



Kindergarten Curriculum

Platform: Rocky Seashore

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Kindergarten Curriculum

Overview

<u>Guiding Concept:</u> Students explore the rocky seashore, discover how animals utilize this ecosystem, and learn how they can make a difference and protect the rocky seashore today and in the future. <u>Science Discovery Process Focus:</u> ● Make a Difference ● Explore and Wonder	Ocean Discovery Unit
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<u>Next Generation Science Standards:</u> <u>Cross Cutting Concept:</u> 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.	NGSS Alignment
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<u>Overarching Responsibilities of Instructor:</u> ● Classroom management & timing of lesson. ● Execution of all lesson material in this curriculum. ○ <i>Italics</i> – utilize the exact language when teaching ○ Regular – content that should be covered using language of your choice ○ (Parenthesis) – Teaching notes and actions ● 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.
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<u>Overarching Responsibilities of Assistant Instructors:</u> ● During Instructor’s introduction and closing: ○ Prep supplies quickly then join the class. ○ Participate in any kinesthetic movements. ○ Sit with students and model good listening behavior. ○ Sit or stand near any students struggling to pay attention. ● During hands-on portion: ○ Mentor students in your floor area by asking questions, providing guidance, and providing positive reinforcement. ○ Engage students who are struggling.

Kindergarten Story

Internal – Staff and Teachers

During the Kindergarten program, students explore the rocky seashore, discover how animals and humans utilize this ecosystem, and learn how they can protect the rocky seashore and the animals that live there, today and in the future.

During the Community Building Day, students build belief that they are unique individuals who belong to a community of scientists by learning kinesthetic movements that describe what all scientists do and creating a movement that represents them as an individual scientist. They are also introduced to the rocky seashore environment and the organisms that live there by populating a two-dimensional rocky seashore with drawings of local rocky seashore animals.

During the Exploration Day at Birch Aquarium, students build belief that they can recognize and do science by exploring how animals use the rocky seashore ecosystem while using scientific tools, making observations, and asking questions.

During the Make a Difference Day at the Living Lab, students' belief that science is important and relevant, that a career in science is a possibility, challenges can be opportunities to learn and grow, and that they can make a difference in the world. They participate in a "Meet and Greet" with living rocky seashore animals and learn how they can protect these organisms by pursuing a career as a scientist in the future. They become biologists, dressing in field gear and using their imagination to search for "rocky seashore animals", and they create a sign that communicates their love for the rocky seashore to share with family and friends. Students also meet a scientist who shares their career pathway, and challenges and obstacles they have faced along the way to becoming a science leader.

Students love becoming biologists, exploring the rocky seashore, using scientific tools, getting to know science leaders, and making a difference in the world!

Kindergarten Story*External – Students*

I am so excited to start Ocean Discovery! This year I learn about the rocky seashore and all the cool animals that live there. Ocean Discovery helps me think that science is something I can do and a scientist 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 of a rocky seashore and fill it with drawings of animals that live there. I draw an orange sea star! I learn the names a bunch of animals that live at the rocky seashore - sea star, crab, and anemone just to name a few. Later on, I learn some fun dances that relate to all the things scientists do- scientists do a lot!

I am so excited when we get to go to the Birch Aquarium! I see so much cool stuff and we spend the whole day talking about how animals use the rocky seashore. I get to touch invertebrates, look in all the tanks, and explore the entire aquarium – I even see a giant octopus! I can ask as many questions as I want- because that's what scientists do!

On our last day we go to the Living Lab – the home of Ocean Discovery Institute. I dress up as a biologist and play a game of hide and seek to learn how scientists behave, in order to study animals. One of my favorite parts of the day is when I get to touch living rocky seashore animals!! Then we talk about how we can work together to protect these animals in the future. Before lunch, I meet a real science leader who tells us about how they got to be a scientist and lets us ask questions about their job and what kinds of things they do. It got me thinking that I might want to be a scientist someday. Now that I know how important the rocky seashore is, I'm excited to create a sign to tell others how much I love these animals. I really like making a difference and helping my new rocky seashore friends!

I can't wait to be a part of Ocean Discovery in 1st grade!

Community Building Day

In-School Experience

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

Visuals:

- Rocky Seashore poster
- High Tide Low Tide poster
- Science Discovery Process poster w/ Velcro pieces
 - \\vmfile01.aquatic.com\Master Files\Curriculum\SI New
- Kindergarten Community Building Day PowerPoint from teacher portal
 - \\vmfile01.aquatic.com\Master Files\Curriculum\SI New\Lower Elementary (K-2)\Kindergarten\Community Building Day Visuals
- Rocky Seashore Video
 - <https://www.nps.gov/subjects/oceans/rocky-shores.htm>

Supplies:

- Sharpies (3)
- Giant butcher paper drawing of Rocky Seashore
 - 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 crayons of various colors
 - 2-3 safety scissors
- Laminated “Rocky Seashore Animals Card #1-3” (8 of each)
 - \\vmfile01.aquatic.com\Master Files\Curriculum\SI New\Lower Elementary (K-2)\Kindergarten\Community Building Day Visuals
- Rolls of tape (2)

Timing:

Time	Activity	Learning Cycle
0:00 – 0:15	Introduction & Discovery Dances	Engagement
0:15 – 0:25	Rocky Seashore Intro	Exploration
0:25 – 0:40	Create Rocky Seashore 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		
0:40 – 0:50	Populate the Rocky Seashore	Guided Analysis
0:50 – 1:00	Reflection	Reflection

Instructor Set Up & Teaching Notes:

- € Introduce yourself and staff to teacher
- € Collect waivers from teacher
- € Ask teacher if they would prefer you to write on board or chart paper.
- € Determine if there is floor space for students to sit during intro and self-reflection, if not:
 - Students can do intro and self-reflection at their desks/tables.
 - Pair up students sitting next to each other for self-reflection.
- € Invite teacher to participate throughout and explain when you and staff will need their help during the lesson:
 - Participate in Discovery Dances
 - Help students create animals during activity, organize students for self-reflection, etc.
- € Discuss floor management plan with other staff.
- € Use attention getters whenever necessary. (i.e. transitioning from activity to activity, when giving a set of directions, when bringing the class together to share out, etc.)
 - Use the Scientist dances and their unique Be a Scientist movement as an attention getter

Assistant Instructor Set Up:

- € Cue up Kindergarten Community Building Day PowerPoint from teacher portal -OR- bring all visuals to front of classroom:
 - Community Agreements poster
 - Science Discovery Process poster
 - Rocky Seashore poster
 - Rocky Seashore Video

Introduction & Discovery Dances**Introductions:**

- (Have students sit together or if there is no room students can stay at their desks/tables for introduction.)
- Introduce Ocean Discovery Institute.
 - Excited to have you join the Ocean Discovery Family!
 - First year of a nine-year program.
 - You will have an Ocean Discovery every year from Kindergarten to 8th grade.
 - Give a very brief overview of this year's program (3 days, 1 class visit, 1 exploration day, etc.).
- All staff take 30 seconds to introduce themselves and share their story.
 - (Details for your story can be found in **SI Education Guide**)

Community Agreements:

- Introduce the concept of being a scientist with Ocean Discovery Institute:
 - When you work with Ocean Discovery – you are a scientist.
 - As scientists 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 scientists do:
 - Today you are a scientist.
 - Ask: What are some things you think scientists do?
 - Scientists do many things – all of them are included in the Science Discovery Process.
 - (Show Science Discovery Process poster.)
 - This is a process scientists use to do science!
 - 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: Scientists Explore and Wonder! (Add Explore and Wonder to the poster.) Scientists 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 scientists 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?

