm drain pond.)
- Wetland biologists, how could we figure out if there is anything living in this wetland?
- Allow students to first simply look at the water with their own eyes.
    - Can you see anything?
    - What could that be?
    - Is it alive or not alive?
- The goal is to get students to come up with idea to collect some pond water and take it back to the lab to look at under the microscope.
    - If students don't see anything ask them if there might be things living in the water that are too small to see with our eyes?
        - What could we do to see them better?
    - If students, see some things moving ask them how we can see them better?
        - What scientific equipment could we use?
- Explain to students that we collected a sample of the water earlier today and have it back at the lab to look at under the microscopes.

Microscopes

- Explain to students that they will each get a sample of pond water.
    - They are to look through the microscope to see if they can find anything that could be using the pond as wildlife housing.
- Introduce microscopes:
    - Use one eye to look through eye piece.
    - Don't get your eye too close or you will see your eye lashes.
    - SLOWLY turn knobs to bring things into focus.
    - You will need to constantly turn the knobs as things will go in and out of focus.
    - Have students ask the person next to them for help with their microscope before asking an adult. If that person can't help they can raise their hand.
    - There will be a key next to your microscope. Can be used to learn the names of some of the things you see. (Point to Microscopic Organism Key).
- Draw a sketch of at least one organism you find in your science notebook.
    - (Have students open to "Make a Difference Tomorrow" page in science notebook.)
    - (Distribute pond water with Protoslo to slow down organisms.)
- (Give students time to use microscopes.)
    - Reminds students to draw one animal they are seeing when there is 2-3 minutes left in the station
    - While students are working, one fellow should set up the videoscope and make sure they can find something to show students.

- If students find something cool in their sample- have them share it under the videoscope.

<u>Videoscope & Debrief</u>

- Videoscope:
  - Okay wetland biologists, it's time to communicate what we have learned (have students do Science Leader Dance for Communicate)!
    - Point to Communicate on Science Discovery Process poster.
  - Another tool you may use if you become a science leader in the future is a video microscope.
  - This microscope is cool because you can use it to project images to share and you can record what you are seeing – like a movie!
  - Take 2-3 minutes and show some examples of pond creatures under videoscope.
    - Ask students to identify what they see on the videoscope using their key.
    - **DO NOT LET THIS GO LONGER THAN A FEW MINUTES OR YOU WON'T HAVE TIME FOR DEBRIEF.**
- Debrief:
  - Do we think there are living animals in the pond water?
    - Yes, there are lots of microscopic animals that live in the wetlands.
    - Microscopic means an animal that is so small it can only be seen with a microscope.
  - Think back to our visit to the Living Coast Discovery Center. Are there any animals that you saw there that you think might want to eat microscopic animals from a pond?
    - If students struggle, ask: What animals did we see at the Living Coast that were eating in the water? – Birds, fish, etc.
    - Do you think birds that fly around here might like to eat some of the tiny animals in the pond?
  - How many of you liked exploring the pond water today?
    - If you did enjoy it you might want to be a wetland biologist when you grow up.
    - Wetland biologists study all kinds of plants and animals in the wetlands, from the small, microscopic animals in the water to the bigger animals like birds and fish and sharks.
  - Turn and Talk

- Do you think you might want to be a wetland biologist when you grow up? Why or why not?

- Great job wetland biologists!
  - Remember if you want, you can make a difference in the future by becoming a science leader and learning more about the plants animals that live in the wetlands!

Imagination Station

Timing for this Station:

- Intro (7 min)
- Tent (5 min)
- Exploration Time (13 min)
- Return to Tent (5 min)
- Debrief (5 min)

Intro

- At this station you are going to imagine that you are a wetland biologist!
  - *(Note: if you have already visited the Make a Difference Tomorrow station you can review the below briefly).*
- Explain what a wetland biologist studies. Be sure to include:
  - A breakdown of the words: wetland biologist.
    - Wet-land: Wet- land- where water and land meet
    - Bio ology: bio – life ology – study of
    - Wetland biologists study the living parts of a wetland.
  - Review what living things they have seen that use the wetlands as wildlife housing.
    - (Remind students of the Living Coast Discovery Center if they need help.)
  - Wetland biologists need certain gear and tools to do their job.
- Imagination Station Tents:
  - In a moment we will go over to the tent to get our field gear on so that we can become wetland biologists.
  - Once we leave the tent you will have the opportunity to look more closely at the plants, animals, and water in our wetland using your tools.
  - When you return from the field you must have at least one question written down in your science notebook.
    - A question is something that you are wondering about and don't know the answer to.
    - You can have more than one question but you must have at least one.
    - (Have students open to "Imagination Station" page in their science notebooks).

Tent

- Walk students over to tent and introduce each piece of gear. After you introduce a piece of gear then give that piece of gear to students to put on.
  - Give everyone a camouflage band to tie around their upper arm.
    - Camouflage can help us blend in better.

- Have students rub Cleveland Sage on themselves.
    - Note: some students may not like the scent and will not want to rub it on themselves and that's okay. They can just smell it and decide.
    - How can this help us as wetland biologists?
        - Camouflage so we can get closer to animals.
        - The scent of the sage keeps insects away making it more comfortable to be in the field.
- Give each student a hand lens.
    - How can this help us as wetland biologists?
- Make sure everyone has their notebook open to the right page and a pencil.
    - How can this help us as wetland biologists?
    - Remember, your job when you return here is to have at least one question written down in your science notebook.
- When working in the field it is important for a wetland biologist to blend in so that they can study the animals.
    - How can we prevent animals from noticing us?
        - Being quiet.
        - Walking slowly.
        - Camouflaging (blending in).

<u>Exploration Time</u>

- Walk students along the trail and allow them to explore.
- Ask students to:
    - Stand still and listen for one minute.
        - What did you hear?
    - Explore plants for one minute.
    - Explore under rocks for one minute.
- Half-way through remind students they need to have at least one question written down in their notebook.

<u>Return to Tent</u>

- Return gear to Imagination Tent in an orderly fashion.

<u>Debrief</u>

- Ask students to share questions they are wondering about.

    - Allow other students to try and answer some of these questions or make a hypothesis about them if it is reasonable.
    - Science leaders often share ideas to figure things out.
- Ask students; What did you enjoy about begin a wetland biologist?

Science Leader-Student Connection

Objective of the Station: Students will meet a science leader, hear about their pathway to becoming a science leader, and have an opportunity to ask questions.

- Provide an overview of the Science Leader Student Connection portion of the program.
    - Today we will meet virtually with a science leader.
        - Learn about their pathway to becoming a science leader, what they do in their work, and their passion for the ocean and the wetlands.
    - You will also have the opportunity to ask the science leader questions.
        - (Brainstorm questions students want to ask – write these on a whiteboard where everyone can see.)

- Introduce Science Leader.
    - Tell the students who they are about to meet (science leader's name) a science leader who (describe what they do in 1-2 sentences and where they work).
        - (Connect Zoom Call).
    - (Welcome the Science Leader.)
    - (Conduct the interaction as one would an interview.)
        - Interview tips:
            - You may change the order or modify the questions based on the Science Leader's responses.
            - If a Science Leader is answering a question that may need to be wrapped up, you can move to the microphone which will signal them that you want to speak.
            - After the Science Leader answers a question, in a sentence or two, reaffirm the point they are making or acknowledge how it ties to the students' experience.
        - Interview questions asked by Fellow (~10 min):
            - Can you please introduce yourself and tell us about your job and what you love about it? (2 minutes)
            - Tell us about your pathway to your current job. For example, what got you interested in science, your education, etc. (2 minutes)
            - Have you ever faced an obstacle or challenge in your life that you were able to turn into an opportunity? How did you do that? (2 minutes)
            - Students are investigating the wetlands and the animals that live there. Why do you think this work is important? (2 minutes)
        - Student questions (~5-10 min):
            - Give two or three students the chance to ask questions.
            - If needed, remind them about the questions they came up with earlier.