- Scientist Dances & Brief Descriptors of the Science Discovery Process:
 - Explore and Wonder: *Scientists are always wondering about the world around them and how it works. Scientists ask lots of questions and take time to explore.*
 - Dance move: Crossed arms/rub your chin/ make a questioning face.
 - Sound: Wonder!
 - Investigate: *Scientists 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 scientists 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: *Scientists know it is really important to share the things they learn with other people.*
 - Dance move: Turn to your left and give a high-five, continue high fiving around the circle until the high-five returns to the first person. (This can be done in the future with smaller groups.)
 - Sound: Communicate (say it as they pass the high-five)!
 - Make a Difference: *Scientists work to make the world a better place with the things they learn.*
 - Dance move: Stand like a superhero with legs apart and hands-on hips.
 - Sound: Make a difference!
- Have students go through the series of Scientist 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:

- Introduce uniqueness and have students create a dance move that represents them as a scientist. Be sure to include:
 - We are all scientists, but we are not all the same. We all think differently and have different ideas – that is what makes science exciting!
 - Students will create their own dance move to represent themselves as an individual different from the rest of the scientists in the group.
 - The dance move can be anything they want or can be one of the three we suggest.
 - Suggested dance moves:
 - Scientist investigating animals in the wild, so I need to be quiet and hide.
 - Movement: Peeking through the bushes.
 - Scientist examining something they found with a hand lens.
 - Movement: hold something in your hand and the other hand is holding a hand lens.
 - Scientist exploring the DNA of two animals to see if they are related.
 - Movement: pouring liquid from one test tube to another.

- o Have students close their eyes for a moment and picture themselves exploring as a scientist. 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 scientist.)
- o *In a moment, I will say the words "Be a scientist!" and you will show me your dance move while saying the words "Be a scientist!" Let's try it. "Be a scientist!"*
- o (Students should show their dance move and yell out "Be a scientist!". You may need to practice this a few times.)
- o (If time allows go through all Scientist dance moves again and add personal scientist movement in and say "Be a Scientist!".)
- Great job scientists!

Attention Getter:

- Explain "Be a scientist!" will be an attention getter for the day.
 - o When I say, "Be a scientist!" you say, "Be a scientist!", show me your scientist dance, and wait quietly for instructions.

Rocky Seashore Intro

Introduce Rocky Seashore:

- We will be investigating a special ecosystem here in San Diego called the rocky seashore.
 - o (Play Rocky Seashore video/poster.)
 - o (Show Rocky Seashore slide/poster.)
- Investigate prior knowledge:
 - o Has anyone ever visited the rocky seashore before?
 - o What is it like there?
 - o Where do we find rocky seashores?
- *Okay scientists! It is time to Explore and Wonder!*
 - o (Point to Science Discovery Process poster and cross your arms/rub your chin/ make a questioning face.)
 - o Have students look at the rocky seashore slide/poster and ask:
 - What questions do you have about the rocky seashore? What do you wonder?
 - What do you notice?
 - Where do you think rocky seashores are located?
 - Do you think any animals live there? Why or why not?
- Define Rocky Seashore:
 - o (Use the board/chart paper.)
 - o Definition of a rocky seashore:
 - rocky – a place with rocks
 - seashore – a place where land and ocean meet
 - rocky seashore = a rocky place where the land and ocean meet.

Introduce High and Low Tide:

- At the rocky seashore there is a time of day when more of the rocks are covered with water and a time where less of the rocks are covered with water.

- (Show High Tide/Low Tide slide/poster.)
- High tide and low tide.
 - High tide- when the water is at its highest height
 - Low tide- when the water is at its lowest height
 - Show high tide/low tide visual.
- High tide/low tide “dance”.
 - All students stand up.
 - Instructor puts arms straight out to sides while standing on tip toes and says in a high squeaky voice “High tide!”
 - Instructor keeps arms out to sides but crouches way down and says in deep low voice “Low tide!”
 - Have students repeat several times or do a quick game of Simon Says.

Introduce Tidepools:

- When tides are low you often get tidepools.
 - (Point out tidepools in picture.)
- Break down the word “tidepool” with students.
 - Underline the word tide and ask what are tides? (rising and falling of the ocean)
 - Underline pool and ask what is a pool? (a body of standing water)
 - Definition - *a body of saltwater that is left behind when the tide goes out.*
- Tidepools are a place where many animals like to live!

Create Rocky Seashore Animals

Timing:

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

Assistant Instructor Set Up:

- € Place laminated "Rocky Seashore Animal Cards #1-3" on table (1/student)
 - o Try to get a variety of cards at each table.
- € Place 1-2 art bins on the center of each table.
- € Write these sentence frames on board/chart paper in large handwriting:
 - o My animal is a ___ (name of animal from ID card) ___.
 - o A question I have about this animal is _____.

Assistant Instructor Teaching Notes:

After the instructor intro:

- € Walk around the classroom and help students decide which animal to make.
- € Help students learn the name of the animal they are making.
 - o Many students can't read at this age so help them to read what they are making from the card.
- € Help students create animals, 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 animal in the rocky seashore when it is time.
 - o What animal are you building? Why did you choose that?
 - o Where do you think your animal lives in the rocky seashore – high up on the rocks? Closer to water? In tidepools? Why?
 - o What questions do you have about this animal?
- € If a student finishes their animal before time is up explain that they can create another animal.
- € Help students who are finished tape their animal to the 2D Rocky Seashore.

Intro:

- *Okay scientists! It is time to Investigate!*
 - o (Point to Science Discovery Process poster and put your hands up to your eyes like binoculars & look side to side.)
 - o We need to investigate what kind of animals live at the rocky seashore.
- Introduce creating rocky seashore animals.
 - o Students will be creating animals to place in the rocky seashore that will stay in their classroom.
 - (Point out 2D Rocky seashore.)
 - It will remain in their classroom.
 - o Each person will get a Rocky Seashore Animal ID card which shows several different animals.
 - (Show example card and read out loud the names of a few of the animals.)

- o Each person will choose an animal to create and place in their classroom's rocky seashore.
 - Explain that students can pick any animal on the card even if they can't say the name of the animal.
 - Adults will walk around while they are working to help them learn their animal's name.
- o Everyone will get a piece of paper and can use anything in the art bin to create their animal.
- o Animals do not need to be perfect but need to be complete when time is up.
- o The goal is to have as many animals in the rocky seashore as possible.
- o You will have 10 minutes to work.
- o (Have all students take a Rocky Seashore Animal ID card.)
 - (Give students 30 seconds to look over their ID cards and pick an animal they want to create.)
 - (Have students give a thumbs up when then have decided on an animal.)
- o (Have all students take a piece of paper out of the art bin.)

Creating Animals:

- (Put a visual timer up on the board and tell students to begin working.)
 - o (Give students lots of verbal reminders of time.)
- (If a student finishes early they can cut out their animal using scissors or create another animal.)
- (Tell students when time is up.)

Clean Up:

- (Collect art supplies.)

Populate the Rocky Seashore

Timing:

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

Assistant Instructor Set Up:

- € Quickly collect art supplies.
- € Throw away any old/used up art supplies.
- € Give each adult a roll of tape.

Assistant Instructor Teaching Notes:

- € Give each student a piece of tape and show them how to attach it to their animal while the first group is putting their animals in the rocky seashore so that they are ready to go when called.
- € Help your group place their animals in the rocky seashore as quickly as possible so that all the groups have time to come up.
- € Help students answer the sentence frames on the board as many of them can't read and may have forgotten what the sentences are.

Pair-Share:

- (Assign each adult in the room one table of students to work with.)
- Introduce how to share information with a scientific partner.
 - Now we will have a moment to share the animals we created with another scientist.
 - Two things to share: The name of your animal and a question or wondering you have about that animal.
 - ____ (Direct students' attention to sentence frames on the PowerPoint/chart paper.)
 - ____ (Read the sentence frames out loud twice – as many Kindergarten students can't read.)
 - My animal is a ____ (name of animal from ID card) ____.
 - A question I have about this animal is _____.
 - Give an example.
 - (Let students know that if they can't say the name of their animal, they can point to it on their 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 Rocky Seashore:

- Introduce how to populate the classroom rocky seashore:
 - Invite one table at a time to place animals in the rocky seashore.
 - Students will use their piece of tape to stick their animal in in the rocky seashore.
 - Students should place their animal in the area they think it spends the most time.
 - Once a student has taped their animal they are to quickly return to their seat.
 - (Invite students up one table at a time to place animals.)

Process Reflection:

- *Okay scientists! It is time to analyze what we have learned!*
 - (Point to Science Discovery Process poster and mime typing on keyboard.)
- Compare diversity of animals and diversity of scientists:
 - Take a look at our rocky seashore – do we have a lot of animals?
 - Could we add more if there was more time?
 - Not only do we have lots of animals. We have lots of different types of animals. That is called a diversity of animals.
 - A healthy rocky seashore has a lot of different types of animals.
 - Remember earlier today when we talked about how we are all scientists, but we are unique individuals with different thoughts and ideas – that is a diversity of scientists!
 - A healthy world has a diversity of scientists – it's what makes science happen!

Self-Reflection

Assistant Instructor Set Up:

- € Collect visuals
- € Collect Rocky Seashore Animal ID Cards

Assistant Instructor Teaching Notes:

- € Help get students into two lines and join the line to yourself.
- € While students are partner sharing help them be good listening partners.
- € Make sure both partners are getting a chance to share.

Reflection:

- (Have students line up in two equal lines facing each other. Incorporate adults.)
- *Okay scientists! It is time to communicate your new knowledge!*
 - o (Point to Science Discovery Process poster and high-five a student.)
 - o Communication is a way to share your thoughts with others. Communication is also a great way to hear what other scientists are thinking!
- Lead students through a pair-share where the goal is to show the person across from them their unique “Be a Scientist” dance move and explain what they are doing.
 - o (Choose a partner to share first. Example: Taller partner will go first.)
 - (Give the first partner 30 seconds to share their dance and explain it.)
 - o Let students know it is time for the other partner to share.
 - (Give the second partner 30 seconds to share.)
- Talk about uniqueness and belonging.
 - o Have all students show their “Be a scientist!” dance move and freeze.
 - o Have students look around and notice the diversity of dances.
 - We are all scientists, but we are not all the same.
 - A diversity of scientists allows for a diversity of ideas and having different ideas leads to new knowledge.
 - One day maybe some of you will decide to become scientists and contribute to how science happens!

Closing:

- Remind students that they are now a member of a community of scientists and that they will be visiting the Birch Aquarium with Ocean Discovery to continue exploring the rocky seashore on ____ date.
 - o **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.
- Please share your “Be a Scientist! dance move and everything you learned about the rocky seashore with your friends and families tonight.
- Thank you for being your best self today scientists!
- At Ocean Discovery Institute we **BELIEVE** that science is something you can do and a scientist 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 while exploring how animals use the rocky seashore while visiting the Birch Aquarium.

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)
 - Hand lens without lanyards
 - We do not want students to be able to wear these as necklaces.
 - Rocky Seashore Animal ID Cards (laminated)
 - Map of Birch Aquarium
 - Science Notebook
 - Pencil
 - Clipboard
- Instructor backpacks (1/instructor)
 - Mini white boards
 - Dry erase markers (2)
 - Dry erase eraser (1)
 - Colored markers (20-30)
 - Mini Believe! Achieve! Lead! poster (1)
 - Mini Science Discovery Process poster (1)
 - Hand sanitizer (2)
- Ziploc bags (4/class)
 - To store student science notebooks to be returned on Living Lab day

Kindergarten Explore Timing – Birch Aquarium:
On Time (Early Start Schools):

On Time	Group 1	Group 2	Group 3
9:30-9:40	Arrival		
9:40-10:00	Introduction Whale Statue Seating Area	Introduction Whale Statue Seating Area	Introduction Shark Exhibit
10:00-10:30	Learn to Explore Sea dragons & Seahorses	Learn to Explore Shark Shores	Learn to Explore Oddities
10:30-11:00	Tidepool Plaza	Hall of Fishes – Cold Side	Lunch + Bathroom Break Whale Statue Seating Area
11:00-11:30	Lunch + Bathroom Break Shark Exhibit	Lunch + Bathroom Break Whale Statue Seating Area	Hall of Fishes – Warm Side
11:30-12:00	Hall of Fishes – Cold Side	Hall of Fishes – Warm Side	Tidepool Plaza
12:00-12:30	Hall of Fishes – Warm Side	Tidepool Plaza	Hall of Fishes – Cold Side
12:30-12:50	Self-Reflection Whale Statue Seating Area	Self-Reflection Whale Statue Seating Area	Self-Reflection Shark Exhibit
12:50-1:00	Clean up + Goodbye + Load Buses		

A Little Late/Late Start Schools:

On Time	Group 1	Group 2	Group 3
9:45-10:00	Arrival		
10:00-10:15	Introduction Whale Statue Seating Area	Introduction Whale Statue Seating Area	Introduction Shark Exhibit
10:15-10:40	Learn to Explore Sea dragons & Seahorses	Learn to Explore Shark Shores	Learn to Explore Oddities
10:40-11:10	Tidepool Plaza	Hall of Fishes – Cold Side	Hall of Fishes – Warm Side
11:10-11:35	Lunch + Bathroom Break Shark Exhibit	Lunch + Bathroom Break Whale Statue Seating Area	Lunch + Bathroom Break Whale Statue Seating Area
11:35-12:05	Hall of Fishes – Cold Side	Hall of Fishes – Warm Side	Tidepool Plaza
12:05-12:35	Hall of Fishes – Warm Side	Tidepool Plaza	Hall of Fishes – Cold Side
12:35-12:55	Self-Reflection Whale Statue Seating Area	Self-Reflection Whale Statue Seating Area	Self-Reflection Shark Exhibit
12:55-1:00	Clean up + Goodbye + Load Buses		

A Lot Late:

*5 minutes less time at this station

**10 minutes less time at this station

On Time	Group 1	Group 2	Group 3
10:10-10:20	Arrival		
10:20-10:40	Introduction Whale Statue Seating Area	Introduction Whale Statue Seating Area	Introduction Shark Exhibit
10:40-11:00**	Learn to Explore Sea dragons & Seahorses	Learn to Explore Shark Shores	Learn to Explore Oddities
11:00-11:25*	Tidepool Plaza	Hall of Fishes – Cold Side	Hall of Fishes – Warm Side
11:25-11:45**	Lunch + Bathroom Break Shark Exhibit	Lunch + Bathroom Break Whale Statue Seating Area	Lunch + Bathroom Break Whale Statue Seating Area
11:45-12:10*	Hall of Fishes – Cold Side	Hall of Fishes – Warm Side	Tidepool Plaza
12:10-12:35*	Hall of Fishes – Warm Side	Tidepool Plaza	Hall of Fishes – Cold Side
12:35-12:55	Self-Reflection Whale Statue Seating Area	Self-Reflection Whale Statue Seating Area	Self-Reflection Shark Exhibit
12:55-1:00*	Clean up + Goodbye + Load Buses		



Arrival

Trip Lead Notes:

- € Make sure all staff know where to park when they arrive at the aquarium.
- € Discuss with Ocean Discovery staff who will take on each of the **Arrival Tasks** (see below).
- € Decide where each group will meet when students get off the bus.
- € Decide which Instructor/Assistant Instructor will start in each Introduction area.