- (Have students say “Thank you!” and all clap for the science leader.)
- (Disconnect Zoom call.)

Lunch & Bathroom Break

- Before lunch have students take a bathroom break.
- Refill water bottles.
- Give hand sanitizer to each student before lunch.
- Give students a five-minute warning before clean up.
- Remind students that we are connected to the ocean through the canyon watershed and that any trash that ends up on the ground here can end up in the ocean so we need to be careful.
- Have students take 2 minutes to walk around and clean up their area.

Teaching Notes:

- € Walk around and monitor students while they eat lunch – ask them questions about their experience.
- € Hand out hand sanitizer.
- € Monitor water cooler and help students refill water bottles.
- € Walk around with trash bag when you see students starting to finish up.
- € Supervise and encourage clean- up of surrounding area when clean up begins.

Self-Reflection

Timing for this Station:

- High Five Reflection (15 min)
- Draw a Picture of Yourself Visiting the Living Lab (5 min)

High-Five Reflection

- Activity Expectations:
  - Music will play and students and adults will walk around the classroom.
  - When the music stops, students and adults high-five the nearest person, hold the high-five and create a two-person bridge.
  - I will read a question out loud. Everyone will have 30 seconds to think about their answer. Then I will let you know who of the pair will share their answer first.
    - The person with the longest hair will go first.
  - After the first person responds the Lead Instructor will prompt the second person to speak.
  - I will choose 2-3 students to share their thoughts with the group.
  - Then I will turn on the music again and you will leave your partner and walk around.
  - When music stops they must high five someone NEW and face them.
- Activity:
  - Start the music and let it run for 20-30 seconds, then stop the music.
    - Walk around and help pair up any students who don't have a partner.
  - Read a question outload:
    - What was something you enjoyed about being a science leader?
    - Do you think you could be a science leader when you grow up if you wanted to? Why or why not?
    - Talk to your partner about a time you did science with Ocean Discovery. What were you doing?
    - What is one thing you want to tell your family about the wetlands?
    - Who would you want to bring to visit the Living Lab with you?
  - Let students think 20-30 seconds.
  - Let students know who of the pair will share their answer first.
    - The person with the longest hair will go first.
    - The shorter person will talk first.

        - The person closest to the door will talk first, etc.
    - Let students know when it is time for the other partner to share.
- Repeat until you run out of time.

Teacher Survey & Draw a Picture of You Visiting the Living Lab
(Note: One fellow direct teachers to complete teacher survey on laptops.)

- Explain activity to students.
    - You are going to have the opportunity draw a picture of yourself returning to the Living Lab.
    - You can include other people you would like to bring - family, friends, etc.
    - You can draw yourself and your family or friends doing any of the activities you did earlier today or something else entirely.
- Drawing Time:
    - (Have students open to "Reflection: Returning to the Living Lab" page in their science notebooks).
    - They will have 3-4 minutes to draw. If they finish early encourage students to add details.
    - If time allows have some students share or do a pair-share.

Clean-Up & Goodbye

- Invite students back to Living Lab for upcoming opportunities.
- Collect science notebooks and give them to classroom teacher.
- Look around you on table and floor – pick up any trash you see and push in chairs.
    - *Note: While clean-up is happening also do a quick bathroom break before student begin walk or get on buses*.
- Walk students to Watershed Plaza.
- Today, we tried new things, did science, and made new discoveries. Whenever we do that, we have an Ocean Discovery cheer to send us off. We say "Go Awesome!" and hi-five Odi on the way out. Say it with me on the count of 3. 1, 2, 3… "Go Awesome!!"
- Have staff line up next to Odi and high five students on their way out.

Departure

Buses or Walking students:

- Do a final count to make sure all students are present before boarding buses or walking back to school.

Walking students:

- Take hand-held stop signs.
- Don't forget car keys!

Busing students:

- **If bus is more than 10 minutes late- call bus dispatch.
-

Staff Clean Up

Program Coordinators: Determine who will do each of the below activities. Check when complete.

1 GENERAL ITEMS - IMMEDIATE

Take any cups in the "dirty" bin and run them through the dishwasher.

- Dry and put away.

Mop student bathrooms, take out trash and place "Caution Wet Floor" sign up

Place remaining Cleveland Sage into a Ziploc and store in the refrigerator to lessen waste and harm to the plant.

2 WATERSHED PLAZA/DISCOVERY GALLERY

Return stop signs, walking maps, and completed rosters to transitional storage

Check out teachers at reception using visitor screen.

3 SCI TECH LAB

Return pond water

Turn off all microscopes and videoscopes

Put away all supplies in designated storage location

Turn off SmartBoard

- Log out of Zoom
- Close PowerPoint and Videos

Return hand sanitizers and pencils to cabinet

Put away laptop and charger into cabinet

Sweep tables, chairs, and floor (mop as necessary)

Close back doors if room will be empty

4 THE COMMONS & ROCKY AMIPTHEATER

Put away all supplies in designated storage location

Fold blankets and put back in bin and use hand cart to return to storage.

- Place bin with blankets on shelf in the wetsuit porch
- No need to wash blankets unless there was a large spill. If this is the case, start the wash load with the blanket and notify the Floor Lead.

Clean up any spilled paint

Pick up any trash left behind by students

Sweep trash and food waste

Empty trash and replace bags

Ensure rope fence is up & close back gate

5 ECO LAB

Put away all supplies in designated storage location

Turn off SmartBoard
- Log out of Zoom
- Close PowerPoint and Videos

Return hand sanitizers and pencils to cabinet
Put away laptop and charger into cabinet
Sweep tables, chairs, and floor (mop as necessary)

6 GENERAL ITEMS – POST TRIP

Close back doors if room will be empty
Turn in completed rosters and waivers to Program Manager or Program Coordinator
Turn in Believe surveys to collection box
Debrief with Program Manager
- Report any broken or missing supplies
- Report any supplies with low inventory remaining
- Share good student stories
- Report any issues/coaching to avoid these in the future

Do a final check of all areas to ensure everything is properly cleaned, put away, and reset for after school programming

Rainy Day Plan

Floor Manager will determine when rainy day plans need to be utilized.

Additional supplies:

- Umbrellas (1 per 2 students)
- Large plastic bins w/ lids for storing/transporting umbrellas (4)
- Butcher paper
- Blue tape (2 rolls)
- Canopies (6)
- Binoculars (30)
- Broom and pan (2 of each)
- Jarred specimens of invertebrates that could be found in the canyon
- Cut out photographs of local birds
- Potted plants from the Living Roof (if available especially if overlapping with CI Camp Wonders of the Wetlands)

1 Pre-Arrival

Place "Caution Wet Floor" sign in the Ocean Discovery Gallery.
Place umbrella receptacles right inside the entrance to receive used umbrellas.
During Heavy Rain events – all activities labeled "The Commons" will take place in the Kitchen.
For Make a Difference Today station:

- During light rain:
  - Set up four canopies in the Commons for rock painting activity.
- During heavy rain:
  - Cover all tables in Kitchen with butcher paper.
  - Move all supplies from the Commons to Kitchen for rock painting.

For Make a Difference Tomorrow station (during heavy rain):

- Collect sample of pond water before students arrive.

For Imagination Station:

- During light rain:
  - Set up two additional canopies so students can all be under the canopies when preparing for the field.
- During concerns for canyon flooding:
  - Set up canopies in the hallway outside the Ecolab.
  - Have binoculars ready to hand out in the Ecolab.