Program Set Up:

- € Fill student water bottles at lab
 - ~5 per group as more students bring personal bottles now
- € Make sure Instructor doing the chaperone introduction has the Ocean Discovery Institute Field Trip Volunteer Cards (1/volunteer)
- € Set out by each Introduction area:
 - Visors (1/student)
 - Explorer backpacks (1/student)
 - Extra water bottles for students who don't have one.
- € Determine what your group's name will be.
 - **Easiest is a color + animal.**
 - Ex. Blue Egrets, Green Sharks, Purple Hermit Crabs, etc.

- Meet buses in traffic circle.
- **Teacher Check-In: The teacher/group leader will**
- **Attendance Numbers: Be ready to Due to reduced capacity, tickets are subject to availability and are not guaranteed.**
- Begin Arrival Tasks.
 - (Note: The below should take place simultaneously.)
 - Trip Lead (1):
 - Introduce yourself to teachers and students.
 - Send adult chaperones off the bus to meet with the instructor doing the chaperone introduction.
 - Have teachers look over rosters and note any absent students and sign a cover sheet stating they've collected all waivers to the best of their ability.
 - Dismiss one class at a time off the bus and let teacher and students know which instructor to report to.
 - Count how many adults (teachers + chaperones) came from the school.
 - Check in at the Visitor Services Office while the group remains at the Whale Fountain.
 - Provide exact numbers of students and chaperones (teachers, parents, and staff). Any adult without a reservation will need to purchase an Extra Chaperone ticket.
 - Instructor (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!
 - 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!
- Assistant Instructors (1/bus)
 - Talk to bus driver about unloading lunches.
 - As students get off the bus to meet their instructor – hand each student a lunch.
 - Extra lunches should be ??
- Instructor (1) & All other Assistant Instructors
 - Meet students as they get off the bus.
 - As soon as your group and Instructor is ready, walk to your Introduction area and begin.

Transition Activities (2-3 minutes/activity)

Activities that can be used throughout the day when transitioning students from task to another, or you need to get students focused on the instruction, or to get out wiggles.

- **High/low tide dance**
- **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.**
- **Play a quick game of crabby says. (There is no need for anyone to get “out” the goal is just to get everyone quiet and settled. Example:**
 - **Crabby says show me your eyes on stalks (make a hand motion)**
 - **Put up your claws.**
 - **Move from side to side like a crab.**
 - **Show me your claws grabbing at food.**
 - **Show me your eye stalks.**
 - **Crabby says place your hands over your mouth so you can hide from predators.**
 - **Crabby says sit down as quietly as you can so you can hide in seagrass from predators.**
 - **Immediately transition into intro.**

Introduction & Community Agreements

Assistant Instructor Teaching Notes:

- € Distribute visors (1 color/group)
 - Wear a visor! Students love to do what you do!
- € Sit with students during intro and model good listening behavior.
- € One of the goals of the day is for students to feel that they are **doing science**. Potential questions to ask throughout the day include:
 - How are you using science to look at this?
 - What are you wondering about?
 - What tool(s) are you using to help you explore?
 - What have you written in your scientific notebook?

- (Have students sit or stand in a circle.)

● Introductions:

- All staff + volunteers take 30 seconds to introduce themselves and share their story.
 - Details for story can be found in **SI Education Guide**.

● Introduce Birch Aquarium:

- We are at the Birch Aquarium
 - 30 minutes by car from City Heights
- Part of Scripps Institution of Oceanography which is part of UC San Diego.
- We are here to continue our exploration of the rocky seashore and the animals that live there.

● Review Rocky Seashore:

- Define rocky seashore = a rocky place where the land and ocean meet.
 - Ask students to name some of the animals that live at the rocky seashore.
 - You can remind them of their classroom rocky seashore if they struggle.
- Remind students that the tide changes daily at the rocky seashore and that there is a high tide and a low tide.
 - Have students do kinesthetic movements for high tide and low tide.
 - (See *Community Building Day – Rocky Seashore Intro for movements*.)
- Review tidepools.
 - Define tidepool: a body of saltwater that is left behind when the tide goes out.
 - Ask students when you get more tidepools during high or low tide? – Low tide.
 - Let students know they will get to see a replica of a rocky seashore with tidepools and living animals here at the Birch Aquarium.

● Review Scientist Dances:

- We will be scientists exploring the rocky seashore.
- Review what scientists do using the Scientist Dances.
 - See *Community Building Day*.
 - 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 Notebooks and Explorer Backpacks:

- o To make observations, scientists need tools and a place to write their observations and questions.
- o Each backpack has a science notebook.
 - Scientists use notebooks for recording things they see, and questions and ideas they have.
 - Can be used anywhere- in the lab, in the field, at home.
 - You can write or draw pictures in your science notebook at any time today.
 - At the end of this program your science notebook will be yours to take home.
- o Each backpack has tools for exploring.
 - You may use any tool at any point today to make observations about the rocky seashore.
 - 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.)
 - Scientists treat all tools with respect. Be sure to return them to your backpack when you are finished using them.
 - Never use your hand lens to tap on the glass of the aquariums- it could upset/harm the animals.
 - You are responsible for your backpack all day.
- o (Give students time to look through backpack.)
 - If students brought their own backpacks:
 - Explain that they will be using a backpack from Ocean Discovery for the day and will need to place their personal backpack in the Explorer backpack.
 - Distribute:
 - Explorer Backpacks
 - Water bottles, if needed
 - Lunches into backpacks

- Introduce scientific visors:

- o Scientists 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.
- o Look around you- these are your fellow scientists.
- o We will all have the same color visor to signify our unity as a team.
- o Adults have visors as well because they are also part of the scientific team. Feel free to ask any adult questions throughout the day!
- o 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).

- Introduce team name:

- o Tell students their team name.

- o Explain that the team name is an attention getting signal.
- o Example:
 - When you here “Blue!”
 - You all shout “Egrets!”
 - (Practice call and response a few times.)
- Review Community Agreements:
 - o Working as a team of scientists and we all must agree to follow a certain set of expectations.
 - o At Ocean Discovery we believe everyone should Be Their Best Self.
 - (Show Community Agreements slide.)
 - o To **Be Your Best Self**, you should:
 - **Be curious!**
 - Ask questions, make observations, and share your thoughts and ideas.
 - **Be respectful!**
 - Take turns using the step stool when necessary. Do not tap on the glass it can bother the animals. Wait your turn to look at exhibits.
 - **Be safe!**
 - Take care of yourself and others. Walk everywhere, no pushing.
 - o Ask students to give a silent thumbs up if they can agree to be their best self when working with Ocean Discovery.
- Preview the theme of the day:
 - o Today we will focus on how animals use the rocky seashore.
 - o We will get to explore almost the entire aquarium. While you are walking around always be looking for rocky seashore animals (sea stars, crabs, mussels, anemones, etc.) and making observations and asking question about these animals.
 - o Remember you can write in your science notebook at any time.

Learn to Explore

Assistant Instructor Teaching Notes:

- € Walk around and interact with students while they are making observations. Potential questions include:
 - o What do you notice?
 - o What is one question you have? One observation?
- € Remind/help students to use the tools in their backpack.
- € Remind/help students to have at least one question and one observation to talk about during the debrief.