- During heavy rain:
    - Set up canopies in the hallway outside the Ecolab.
    - Have binoculars ready to hand out in the Ecolab.
    - Set up the Ecolab to be the area that students "explore" once they have changed into field gear in tents.
        - Hang up pictures of birds on the walls.
        - Have specimen jars laid out around the room (consider "hiding" these in corners, behind larger objects, etc. so it feels more like they are "looking and finding" specimens).
        - If this is happening concurrently with CI Camp Wonders of the Wetlands take potted plants from Living Roof (for Kumeyaay Journey) and place around the classroom.

Place a broom and pan in each location where lunch will be eaten.

2 Arrival

Take out umbrellas and bring them to the bus stop.

Greet students and teachers on bus:

- Tell students that there will be one umbrella per two students.
- Give each pair of students an umbrella as they step off the bus.
- Have two staff members stationed at the entrance to the lab to take and close the umbrellas and place them in the receptacles.

Take students to their Intro location and go through Community Agreements there.

- The Commons = The Kitchen

Floor manager:

- Walk to both intro stations and take teachers aside and note any students absent on the roster.
- Sign cover sheet stating they've collected all waivers to the best of their ability.
- Take adult chaperones aside and discuss expectations for the day (see curriculum above).

For lighter rain days, divide umbrellas and take:

- a third to the Commons to be used for walking to the trail to place their painted rocks,
- a third to the EcoLab for exploring the canyon,
- and a third to the SciTech Lab to be used to walk out and collect pond water.

3 MAKE A DIFFERENCE TOMORROW

For Light Rain:

- Use umbrellas to go outside and collect pond water. Show students how to collect sample rather than having them figure it out.

For Heavy Rain:

- Pre-collect water sample. Use extra time for observing/drawing microorganisms and for using the videoscope/debrief.

4 MAKE A DIFFERENCE TODAY

Light Rain:

- Students will paint rocks under canopies in the Commons and use umbrellas to place rocks along trail.

Heavy rain:

- Students will paint rocks in the Kitchen, and rocks will be placed on the trail by staff when rain permits.
- Use additional time for painting of rocks and a more in depth debrief.

5 IMAGINATATION STATION

Light Rain:

- Proceed with station as is giving each pair of students an umbrella to use in the canyon.

Canyon Flooding Concerns:

- Have students prepare "for the field" in tents set up in the hallway outside the EcoLab.
- Take students up to the Living Roof and have them look amongst the plants there and use their binoculars to make observation about the canyon from the roof.

Heavy Rain/

- Have students prepare "for the field" in tents set up in the hallway outside the EcoLab.
- Give students a pair of binoculars.
- Explain to students that they will be exploring the classroom they just left. They should use their tools to look for organisms to add to their notebook.
- Explain that all organism will be preserved or photos due to rain.
- Explain that they may pick up any jarred specimens they find but should use two hands.

6 LUNCH

Student will eat in the location where they finish their first activity.
Make sure students clean-up trash and use broom and pan to sweep up before starting the next activity.

7 DEPARTURE

Hand each pair of students an umbrella to walk to the bus.
Have two staff members standing at the bus to take umbrellas, close them, and place them in the receptacle.
Bring umbrellas back to lab.

8 CLEAN UP – POST TRIP

See Clean Up Protocol above.
Open umbrellas and leave them out to dry in Ecolab and SciTech lab.

Activities for Extra Time

These are quick 5-10-minute activities to be used if a lesson ends early.

Quick Focus:

- Stand in a circle. Have student close their eyes and take three deep breaths. Ask students to name three things they hear/smell/feel.
- Stand in a circle. Have students keep eyes open and take three deep breaths. Ask students to be silent for 10 seconds and try to count as many different sounds as they can hear.

Wetlands Simon Says:

- Play a couple of rounds of Simon Says using rocky seashore animals.
- Simon Says Directions:
    - An adult starts by saying "Simon says…"
    - Any direction that starts with "Simon says…" needs to be followed.
    - Any direction that does NOT start with Simon says should NOT be followed and any students who DO follow it are out.
    - Example: "Simon says show me a Great White Heron." (Create a movement to show a Great White Heron – ex. show wings and a long neck movement.) "Simon says show me atmosphere." (Create a movement to show the atmosphere – ex. create a raining motion with hands.) "Show me Explore and Wonder." (Show the "Explore and Wonder movement. Any student showing the Explore and Wonder movement would be out and should sit down.)
    - Continue to play until only one student is standing. This student can be the next leader of the game.

Blobs and Lines:

- The idea is for students to listen to their teacher's prompts and organize themselves in a line (for example, in alphabetical order of last name) or in blobs according to something they have in common (birth month).
    - Examples of prompts:
        - Line up in chronological order of your birthdays
        - Line up in order of how many siblings you have
        - Gather with those who have the same color sneakers as you
        - Gather with those who have the same pets at home as you (dogs, cats, none)

Sit/Sensory Spot:

- This activity is most ideal when done outdoors.
- Have students sit down silently and close their eyes for 1-2 minutes.
- Ask students to focus on one sense (hearing/smell/touch) during that time.
- When students open their eyes ask them to share what they smelled/heard/felt, etc. while their eyes were closed.
- Remind students that stopping to focus on one particular sense can allow them to notice things they would not normally.
- Extra: If time allows, have students sketch what they heard/smelled/felt in their science notebook before doing a pair-share.

Fish School Challenge:

- Almost like "Simon Says" but this involves movements with other people.
- Explain to the students each name and movements (listed below). As you call out the movement, those that did not find their "school of fish" are out of the game (encourage them to be your refs).
- Continue the calls until you have at least 2-3 students at the end.
- You can play 2-3 times and then have a student take lead and call out the names.
    - Movement Names
        - Remora: two people, one person is the remora and holds the shoulder of the other person ("the shark") with one hand
        - Barnacle: requires three people. Two people form a circle with their hands with the third person in the center, the person in the center wave their arms up acting as the "cirri"
        - Chain corals: four people link arms together
        - School of fish: five people form a conga line to follow one another

Charades/Pictionary/Taboo:

Charades:

- The instructor will whisper something for a student to act out without using any sounds. The rest of the students have to try and guess that the student is acting out.
- The student who guesses correctly can be the next "actor" to come up and try to act out a word given to them by the instructor.

Pictionary:

- Give students a word that they have to draw and their group will guess. Examples: fish, ocean, waves, sun, plankton, shark, whale, fishing, fins, fish egg, sea star, sea urchin, etc.

Taboo:

- Similar to Pictionary but the GROUP is given the word and they have to communicate hints to the "guesser."
- This can be done by having the "guesser" stand in front of the board and the teacher can write the word behind the guesser.
- You can continue down a list of words and see how many each group can get in 1 minute. See example list in Pictionary.

Idea Bank for Charades, Pictionary, and Taboo (ideas should ideally tie into the program):

- Wetlands
- Plant
- Restoration
- Biosphere
- Hydrosphere
- Geosphere
- Atmosphere
- Engineer
- Clapper rail
- Egret
- Hawk
- Watershed
- Exploring
- Question
- Science Leader

INSTRUCTOR SUPPLEMENT

Lunch Area:



Living Coast Discovery Center
San Diego Bay at Chula Vista

Outdoor Exhibit Exploration

Please follow the rules listed under each area. Start in the first area listed and move through the outdoor exhibits in order listed. You have about 10 minutes in each area plus 5 minutes to walk to the next one. The QR code includes life history about the different species along with stories about the individuals.

10 min **Sea Turtle Lagoon**

No tapping on the glass, please. Have some students sit while the others stand behind them so that everyone can see.

The **Loggerhead Sea Turtle** is an endangered animal. Sea turtles are reptiles that live in the ocean but breathe air and come up to land to lay eggs. They can hold their breath up to 4 hours!

10 min **Raptor Row and Eagle Mesa**

Please have quiet voices and movements as we go along this path. There is a higher chance of seeing all birds if the group remains quiet.

These **Birds of Prey** all have hooked beaks and long talons to eat meat. They have 14 vertebrae (we have 7) in their necks and can move their heads around 270 degrees! Try to find the similarities and differences between all of these birds!

10 min **Shorebird Aviary and Burrowing Owl Courtyard**

The Shorebird Aviary has a 2-door system to keep our birds safe. Please only have one door open at a time when entering/exiting the aviary. Please do not touch any of the birds, even if they are close enough to do so!

The **Burrowing Owl** gets its name because it burrows in the ground. **Shorebirds** live along the shore, beach, and in marshes just like this one. They typically have long, skinny legs for wading in the water or webbed feet for swimming.

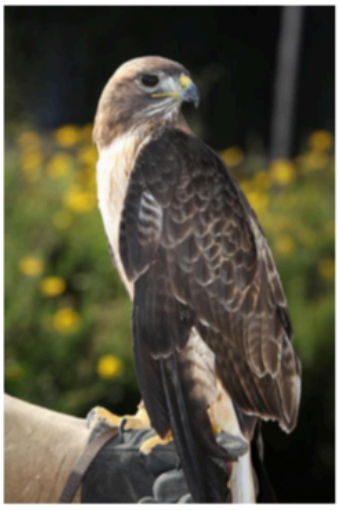
10 min **Shark and Ray**

Students may touch rays in the front area with a 2-finger touch. Please rinse hands before touching. No touching in the bigger area.

We have **bat rays** and **round rays**; **leopard sharks, horn sharks,** and **swell sharks.** These animals are all related and have skeletons made of cartilage. **Rays** have modified tooth plates, while **sharks** have many rows of sharp teeth.

Check your schedule to see what activity is next!

Raptor Row Interpretive Guide



Hawkeye
Gender: Male
Date Acquired: 10/30/1997
Approximate hatch date: 1996
Reason for Non-Release: Blind in left eye and has slight wing injury that keeps him from soaring properly
Lifespan: ~20 years in the wild

Common Name: Red Tailed Hawk

Scientific Name: Buteo jamaicensis

General Species Information

Appearance:

- Large hawks with very broad, rounded wings and a short wide tail
- Adults – rich brown above and pale below with a streaked belly and a dark bar between shoulder and wrist. The tail is usually pale below and a cinnamon-red above
- Juveniles – brown tails crossed by darker horizontal bars

Habitat/Range:

- Found throughout North America, north to central Alaska and northern Canada, and as far south as Panama.
- Common in open country, along fields and perched on telephone poles, fence posts, or trees.

Diet:

- Small to medium sized mammals, reptiles, and sometimes carrion. Prey items can range from less than an ounce to more than 5lbs!

Predators:

- Great Horned Owls, raccoons, red fox (mainly on eggs/nestlings)

Conservation Status: Species of Least Concern

- Numbers have increased since 1966

Fun Fact: Whenever a hawk or eagle appears onscreen, no matter what species, the shrill cry is almost always a red-tailed Hawk.



Freja
Gender: Female
Date Acquired: 2019
Approximate hatch date: 2017
Reason for Non-Release: Ex-falconry bird
Lifespan: 10 – 12 years in wild; 20-25 years in captivity

Common Name: Harris Hawk

Scientific Name: Parabuteo unicinctus

General Species Information

Appearance:
- Medium-large bird with dark brown plumage, chestnut shoulders and white on the base and tip of the tail.
- Have bright yellow legs and beak
- Females are larger than males by about 35%

Habitat/Range:
- Found in southwestern US, Chile, Argentina, & Brazil
- Semi-open desert lowlands, often among cactus, and in some savannah and wetland habitats

Diet:
- Mostly medium-sized mammals (hares, rabbits, squirrels), but also may take quail, medium-sized birds and reptiles.
- They are agile flyers that, when hunting, may also take to the ground, running and hopping to seize prey.

Predators:
- Coyotes & bobcats go after nests.

Conservation Status: Species of Least Concern
- Vulnerable to habitat loss due to urbanization and oil and gas development that reduces habitat quality and prey availability

Fun Fact: One of the only raptors known to hunt in groups to increase their hunting success rate. These gregarious hawks employ some of the most sophisticated cooperative hunting strategies known in birds, and they feed according to dominance hierarchies within the group.



Mariah
Gender: Female
Date Acquired: May 2010
Approximate hatch date: Unknown
Reason for Non-Release: Imprinted on humans (someone tried to hand raise her as a pet)
Lifespan: ~5 years in the wild; into the low teens in captivity

Common Name: American Kestrel

Scientific Name: Falco sparverius

General Species Information

Appearance:

- Has the typical falcon body shape; a short neck, and a small head with a black and white pattern and dark, vertical, black stripes under the eyes
- Both Males and females are rust-colored; however the males have blue-gray wings and an unbarred (not striped tail), while the female sports a barred (striped) tail and lack the blue-gray wings

Habitat/Range:

- North America and most of southern South America
- Prefer open habitats, including meadows, grasslands, deserts, parkland, agricultural fields, urban and suburban areas

Diet:

- Large insects, small mammals, reptiles, amphibians, & small birds

Predators:

- Raccoons, cats, and snakes can prey on nesting kestrels

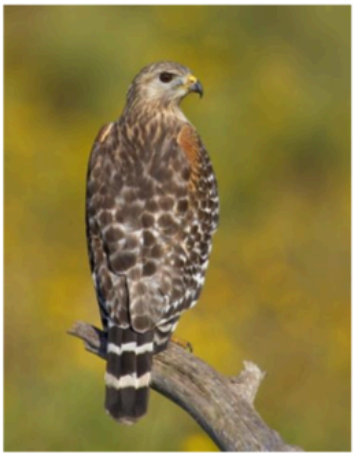
Conservation Status: Species of Least Concern

- Populations declined by about 66% between 1966 and 2014
  Main threats: habitat destruction and pesticide use on their prey

Fun Fact: Unlike humans, kestrels can see ultraviolet light. This enables kestrels to make out the trails of urine that voles, a common prey animal, leave as they run along the ground. Like neon diner signs, these bright paths may highlight the way to a meal!

Common Name: Red-Shouldered Hawk

Scientific Name: Buteo lineatus



Romeo (male) & Athena (female)
Dates Acquired: 11/1999 & 2017
Approximate hatch dates: 1999 & Unknown
Reason for Non-Release: Both have wing amputations due to injury
Lifespan: 10-12 years in wild

General Species Information

Appearance:

- Medium-sized with broad, rounded wings and medium tails that they fan out when soaring.
- Adults - colorful hawks with dark-and-white checkered wings and warm reddish barring on the breast. The tail is black with narrow white bands.
- Juveniles - brown above and white below streaked with brown

Habitat/Range:

- Found in the eastern half of the US & in western CA
- Considered forest raptors . In the west, they live in riparian and oak woodlands, and also in eucalyptus groves and some residential areas.

Diet:

- Eat mostly small mammals, lizards, snakes, and amphibians

Predators:

- Incubating adults, nestlings and eggs are vulnerable to predation by great horned owls and raccoons.
- Non-incubating adults are not usually vulnerable to predation

Conservation Status: Species of Least Concern
Fun Fact: Although crows often mob red-shouldered hawks to try and steal food, they may also both attack a great horned owl and join forces to chase the owl out of the hawk's territory.



Cuzco
Gender: Male
Date Acquired: 03/07/2017
Approximate hatch date: Unknown
Reason for Non-Release: Unknown
Lifespan: ~17 years in the wild

Common Name: Crested Caracara

Scientific Name: Caracara cheriway

General Species Information

Appearance:

- Large, long-legged raptor. Black cap with short crest at back. Pale sides of back and neck. Bare red skin on face. Black body. White tail with wide black tip.