Timing for this station:

- Walk to station (5 min)
- Introduction (5 min)
- Explore (15 min)
- Process reflection (5 min)

Introduction:

- (Walk to your Learn to Explore Station location.)
- (Have students stand in a circle where you aren't blocking anything.)
- We are scientists. Scientists Explore and Wonder.
 - Do kinesthetic movement for Explore and Wonder.)
- But how do scientists Explore and Wonder?
 - 1) They look around and notice things that are interesting – observations.
 - 2) They ask questions.
- (Do an example – if possible, at the start of your Learn to Explore location.)
 - Ex. Let's look at this tank and notice things. I notice that all the seahorses are at the bottom of the tank – observation (something I see). I wonder why the seahorses are at the bottom of the tank rather than swimming around? – Question. I wonder if the seahorses are sick or if this is normal behavior? – Question. I notice that the seahorses at the bottom of the tank are close together in a group (something I see).- Observation. I wonder if they are members of the same family? – Question.
- (Have the whole group do an example at the same location.)
 - Use a think-pair-share format for this.
 - Give students a minute to look at the exhibit and think of an observation.
 - Have students share their observation with a partner.
 - Have 2-3 students share an observation with the group.
 - Give students 30 seconds to think of a question about the same exhibit.
 - Ask 3-5 students to share their question.
- We are now going to walk through this exhibit, by the time you reach the end your goal is to have ONE question and one observation from what you saw.
 - Divide students up so that they are in smaller groups with at least one adult.
 - Tell all adults that they will have 15 minutes to walk through the exhibit with their group – making observations and asking questions.
 - Give adults an exact time they need to be at the end of the exhibit.
- Release groups to explore.

Process Reflection:

- (Have students stand in a circle where you aren't blocking anything.)
- Have students share observations (~ 2 min).
 - Let students know observations don't have to be only visual. We can make observations about the things we see, hear, touch, feel, and taste.
 - Observation come from anything we notice with any of our senses.
- Have students share questions (~ 2 min).
- Connect to the rest of the day:
 - We will be focused on making observation and asking questions about rocky seashore animals. We especially want to think about how these animals are using the rocky seashore.

Tidepool Plaza

Assistant Instructor Teaching Notes:

- € Walk around with your group and ask questions of the students. The goal is that they come away with one observation about one question about an animal. Potential questions include:
- What do you notice about the tidepool animals?
 - What observations are you making?
 - What questions do you have?

Timing for this station:

- Walk to the station (5 min)
- Intro (3 min)
- Tidepool Plaza (15 min)
- Process Reflection (7 min)

Intro:

- (Walk to the back of the Galleria closest to the tidepool and have students sit in a circle that does not block any entrance/exit.)
- We are going to have 15 minutes to explore the tidepool plaza with our group.
- You will be making observations and asking questions about the animals at the rocky seashore.
- Your goal at the end of exploration time is to choose one animal that you saw and make one observation and have one question about that animal.
 - Example: I might see a sea cucumber in the exhibit. I might notice that the sea cucumber is really soft when I touch it. My question is what kinds of animals might eat a sea cucumber?
- You may have lots of questions and observations while you are walking around and that's great! We want you to make lots of observations and ask lots of questions!
- Expectations for tidepool plaza.
 - Scientists are gentle: Touch all animals gently with two fingers. No poking.
 - Scientists are respectful: Wait respectfully for a turn even when there are others in front of you.
 - Scientists are patient: Stay with your group. You will get to see all parts of the tidepool plaza.
 - Scientists explore and wonder: Make observations and ask questions about how animals here are using the rocky seashore.

Process Reflection:

- (Gather students in a relatively quiet place where they can sit down).
 - Why science notebooks:
 - Okay scientists we are going to take a moment make some notes in our science notebook about what we just saw.
 - Remember we have a science notebook so we can remember ideas, observations, and questions we had.
 - What to do in science notebook.
 - (Have all students open to Explore Day: Tidepool Plaza page.)
 - Draw an animal that you saw in the Tidepool Plaza that you had an observation and a question about.
 - Your drawing does not need to be perfect. Do the best you can.

- Write the name of your animal – adults will be around to help you with spelling or you can use your Rocky Seashore Animal ID card.
- You will only have two minutes to draw so you will need to work quickly.
- (Give students 2 minutes to draw their animal.)
- Debrief drawings.
 - Ask students to share the animal they drew. Then students follow up questions about how their animal is interacting with the rocky seashore.
 - Potential questions include:
 - What did you notice/observe about this animal?
 - How did they feel when you touched it? Could this be an advantage or disadvantage?
 - What color was it?
 - What was it doing when you saw it?
 - Why do you think this animal lives at the rocky seashore?
 - A home, protection, sources of food, etc.
 - How does this animal use the rocky seashore?
 - What question do you have about this animal?
 - Example:
 - Teacher: What animal did you draw?
 - Student: Sea star.
 - Teacher: What did you observe about the sea star?
 - Student:
 - Teacher: Did you touch the sea star?
 - Student: Yes.
 - Teacher: How did it feel?
 - Student: Hard and bumpy.
 - Teacher: Do you think it's a good or bad thing for a sea star to be hard and bumpy?
 - Student: Good because it is harder for it to get eaten by something.
 - Teacher: Why do you think sea stars live at the rocky seashore.
 - Student: I saw the sea star sticking to the rock. I think they live there so they can stick to rocks.
- Great job making observations and asking questions scientists! Let's move on to our next exhibit!

Hall of Fishes – Cold Water Side

Assistant Instructor Teaching Notes:

- € Walk around with your group and ask questions of the students. The goal is that they come away with one observation about one question about an animal. Potential questions include:
- What do you notice about the tidepool animals?
 - What observations are you making?
 - What questions do you have?
 - How do these animals compare to the ones we saw in the cold/warm water side?
 - How is that animal using the rocky seashore?
 - As a home
 - For protection (from waves, predators, etc.)
 - To get food
- € Student will and should ask lots of questions about animals that don't

Timing for this station:

- Walk to the station (5 min)
- Intro (3 min)
- Hall of Fishes – Cold Water Side (15 min)
- Process Reflection (7 min)

Intro:

- (Find a quieter location where students can stand in a circle that does not block any entrance/exit.)
- We are going to have 15 minutes to explore the Hall of Fishes Cold Water side with our group.
- You will be making observations and asking questions animals you see that live at the rocky seashore.
 - You will see many animals here. Some live at the rocky seashore and some do not.
 - You can make observations and ask questions about any animal but when you finish walking through the exhibit you will need to draw an animal that lives at the rocky seashore.
- Your goal at the end of exploration time is to draw one animal that you saw and make one observation and have one question about that animal.
 - Example: I might see a sea cucumber in the exhibit. I might notice that the sea cucumber is really soft when I touch it. My question is what kinds of animals might eat a sea cucumber?
- Expectations for Hall of Fishes.
 - Scientists are respectful: Wait respectfully for a turn even when there are others in front of you. Wait your turn to use the step stool. We don't tap or bang on the glass because it might disturb the animals.
 - Scientists are patient: Stay with your group. You will get to see all parts of the Hall of Fishes.
 - Scientists explore and wonder: Make observations and ask questions about how animals here are using the rocky seashore.

Process Reflection:

- (Gather students in a relatively quiet place where they can sit down).
 - Why science notebooks (if this is your first station):
 - Okay scientists we are going to take a moment make some notes in our science notebook about what we just saw.
 - Remember we have a science notebook so we can remember ideas, observations and questions we had.
 - What to do in science notebook.
 - (Have all students open to Explore Day: Hall of Fishes – Cold Water page.)
 - Draw an animal that you saw in the Hall of Fishes that you had an observation and a question about.
 - Remember your animal needs to be one that lives at the rocky seashore!
 - Your drawing does not need to be perfect. Do the best you can.