Habitat/Range:

- Found through Central America, very small section of central Florida & southeast Texas
- Open country, including pastureland, cultivated areas and semi-desert, both arid and moist habitats but more commonly in arid.

Diet:

- An opportunist, hunting and scavenging in a variety of ways.
- Insects; small and occasionally large vertebrates, including fish, reptiles, amphibians, birds, and mammals; eggs; and carrion.

Predators:

- Has few natural predators once full grown. Habitat destruction is the main cause of decline in the species.

Conservation Status: Species of Least Concern

- The Northern crested caracara is considered threatened in Florida. Loss of habitat, particularly due to development and the expansion of citrus orchards, is negatively affecting caracara populations in this state.

Fun Fact: One of the few raptors that will hunt on foot. They walk on the ground along roads, searching for food.



Shadow
Gender: Female
Date Acquired: 03/2020
Approximate hatch date: Unknown, but adult when acquired.
Reason for Non-Release: Injured wing
Lifespan: Oldest recorded was ~6 years old in wild

Common Name: White-tailed Kite

Scientific Name: Elanus leucurus

General Species Information

Appearance:
- Narrow wings and a long, white tail with black shoulders and red eyes

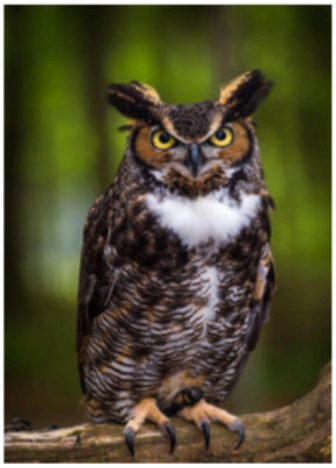
Habitat/Range:
- Along the entire west coast of the US and into Texas and central America
- Found in savannas, woodlands, marshes, and grasslands

Diet:
- Small mammals, birds, lizards, and insects on rare occasions

Predators:
- Few predators, but does compete with hawks & harriers

Conservation Status: Species of Least Concern
- Urban development is impacting nesting sites and prey availability.

Fun Facts:
- They get their name "kite" because of the way the hunt - scans and hovers like a kite at up to 80 feet in the air and then dives down and grabs prey with feet.
- Males will offer females prey to begin courtship displays
- They roughly resemble an angry sea gull



Pico
Gender: Unknown
Date Acquired: 2003
Approximate hatch date: Unknown
Reason for Non-Release: Break in right wing, came from Project Wildlife
Lifespan: ~13 years in wild

Common Name: Great Horned Owl

Scientific Name: Bubo virginianus

General Species Information

Appearance:

- Large, thick-bodied owls with two prominent feathered tufts on the head and yellow eyes.
- Feathers are a mottled gray-brown, with reddish brown faces and a near white patch on the throat

Habitat/Range:

- Found all across North America - often in woods, particularly young woods interspersed with fields or other open areas.
- The broad range of habitats they use include deciduous and evergreen forests, swamps, desert, tundra edges, and tropical rainforests, as well as cities, orchards, suburbs, and parks.
- Found throughout N. America & parts of S. America

Diet:

- They have the most diverse diet of all North American Raptors.
- Their prey range in size from tiny rodents and scorpions to hares, skunks, geese, and other raptors.

Predators:

- They are an apex predator, but face threats from humans

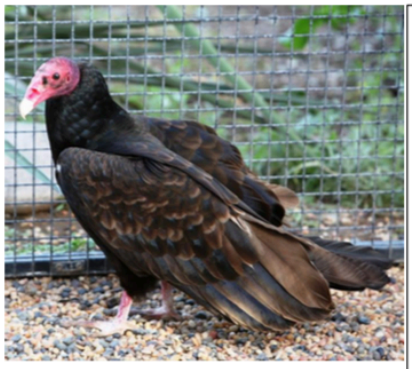
Conservation Status: Species of Least Concern

- Populations rise and fall in cycles along with prey populations. They adapt well to habitat change as long as nest sites are available.

Fun Facts: When clenched, their strong talons require a force of 28lbs to open. The owls use this deadly grip to sever the spine of large prey.

Common Name: Turkey Vulture

Scientific Name: Cathartes aura



Walter
Gender: Male
Date Acquired: 1999
Approximate hatch date: 1997
Reason for Non-Release: Brought into a rehab facility in LA as a juvenile with an injured right wing that had to be amputated (hit by car)
Lifespan: 16 years (wild) 30 years (captivity)

General Species Information

Appearance:

- Large, dark birds with long, broad wings. Bigger than raptors except eagles and condors, they have long 'fingers' at their wingtips and long tails that extend past their toe tips in flight.
- They appear black from a distance but up close they are a dark brown with a featherless red head and pale bill.
- While most of their body and forewing are dark, the undersides of the flight feathers are paler, giving a two-toned appearance.

Habitat/Range:

- Found year round across the southern US, central America and south America. In breeding season (summer), they can be found in the northern US & southern Canada.
- Found in open areas like mixed farm land, forest, and rangeland. They roost in trees, on rocks, & other high secluded spots.

Diet:

- Carrion (dead animals) – use excellent sense of smell to find

Predators:

- Has few natural predators - may fall prey to large eagles or owls.

Conservation Status: Species of Least Concern

- They were threatened by side-effects of DDT, but today they are among the most common large carnivorous birds in N. America.

Fun Fact: Often defecate on their legs, using the evaporation of the water in the feces/urine to cool itself, a process known as urohidrosis



Wayne
Gender: Male
Date Acquired: 12/21/2017
Approximate hatch date: 2006
Reason for Non-Release: Damaged right wing (cause unknown)
Lifespan: 20 years in wild

Common Name: Swainson's Hawk

Scientific Name: Buteo swainsoni

General Species Information

Appearance:

- Large with broad wings and a short tail. Most have a light belly with a dark or reddish-brown chest and brown or gray underparts.
- Although not a true sexual dimorphic species, most males have gray heads and females tend to have brown heads.

Habitat/Range:

- Mainly found in western US, but also can be found in western Canada and northern Mexico, and Argentina in winter months.
- Favor open habitats for foraging – prairies, grasslands, farms.

Diet:

- Mainly mammals and insects

Predators:

- Great horned owls. At times coyotes, bobcats & golden eagles

Conservation Status: Species of Least Concern

- Overall, Numbers are stable with a slight increase since 1966. Historically declines of this species occurred when farmers shot them in belief that they harm livestock.

Fun Fact: They have a variety of hunting methods similar to other raptors. Like the Crested Caracara, they can often be seen on foot running after insects and small mammals with their wings partially outstretched. They will also hover like kites as they scan open fields for prey and soar low over prairies and pastures while hunting.



Winter
Gender: Male
Date Acquired: 11/2015
Approximate hatch date: 2005
Reason for Non-Release: Originally from Wisconsin. He was acquired from Sky Hunters, where he was used as an educational bird. Unsure of why he was there to begin with. He has a chronic case of bumble foot.
Lifespan: ~16 years in wild

Common Name: Ferruginous Hawk

Scientific Name: Buteo regalis

General Species Information

Appearance:

- Large *Buteo* hawks with relatively long wings and large heads. The wings are narrow to form more pointed tips than is typical for other buteos.
- Light-morphs have strikingly white underparts and rusty legs and upperparts with pale heads. Rarer dark morphs are mostly a deep rufous-chocolate.

Habitat/Range:

- Found in western US and most of Mexico. The species winters here in San Diego (how he got his name)
- Prefer open country - semiarid grasslands with scattered trees, rocky mounds or outcrops, and shallow canyons that overlook open valleys. They may occur along streams or in agricultural areas in migration.