- Write the name of your animal – adults will be around to help you with spelling or you can use your Rocky Seashore Animal ID card.
- You will only have two minutes to draw so you will need to work quickly.
- (Give students 2 minutes to draw their animal.)
- Debrief drawings.
 - Ask students to share the animal they drew. Then students follow up questions about how their animal is interacting with the rocky seashore.
 - Potential questions include:
 - What did you notice/observe about this animal?
 - What color was it?
 - What was it doing when you saw it?
 - Why do you think this animal lives at the rocky seashore?
 - A home, protection, sources of food, etc.
 - How does this animal use the rocky seashore?
 - What question do you have about this animal?
- Review differences between warm and cold-water sides. Potential questions include:
 - How do the animals look different on the cold versus warm water side?
 - Which animals are more colorful? Why?
 - Which are larger? Smaller?
- Great job making observations and asking questions scientists! Let's move on to our next exhibit!

Hall of Fishes – Warm Water Side

- See curriculum for Hall of Fishes – Cold Water Side
- Review differences between warm and cold-water sides. Potential questions include:
 - How do the animals look different on the cold versus warm water side?
 - Which animals are more colorful? Why?
 - Warm water fish are generally more colorful.
 - Which are larger? Smaller?
 - Warm water fish are generally smaller.

● _____

Lunch & Bathroom Break

- Before lunch have students take a bathroom break and refill water bottles.
- Tell students that they will need to keep an eye on trash and not let it blow away.
- Pass out hand sanitizer to each student before lunch.
- Give students a five-minute warning before clean-up.
 - Explain that all trash will go into the black trash bag you have brought.

Assistant Instructor Teaching Notes:

- € Walk around and monitor students while they eat lunch – ask them questions about their experience.
- € Hand out hand sanitizer.
- € Supervise and encourage clean-up of surrounding area when clean-up begins.

- 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.
- Put closed trash bag in cart to be carried out to dumpsters at the end of the field trip.

Self-Reflection (20 minutes)

Instructor Notes:

- € Take markers out of instructor backpack and put in small piles for students to use.

Assistant Instructor Teaching Notes:

- € Sit with students and model good listening behavior during intro.
- € Help students decide what to draw on their visor if they are struggling. Ask questions like:
 - When do you remember being a scientist today? What were you doing?
 - Do you remember using a tool in your backpack today? What were you doing with it?
- € Encourage students not to get bogged down by creating a perfect drawing.
- € When students are sharing make sure they are making eye contact with their partner.

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 as scientists today. I heard so many observations and questions!

- Now we are going to take a moment and capture ourselves as scientists 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.
 - Scientists are respectful: if you need a certain color marker wait patiently until the other person is done with it.
 - Scientists are thoughtful: do your 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 scientist in that moment?
 - Did you like doing science?
 - Did you like being a scientist today?
 - Do you think science is important? Why?

Clean up + Goodbye + Load Buses (10 min)

**** If using the "A Little Late" or "A Lot Late" schedule skip this entirely, 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.**

- Have students sit in a circle and take out their field notebooks.
- Have student hold notebooks up and make sure everyone has a first, last and teacher's name on their science notebook.
- Collect notebooks and let students know they will get them back when they come to the Living Lab.
- Collect all notebooks and place in folder with school and teacher's name on it.
- Collect borrowed water bottles.
- Clean out explorer packs.
 - Have students empty out their backpacks out.
 - Have students make sure they have each of the following:
 - ___ Hand lens (1)
 - ___ Pencil or Pen (1/pack)
 - Rocky Seashore Animal ID Cards (1)

- Birch Aquarium Map (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 plastic bins.
- 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 more about the rocky seashore.
- Thank you for being your best self today scientists!
- At Ocean Discovery Institute we **BELIEVE** that science is something you can do and a scientist 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 (Instructors/Volunteers Only):

- Place folders with field notes into file box in SciTech Lab.
- Empty garbage and paper into recycling can.
- Throw away and replace any dried-up white board and regular markers.
- Clean all white boards with dry erase cleaner.
- Restock:
 - Visors
- Restock Instructor backpacks:
 - Pens
 - Dry erase markers
 - Colored Markers
 - Extra science notebooks
- Place new science notebooks in explorer backpacks.
- Organize explorer packs (if there wasn't time for students to do this).

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 rocky seashore and teach others about it.
- (Tomorrow) I am a biologist who explores the rocky seashore.
- (Imagination Station) I imagine I am a biologist who explores the rocky seashore.

Visuals:

- Believe! Achieve! Lead! poster (1)
- Science Discovery Process poster (3)
- Kindergarten Make a Difference Day PowerPoint
 - Papi://Curriculum/SI New/Upper Elementary (3-5)/3rd Grade/Make a Difference Day Visuals

Supplies:

General:

- Ocean Discovery Institute Field Trip Volunteer Card (1/adult volunteer)
- Cover sheet (1/class)
- Science notebook (1 per student)
 - Return the same notebooks to students they used on Explore Day
 - Have ~5 extra science notebooks for students who were absent from Explore Day
- Water coolers (filled w/ water) (2)
- Reusable cups for water (1/student)

Science Leader-Student Connection

- Camera (3)
- Microphone and stand (3)
- Speakers (3)
- Zoom link (from Program Manager)
- Things I Can Ask a Scientist poster (3)

Make a Difference Today

- Odi costume
- ¼ of a piece of Card stock (1/student)
- Large popsicle stick
- Roll of packing tape (8)
- Small plastic bins filled with assorted colored markers, crayons, colored pencils, etc. (1/table)
- Pencils (1/student)
- Meet and Greet materials
 - 6-8 rocky seashore organisms – NO HERMIT CRABS
 - Ex. Ochre star, Wavy Top Snail, chiton, brittle star, sea hare, etc.

- o Small aquaria + lids (8)
- o Bubblers (8)
 - To provide oxygen to animals in small aquaria
- o Towels (8)
- o Cart (1)
 - To move animals from large tank to Ecolab

Make a Difference Tomorrow

- Tidepool “trash” rocks (to be added to large circular tank) (2-3/each kind)
 - o Glue to 2-3 of the below to each rock (so that trash does not float)
 - Plastic bottles
 - Plastic shopping bags
 - Band-aids
 - Small pieces of broken plastic – brightly colored so they stand out.
 - Plastic soda bottle caps
 - Soda cans
 - Orange peels/apple core
 - Paper bags
 - Fast food wrapper or cup
- Small aquaria + lids (10)
- Living hermit crabs (minimum of 10)
- Bubblers (10)

Imagination Station

- Clip board (10)
- VR glasses + iPod (1/student)
 - o <https://www.360cities.net/image/san-pedro-tide-pools-los-angeles>
 - o <https://www.360cities.net/image/2016-11-25-little-corona-beach-at-low-tide-los-angeles/vr>
- Orange cones to create boundaries of “rocky seashore” (6)
- Carpet square (15)
- Binoculars (15)
- Clipboard (15)
- Camouflage bandanas (15)

Self-Reflection

- Speaker + iPod (with multiple kids ocean songs, like *Little Seahorse* (Lynn Miles) *Down at the Sea Hotel*, (Guy Davis), *Under the Sea* (3)
- Laptops (3)

Kindergarten MAD Timing – Living Lab

On time:

Time	Group 1	Group 2	Group 3
9:30-9:40	Arrival Watershed Plaza		
9:40-10:00	Introduction Group 1: Plaza Del Sol Group 2: Eco Lab Group 3: SciTech Lab		
10:00-10:35	MAD Tomorrow <i>Eco Lab</i>	MAD Today <i>Plaza del Sol</i>	Imagination Station <i>SciTech Lab & The Rock Amphitheater</i>
10:35 – 10:55	Science Leader Student Connection <i>Plaza Del Sol</i>	Science Leader Student Connection <i>Plaza del Sol</i>	Science Leader Student Connection <i>SciTech Lab</i>
10:55 – 11:30	Lunch + Bathroom Break <i>The Commons and Rocky Amphitheater</i>	Lunch + Bathroom Break <i>The Commons and Rocky Amphitheater</i>	Lunch + Bathroom Break <i>The Commons and Rocky Amphitheater</i>
11:30-11:55	Imagination Station <i>SciTech Lab & The Rock Amphitheater</i>	MAD Tomorrow <i>Eco Lab</i>	MAD Today <i>Plaza del Sol</i>
11:55-12:30	MAD Today <i>Plaza del Sol</i>	Imagination Station <i>SciTech Lab & The Rock Amphitheater</i>	MAD Tomorrow <i>Eco Lab</i>
12:30-12:50	Reflection + Teacher Survey Group 1: Eco Lab Group 2: SciTech Lab Group 3: Plaza Del Sol		
12:50-1:00	Load Buses		

Late Start Schools/A Little Late (~15 min)

Time	Group 1	Group 2	Group 3
9:40-9:45	Arrival Watershed Plaza		
9:45-10:00	Introduction Group 1: Plaza Del Sol Group 2: Eco Lab Group 3: SciTech Lab		
10:00-10:35	MAD Tomorrow <i>Eco Lab</i>	MAD Tomorrow <i>Eco Lab</i>	MAD Tomorrow <i>Eco Lab</i>
10:35 – 10:55	Science Leader Student Connection <i>Plaza Del Sol</i>	Science Leader Student Connection <i>Plaza Del Sol</i>	Science Leader Student Connection <i>Plaza Del Sol</i>
10:55 – 11:30	Lunch + Bathroom Break <i>The Commons and Rocky Amphitheater</i>	Lunch + Bathroom Break <i>The Commons and Rocky Amphitheater</i>	Lunch + Bathroom Break <i>The Commons and Rocky Amphitheater</i>
11:30-11:55	Imagination Station <i>SciTech Lab & The Rock Amphitheater</i>	MAD Tomorrow <i>Eco Lab</i>	MAD Today <i>Plaza del Sol</i>
11:55-12:30	MAD Today <i>Plaza del Sol</i>	MAD Today <i>Plaza del Sol</i>	MAD Today <i>Plaza del Sol</i>
12:30-12:50	Reflection + Teacher Survey Group 1: Eco Lab Group 2: SciTech Lab Group 3: Plaza Del Sol		
12:50-1:00	Load Buses		

Very late (~25 min)

*5 min less at this station

Time	Group 1	Group 2	Group 3
9:50-9:55	Arrival Watershed Plaza		
9:55-10:05	Introduction Group 1: Plaza Del Sol Group 2: Eco Lab Group 3: SciTech Lab		
10:05-10:35*	MAD Tomorrow <i>Eco Lab</i>	MAD Tomorrow <i>Eco Lab</i>	MAD Tomorrow <i>Eco Lab</i>
10:35 – 10:55	Science Leader Student Connection <i>Plaza Del Sol</i>	Science Leader Student Connection <i>Plaza Del Sol</i>	Science Leader Student Connection <i>Plaza Del Sol</i>
10:55 – 11:30	Lunch + Bathroom Break <i>The Commons and Rocky Amphitheater</i>	Lunch + Bathroom Break <i>The Commons and Rocky Amphitheater</i>	Lunch + Bathroom Break <i>The Commons and Rocky Amphitheater</i>
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12:30-12:50	Reflection + Teacher Survey Group 1: Eco Lab Group 2: SciTech Lab Group 3: Plaza Del Sol		
12:50-1:00	Load Buses		

Program Set Up:

Arrival (Watershed Plaza):

- € Community Agreements Poster
- € ODI Field Trip Volunteer Cards
- € Cover sheet & rosters
- € Stop signs

General (Ecolab, SciTech lab, Plaza Del Sol)

- € Science Discovery Process poster
- € Student science notebooks (one class at each location)
- € Fill water jugs
- € Set out reusable cups (1/student)
- € Turn on Smart Board and load "Kindergarten Make a Difference Day PowerPoint"
 - o (Papi/Curriculum/SI New/Lower Elementary (K-2)/Kindergarten/Make a Difference Day Visuals)
 - o Connect the speaker (test volume)
- € Prep for Self-Reflection:
 - o Set up iPod + speaker with fun song cued up.
 - o Set up laptops with teacher surveys.
- € Prepare printed Believe surveys.

Science Leader-Student Connection (Ecolab, SciTech Lab, Plaza Del Sol)

- € Get Zoom link from Program Manager
- € Setup and Connect:
 - o Speaker
 - o Microphone & stand
 - o Camera
 - o Whiteboard & stand
- € Write potential questions for students on whiteboard
 - o Make sure they have the correct questions (see curriculum below)

Make a Difference Today

- € Put to the side:
 - o Pieces of card stock
 - o Popsicle sticks

Arrival (10 min)

Program Set Up Continued:**Make a Difference Tomorrow**

- € Set up the circle tank to look like a rocky seashore.
- € Place “trashy” rocks evenly around the circle tank.
- € Place hermit crabs in small aquaria with bubblers in the shade.
 - o Make sure the water stays cool and is changed throughout the day.
- € Set aside: clipboards, pencils

Imagination Station

- € Set up VR glasses.
 - o Check that iPods are charged.
 - o Make sure the VR image is downloaded and ready to go.
- € Set up carpet squares in rock amphitheater
 - o Spread them out so they have some distance from each other.
- € Set to the side: binoculars, sunglasses, and clipboard.

Lunch

- € Set up:
 - o Hand sanitizer
 - o Beach mats to sit on
 - o Water cooler (2)

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).

- If walking with school, Trip Lead:
 - Introduce yourself to teachers and volunteers.
 - Take teachers aside and note any students absent on the roster.
 - Have teachers 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.
 - Instructor (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.
 - Instructor (1)
 - Review Community Agreements:
 - Working as a team of scientists and we all must agree to follow a certain set of expectations.
 - At Ocean Discovery we believe everyone should Be Their Best Self.

- o (Show Community Agreements slide.)
- **To Be Your Best Self**, you should:
 - o **Be curious!**
 - Ask questions, make observations, and share your thoughts and ideas.
 - o **Be respectful!**
 - Respect people, living things, and the environment around you.
 - o **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.
- o Assistant Instructors (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.
 - o Students high five ODI statue on the way past.

Transition Activities (2-3 minutes/activity)

Activities that can be used throughout the day when transitioning students from task to another, or you need to get students focused on the instruction, or to get out wiggles.

- High/low tide dance
- 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.
- Play a quick game of crabby says. (There is no need for anyone to get "out" the goal is just to get everyone quiet and settled. Example:
 - Crabby says show me your eyes on stalks (make a hand motion)
 - Put up your claws.
 - Move from side to side like a crab.
 - Show me your claws grabbing at food.
 - Show me your eye stalks.
 - Crabby says place your hands over your mouth so you can hide from predators.
 - Crabby says sit down as quietly as you can so you can hide in seagrass from predators.
 - Immediately transition into intro.

Introduction

Assistant Instructor Teaching Notes:

- € Help students find their science notebook and take a seat.
- € Help to hand out water bottles.
- € Sit with students during introduction and model good listening skills.
- € Participate in Discovery Dances.