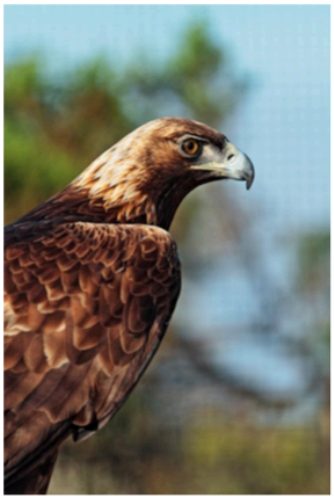
Diet:

- Small to medium sized rodents, birds, reptiles, & some insects

Predators: They are an apex predator, but face threats from humans.
Conservation Status: Species of Least Concern

- Threats include cultivation, over grazing and fire degrading habitat throughout its range, and the controlling of small mammal populations limiting food resources.

Fun Fact: When bison still roamed the west, Ferruginous Hawk nests contained bison bones and hair along with sticks and twigs.



Dorado
Gender: Male
Date Acquired: 10/5/2002
Approximate hatch date: Est. to be 5-10 when acquired.
Reason for Non-Release: partial left wing amputee. Hit by car near Palm Desert, CA
Lifespan: ~30 years in wild

Common Name: Golden Eagle

Scientific Name: Aquila chrysaetos

General Species Information

Appearance:

- One of the largest birds in North America. The wings are broad like a red-tailed Hawk, but much longer.
- Adult Golden Eagles are dark brown with a golden sheen on the back of the head and neck

Habitat/Range:

- Found from Mexico through much of western North America as far north as Alaska; they also appear in the east but are uncommon. Also found in Asia, Northern Africa, and Europe.
- Prefer open habitats. Found primarily in mountains up to 12,000ft, canyonlands, rimrock terrain, and riverside cliffs and bluffs. Nest on cliffs and steep escarpments in grassland, chapparal, shrubland, forests, and other vegetated areas.

Diet:

- Primarily feeds on small to medium-sized mammals, including hares, rabbits, ground squirrels, prairie dogs and marmots.

Predators: They are an apex predator, but face threats from humans.
Conservation Status: Species of Least Concern

- Most recorded deaths are from collisions with vehicles, wind turbines, & other structures or electrocution at power poles.

Fun Fact: They are capable of taking out larger prey such as wild ungulates, cranes, and domestic livestock. However, they will feed on rabbits, hares, ground squirrels, and prairie dogs more often.



Betsy
Gender: Female
Date Acquired: 2018
Approximate hatch date: 2014
Reason for Non-Release: Injured left wing. Acquired from Fund for Animals Wildlife Center in Ramona
Lifespan: ~25 years in wild

Common Name: Bald Eagle

Scientific Name: Haliaeetus leucocephalus

General Species Information

Appearance:

- Adults- white heads and tails with dark brown bodies and wings. Their legs and beaks are bright yellow.
- Juveniles have mostly dark heads and tails; their brown wings and bodies are mottled with white in varying amounts. Mature around age 5 and receive adult coloration.

Habitat/Range:

- Found throughout The U.S., Parts of northern Mexico, and throughout most of Canada (as far north as Alaska).
- Commonly found near lakes, reservoirs, rivers, marshes and coasts. (Locally found near Lake Henshaw)

Diet:

- Opportunistic feeder. Eats fish, birds, mammals, and carrion.

Predators: They are an apex predator, but face threats from humans.

Conservation Status: Species of Least Concern

- Was on Endangered Species List from 1978-2007, but due to conservation efforts, the global population has increased greatly!
- It became rare in the mid-to-late 1900's due to trapping, shooting and poisoning as well as pesticide caused reproductive failure. The bird's main threat was a pesticide, DDT. DDT was banned and has led to a dramatic resurgence.

Fun Fact: Ben Franklin originally wanted the wild Turkey to be our National Symbol because he thought Bald Eagles were dishonorable.



Captain
Gender: Male
Date Acquired: 2018
Approximate hatch date: Unknown
Reason for Non-Release: Injured Eye (missing right eye)
Lifespan: 13 years in wild, 19 years in captivity

Common Name: Western Screech Owl

Scientific Name: Megascops kennicottii

General Species Information

Appearance:

- Small owls with stocky bodies. They have somewhat square heads, almost no neck, and conspicuous ear tufts. They are superbly camouflaged birds and can by gray, brown, or reddish-brown. They have yellow eyes.

Habitat/Range:

- Found in the western US, Mexico, and parts of western Canada
- Common in open woodlands, forested stream sides, deserts, suburban areas, and parks

Diet:

- Mostly feed on arthropods, reptiles, amphibians, small mammals, and occasionally birds
- They are a predator to be reckoned with; they occasionally take prey bigger than their own body, including cottontail rabbits

Predators:

- Hawks, snakes, raccoons, skunks, weasels or even larger owls

Conservation Status: Species of Least Concern

- High-density development and clear-cut forestry have a negative impact on screech owl habitat. They are also dependent on standing dead trees containing cavities for their nest sites

Fun Fact: They don't really screech. They make an accelerating series of hollow toots. The 'screech' part of its name better suits the closely related Eastern Screech Owl, who makes a descending whine sound.

Common Name: Burrowing Owl

Scientific Name: Athene cunicularia



Denver
Gender: Male
Date Acquired: 10/2019
Approximate hatch date: 04/2015
Reason for Non-Release: Raised under human care at Pittsburg National Aviary
Lifespan: ~8 years in the wild

General Species Information

Appearance:

- The burrowing owl is smaller than a pigeon and has distinctive long legs and a short tail. It does not have ear tufts, and has very serious-looking eyes.
- Its feathers are a sandy brown color above, while the breast area is beige with spotted bars.

Habitat/Range:

- They range from the western portions of North America to the arid regions of Central and South America.
- Burrowing Owls are found in open, dry grasslands, agriculture lands and desert habitats.

Diet:

- They eat mostly insects, small rodents and occasionally birds, which they hunt either by day or night.

Predators:

- Badgers, skunks, snakes, domestic cats and dogs, weasels and some other birds of prey species

Conservation Status: Species of Least Concern

- Populations are declining due to development decreasing the number of burrowing animals that they use the burrows of.

Fun Fact: As a defense mechanism, owlets (baby owls) can perfectly mimic the rattling sound of a prairie rattlesnake. Adults can mimic the hiss of a rattlesnake

Common Name: Greater Roadrunner

Scientific Name: Geococcyx californianus



Chevy
Gender: Male
Date Acquired: 03/19/2015
Approximate hatch date: 03/30/2014
Reason for Non-Release: Came from The Living Desert (Palm Desert, CA), hatched and imprinted on humans
Lifespan: 7-8 years

General Species Information

Appearance:

- Long legs, a very long straight tail, and a long neck. The head has a short crest and the bill is long, heavy, and slightly down-curved. They are a tan or bran with extensive blackish streaking on the upper parts and chest. The crown is black with small, pale spots, and they have a patch of bare, blue skin behind the eye. The wings are dark with white highlights.

Habitat/Range:

- Found in the southwest US and northern Mexico
- Prefer semi-open, scrubby habitat from below sea level to nearly 10,000ft.

Diet:

- Eat mostly animals, including small mammals, reptiles, frogs, toads, insects, centipedes, scorpions, and birds. They kill rattlesnakes by pecking them repeatedly in the head.
- In winter, fruit, seeds and other plant material make up about 10% of the roadrunner's diet.

Predators:

- Occasionally preyed upon by hawks, house cats, raccoons, rat snakes, bullsnakes, skunks and coyotes.

Conservation Status: Species of Least Concern

- Habitat loss is biggest threat.

Fun Fact: Prefer walking or running and attain speeds up to 17mph



Salsa & Fresca
Gender: Both Male
Date Acquired: 03/2020
Approximate hatch date: Unknown; Salsa (larger) is older than Fresca (smaller)
Reason for Non-Release: Acquired from SoCal Parrot Rescue. Have beak damage due to unknown cause.
Lifespan: 30 years in wild

Common Name: Mitred Conures

Scientific Name: Psittacara mitratus

General Species Information

Appearance:
- Green on the back with yellow underneath and red on the head & face

Habitat/Range:
- Naturally in Peru, Bolivia, and Argentina. Introduced to California, Hawaii, and Florida
- Typically in dry subtropical zones but also in some forests, grassy hills, prefer larger trees

Diet:
- Not well known in the wild, most likely crops.
- Some of our naturalized parrots favorite food sources are; loquat, fig, pine (nuts), guava, coral tree nectar (blossoms), etc.

Predators: Cooper's hawks

Conservation Status: Species of Least Concern
- Greatest threat is the pet trade
- Globally, the parrot family is the most rapidly declining family of birds on the planet.

Fun Facts:
- Sounds often resemble a trumpet
- Younger birds typically lack the red face



Cora
Gender: Female
Date Acquired: 2003
Approximate hatch date: Unknown
Reason for Non-Release: Fused wing joints, transferred from Wetlands Wildlife Care Center

Common Name: Black-Crowned Night Heron

Scientific Name: Nycticorax nycticorax

General Species Information

Appearance:
- Adults - light-gray with a black crown and an all-black bill
- Juveniles - brown with large white spots on the wings and a yellow-and-black bill

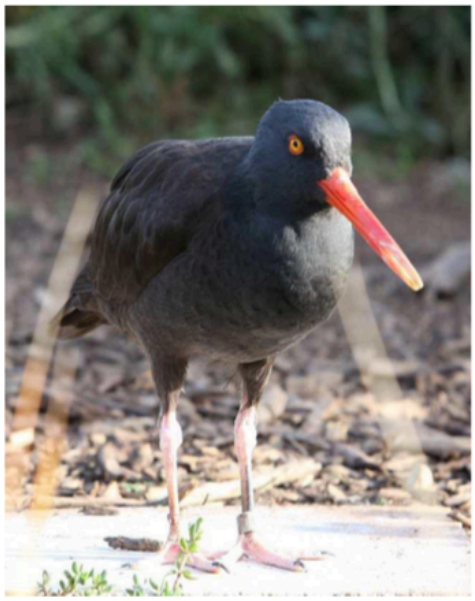
Habitat/Range:
- Typically found in wetlands like estuaries, marshes, streams, lakes and reservoirs
- Found throughout most of South America year round and most of the US coast line

Diet:
- Leeches, earthworms, insects, crayfish, clams, mussels, fish, lizards, amphibians, eggs, rodents

Predators:
- Hawks and raccoons typically prey on eggs and young

Conservation Status:
- Numbers are decreasing according to surveys because of threats like pesticide and heavy metal pollution

What can you do?
- Don't use pesticides in your yard/garden



Squeaker
Gender: Male
Date Acquired: 2004
Approximate hatch date: Unknown
Reason for Non-Release: Captive breeding program in Colorado

Common Name: Black Oystercatcher

Scientific Name: Haematopus bachmani

General Species Information

Appearance:
- Adults - Black plumage, pale legs, bright orange beak
- Juveniles – Dark plumage with a dark-tipped orange bill

Habitat/Range:
- Coastal rocky shore, mudflats in summer
- Alaska to Baja California

Diet:
- Mollusks, especially mussels and limpets; occasionally eating crabs and bugs too

Reproduction:
- 1-4 olive-spotted eggs only, usually nests on islands, nests built of rocks and shells

Fun Facts:
- Will sometimes use its beak to hammer open shells, some will mate for life

Conservation Status:
- Mainly threatened by oil spills and coastal pollution

What can you do?
- Participate in a community clean-up & dispose of your trash properly



Roxy
Gender: Female
Date Acquired: Sept. 2006
Approximate hatch date: Unknown
Reason for Non-Release: From Project Wildlife

Common Name: Mallard

Scientific Name: Anas platyrhynchos

General Species Information

Appearance:
- Males – Green head and grey body
- Females – Mottled brown

Habitat/Range:
- Ponds and parks as well as wilder wetlands and estuaries
- Found in North America and Eurasia

Diet:
- Not divers but "dabble feeders"; opportunistic eating vegetation and invertebrates

Reproduction:
- Generally monogamous; pairing takes place in the fall with breeding in spring
- Only mothers incubate and care for eggs; nest on the ground with 1-13 eggs and 2 broods

Fun Facts:
- Ducks are strong fliers; migrating flocks of Mallards have been estimated traveling at 55 miles per hour.
- Origin species for most domestic ducks; will come to nest boxes if available

Conservation Status:
- Low Concern



Hershey
Gender: Female
Date Acquired: Dec 2012
Approximate hatch date: Unknown
Reason for Non-Release: Domestic Species

Common Name: Rouen/Rouen Hybrid

Scientific Name: Anas platyrhynchos domesticus

General Species Information

Appearance:

- Resembles a very large mallard

Habitat/Range:

- Domestically bred species for meat not egg-laying
- Europe and the United States

Diet:

- Not divers but "dabble feeders"; opportunistic eating vegetation and invertebrates

Fun Facts:

- Bred throughout Europe since 1800
- They are good foragers and good for insect control



Salt & Pepper
Gender: Both are unknown
Date Acquired: Aug 2017
Approximate hatch date: Aug 2016
Reason for Non-Release: Wing injuries. imprinted

Common Name: Ring-Billed Gull

Scientific Name: Larus delawarenis

General Species Information

Appearance:
- Smallest of the white gulls
- Adults - dark yellow bill with black band on it; black tipped wings
- Juvenile (first two years) - motley brown and gray with a pink bill and legs

Habitat/Range:
- Found around all bodies of water
- North America; Canada to Mexico

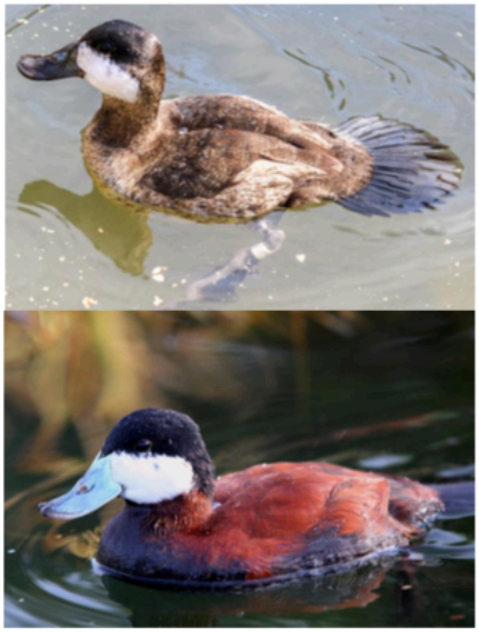
Diet:
- Omnivorous; Fish, insects, earthworms, rodents, grain/fruits, human food scavenging

Reproduction:
- Colony nesters, nests will be about 2ft wide, 2-4 eggs

Fun Facts:
- More commonly seen inland than other gull species
- Adults play by repeatedly dropping objects, then swooping to catch them—perhaps honing their hunting moves.

Conservation Status:
- Big issues with consuming trash and pollution

What can you do?
- Participate in a community clean-up & dispose of your trash properly



Top: non-breeding male; bottom: male in breeding season

Rudy
Gender: Male
Date Acquired: 2007
Approximate hatch date: Unknown
Reason for Non-Release: Captive bred at San Diego Zoo, CA

Common Name: Ruddy Duck

Scientific Name: Oxyura jamaicensis

General Species Information

Appearance:
- Small, stocky, large headed; dark cap with pale cheeks
- Non-breeding male - dull gray-brown above and paler below with dull gray bills
- Breeding male - red plumage (feathers) and blue beak

Habitat/Range:
- Ponds, lakes, and sheltered bays
- North America from Alaska/Canada to Mexico and into Central America

Diet:
- Plants, insects, and mollusks

Reproduction:
- Nests in marshy vegetation on the ground, eggs are large and white with a pebble texture; minimal parental care

Fun Facts:
- Harassed by grebes and coots during breeding season; ducklings preyed on by herons and gulls
- Males court females by creating a swirl of bubbles in the water to attract a mate
- Fossils have been found dating over 11,000 years

Conservation Status:
- Low Concern



Igor
Gender: Female
Date Acquired: Unknown
Approximate hatch date: Unknown
Reason for Non-Release: Damaged right leg, rehabilitated at Project Wildlife, CA

Common Name: White-Faced Ibis

Scientific Name: Plegadis chihi

General Species Information

Appearance:
- Blackish in color with a long curved beak and long legs

Habitat/Range:
- Prefers freshwater marshes but will venture to saltwater too
- Most of the US excluding the south east; west of the Mississippi

Diet:
- Aquatic prey in shallow water; probing in mud with long beak; mostly insects, crustaceans, earthworms

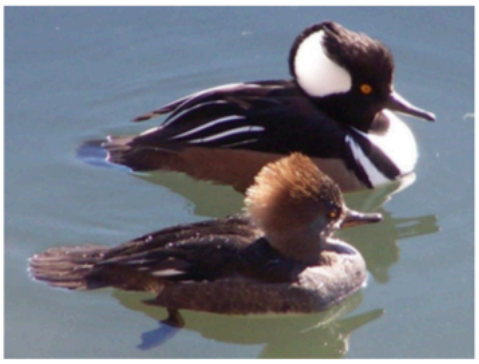
Reproduction:
- Nests in colonies in low trees/reeds
- Sites shift from year to year
- Uses many reeds and rushes to build nest
- Eggs pale blue-green to turquoise
- Young fly at 4 weeks

Fun Facts:
- Flock flies in lines like cormorants
- Breeding adults develop red face and red plumage during breeding season
- Related to spoonbills

Conservation Status:
- Trending upward; highly impacted by rising sea levels

Common Name: Hooded Merganser

Scientific Name: Lophodytes cucullatus



Top bird – male; bottom bird - female

Molly
Gender: Female
Date Acquired: January 2020
Approximate hatch date: June 2019
Reason for Non-Release: Wing injury

General Species Information

Appearance:
- Males - black and white pattern and chestnut flanks
- Females - have a "cinnamon" crest

Habitat/Range:
- Shallow water marshes, small lakes, ponds, wetlands, forested rivers
- When migrating, may move to more coastal, saltwater bodies
- Eastern half of North America and the Pacific Northwest

Diet:
- Fish & crayfish; serrated bill to help them grasp food

Reproduction:
- Nest in tree cavities, ducklings jump from the nest to the forest floor when they are one day old
- Up to 13 eggs in a clutch

Fun Facts:
- Swim lower in the water compared to other duck species; take flight by running on water
- Live in small groups; sometimes up to 40 individuals
- At times will lay eggs in another bird's nest (brood parasitism)
- Smallest of the Merganser species
- Predators: small and large mammals, woodpeckers, & snakes

Conservation Status:
- Low concern, hunting was historically the largest issue
- Loss of habitat (tree clearing) is becoming an increasing problem for their nesting



Igor
Gender: Female
Date Acquired: Unknown
Approximate hatch date: Unknown
Reason for Non-Release: Damaged right leg, rehabilitated at Project Wildlife, CA

Common Name: White-Faced Ibis

Scientific Name: Plegadis chihi

General Species Information

Appearance:
- Blackish in color with a long curved beak and long legs

Habitat/Range:
- Prefers freshwater marshes but will venture to saltwater too
- Most of the US excluding the south east; west of the Mississippi

Diet:
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Reproduction:
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- Related to spoonbills

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- Trending upward; highly impacted by rising sea levels

Common Name: Hooded Merganser

Scientific Name: Lophodytes cucullatus



Top bird – male; bottom bird - female

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Gender: Female
Date Acquired: January 2020
Approximate hatch date: June 2019
Reason for Non-Release: Wing injury

General Species Information

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Habitat/Range:
- Shallow water marshes, small lakes, ponds, wetlands, forested rivers
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Light Footed Ridgway's Rail Breeding Program

The Living Coast Discovery Center is working closely with US Fish and Wildlife Services and other partners to protect and conserve the Light Footed Ridgway's Rail (formerly known as the Light Footed Clapper Rail) through a species breeding program that began in 1998. *Together, we have helped hatch, raise, and release over 350 rails.*

Current Population Status

- Listed as critically endangered by the US Fish and Wildlife Services
- Low population status of 203 pairs in 1980
- In 2012-2013 over 520 breeding pairs were counted in California marshes

What can you do?

- Drive safely – especially when near critical wildlife habitats
- Encourage the protection of state parks and unclaimed lands to increase habitat for birds
- Pollution prevention: clean up trash near beaches, parks, streets, drains, highways, etc.

Appearance:

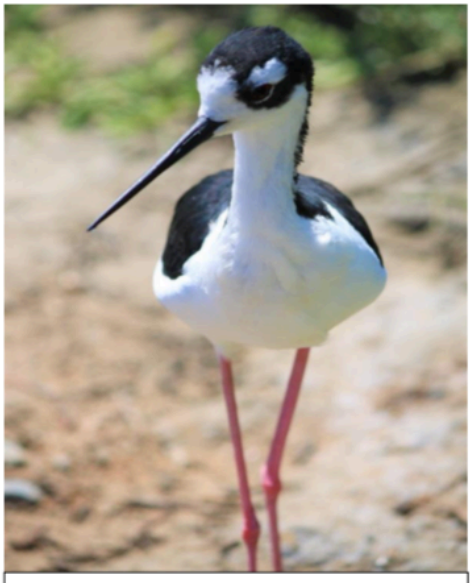
- Medium-sized, tawny brown-gray colored marsh bird, long toes are dull yellow-grey, long beak is down-curved

Habitat/Range:

- Coastal marshes, lagoons, and other marine environments with shallow waters and mudflats
- Require higher vegetation (cordgrass and pickleweed) for covering and nesting purposes
- Santa Barbara, California, US to San Quintin Bay, Baja California, MX; mostly coastal with some inland populations (Salton Sea and Lower-Colorado River subpopulations)

Diet:

- Garden snails, horn snails, saltmarsh snails, beetles, fiddler crabs, hermit crabs, crayfish and other saltmarsh invertebrates



Gender: Male
Date Acquired: 3/18/18
Approximate hatch date: Unknown
Life Span: ~ 5 years in the wild
Reason for Non-Release: Found with a wing injury and damaged eye. He was taken in by the Santa Barbara Wildlife Care Network. After rehabilitation, he was considered non-releasable. He is now missing one eye, but is fully flighted.

Common Name: Black- Necked Stilt

Scientific Name: Himantopus mexicanus

General Species Information

Appearance:

- Black face, hind neck and back with a white throat and under parts. The have very long, thin reddish legs. Their bill is long, thin, black and straight.
- Males - glossy black feathers and a white spot above each eye. Females - dark, brown dorsal feathers

Habitat/Range:

- Typically found in wetlands like estuaries, marshes, streams, lakes and reservoirs
- While some populations stay in one place year-round, others will disperse short distances
- Found in South America & US coast line year round

Diet:

- Leeches, earthworms, insects, crayfish, clams, mussels, fish, lizards, amphibians, eggs, rodents

Predators:

- Hawks and raccoons typically prey on eggs and young

Conservation Message:

- Numbers are decreasing according to surveys because of threats like pesticide and heavy metal pollution.