Timing for Ocean Alcove:

- Enter/Science Notebook/Water cup (3 min)
- Staff/Volunteer/Living Lab Intro (3 min)
- **Bathroom Break** (4 min)
- OL Video + Debrief (5 min)
- Review Scientist Dances/Rocky Seashore/Make a Difference (5 min)

Timing for Eco Lab:

- **Bathroom Break** (4 min)
- Enter/Science Notebook/Water cup (3 min)
- Staff/Volunteer/Living Lab Intro (3 min)
- OL Video + Debrief (5 min)
- Review Scientist Dances/Rocky Seashore /Make a Difference (5 min)

Timing for SciTech Lab:

- Enter/Science Notebook/Water cup (3 min)
- Staff/Volunteer/Living Lab Intro (3 min)
- OL Video + Debrief (5 min)
- Review Scientist Dances/Rocky Seashore /Make a Difference (5 min)
- **Bathroom Break** (4 min)

Science Notebook/Water cup:

- 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:
 - o All staff + volunteers take one minute each to introduce themselves and share their story.
 - o Details for story can be found in **SI Education Guide**.

Living Lab Intro:

- Welcome students to the Living Lab.
 - o Ask if anyone has visited before?
 - o The Living Lab is your Ocean Discovery Home. It is a place where you can come to learn science, do homework, participate in activities, and lots of other things.
 - o At the end of the day today, I will let you know about upcoming opportunities to return to the Living Lab after today.

Introduce Ocean Leader Video:

- I'd like to introduce you to a science leader who grew up in City Heights and worked with Ocean Discovery just like you who know works in the field of science and uses a science notebook every day.
- Meet Jorge Rivera, who is a Biologist.
- (Play Ocean Leader video in PowerPoint.)

Debrief Ocean Leader Video:

- Potential whole group questions include:
 - In what ways is (Ocean Leader) like you?
 - Is (Ocean Leader) a scientist? How do you know?
 - What are some things he/she does for their job?
- 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 scientist. The question is, could you if you wanted to?
 - Have 2-4 students share their thoughts. Follow up questions could include:
 - What kind of scientist would you like to be?
 - What would you like to study as a scientist?
 - Do you think it is difficult to become a scientist? What would make it difficult? What could you do to overcome those challenges?

Review Scientist Dances:

- Scientists you will continue exploring the rocky seashore here at the Living Lab.
- Review what scientists do using the Scientist Dances.
 - Go through motions a few times, you can change it up by doing slow motion, speed up version, super quiet, super loud, etc.

Review Science Notebooks:

- Remember you have one of the most important tools of a scientist in your hand- a science notebook.
- Use it to draw thoughts, questions, and observations.
- We will use the notebook as a group at certain times throughout the day but remember you can write or draw things in your notebook at ANY time.

Review Rocky Seashore:

- Define rocky seashore = a rocky place where the land and ocean meet.
 - (Show Rocky Seashore slide.)
 - Ask students to name some of the animals that live at the rocky seashore.
 - You can remind them of their classroom rocky seashore if they struggle.
- Remind students that the tide changes daily at the rocky seashore and that there is a high tide and a low tide.
 - (Show Hide Tide Low Tide slide.)
 - Have students do kinesthetic movements for high tide and low tide.
 - (See Community Building Day – Rocky Seashore Intro for movements.)
- Review field trip.
 - Last week we visited the Birch Aquarium and made lots of observations and asked lots of questions about the animals that live at the rocky seashore.
 - Ask students to share some examples of animals they remember, observations they made, or questions they had during the field trip.

Make a Difference:

- Introduce the concept of Making a Difference and protecting the rocky seashore.
 - Do you think the rocky seashore is worth protecting? Why or why not?

o Over the last few weeks, you have learned a lot about the rocky seashore and the animals that live there with Ocean Discovery Institute and we know the rocky seashore is an important place, therefore we will spend today learning how you can help protect the rocky seashore and all the animals that live there.

Make a Difference Today (35 minutes)

Goal: I love the rocky seashore and teach others about it.

Objective: Students will explore rocky seashore animals up close and make a difference today by creating a sign to share with family and friends about how much they love the rocky seashore.

Assistant Instructor Teaching Notes:

- € Spread out, sit and model good listening behavior during the introduction.
- € Pass out/collect invertebrates.
- € Monitor students as they touch invertebrates. Ask students questions:
 - What do you notice about this animal?
 - What questions do you have?
- € Help students create signs.
- € Monitor invertebrates for comfort.

- Be sure bubblers are in place when students aren't observing the inverts.

Timing for this station:

- Meet and Greet (20 min)
- Make Sign (10 min)
- Process Reflection (5 min)

Meet and Greet:

- Introduction:
 - We are going to have a chance to investigate some more rocky seashore animals up close.
 - Each table will get a rocky seashore animal. Remember:
 - Scientists are gentle: Touch all animals gently with two fingers.
 - Scientists are patient: Wait respectfully for a turn. Only one person may touch the animal at a time.
 - Scientists are respectful: Remember when it is your turn to touch that others will want to as well. When your time is up please let another scientist touch the animal.
 - Scientists explore and wonder: Make observations and ask questions about the animals you are investigating.
- Meet and Greet:
 - Place an animal on every table.
 - Adults monitor time so that each person gets a chance to touch the animal.
 - Give students 4-5 minutes with an animal.

- Have students rotate as a group to another table to see another animal.
- Repeat until time is up.

Make Sign

● Importance of Making a Difference:

- One of the most important things we can do as science leaders is share our knowledge with others.
 - (Show Science Discovery Po and point to Communicate. High-five a student.)
 - Think-Pair-Share: Do you care about and want to protect the rocky seashore and the animals that live there? Why?
- As science leaders you know things others do not.
 - You have learned about a really cool place – the rocky seashore and the amazing animals that live there.
 - Not everyone else knows the rocky seashore even exists or how cool the rocky seashore is. As science leaders we need to tell the people what we know about this special place. When people learn about a place and develop a love for it they want to care for it, like you do!
- Communicate
 - (Show Make a Difference Today: Communicate slide.)
 - Explain that these are photos from Earth Day.
 - Ask students what they see in the pictures.
 - As science leaders one way we can share our thoughts and ideas is by making a sign.

- Today you will make a difference by sharing something you love about the rocky seashore with others. You will make a sign that you can take home and share with family and friends.
 - (Show example sign.)
 - You can draw anything you want on your sign that helps communicate your love of the rocky seashore and the animals that live there.
 - You might draw a picture of the rocky seashore, or a picture of your favorite rocky seashore animal, or a picture of an animal at the rocky seashore like an anemone in a tidepool. It's up to you.
 - You can use any of the supplies in your art bin to decorate your sign.
- Give students 30 seconds to think about what they want to draw on their sign.
 - Ask 3-4 students to share their ideas.
- Give students 7-8 minutes to create their sign.
 - Give multiple time checks so students know how much time they have left to work.
 - During the last 2-minutes tape a popsicle stick to the back of each sign.

Process Reflection:

- Think-Pair-Share (if time is short just skip to the group share portion):
 - Share your sign with your partner and tell them why you care about the rocky seashore.
 - Invite 3-4 students to the front of the room to share:
 - Describe their sign.
 - Who they want to show their sign to later today?

Make A Difference Tomorrow (35 min)

Goal: I am a biologist who explores the rocky seashore

Objective: Students learn about a potential career – biologist. They explore and make observations about a rocky seashore in the Ocean Discovery circle tank that is filled with trash. Students then observe hermit crabs and consider how the trash they saw in the rocky seashore could impact these animals. Students learn that being a biologist is career in which they can make a difference in the future by protecting the rocky seashore and the animals that call it home.

Assistant Instructor Teaching Notes:

- ☐ Spread out, sit and model good listening behavior during intro.
- ☐ Help students look into circle tank safely without touching the water.
- ☐ Help students:
 - o Make observations and ask questions about what they see.
 - o Draw their sketch.
- ☐ Hand out/Collect hermit crabs.
- ☐ Monitor students looking at hermit crabs while asking questions.
 - o How do you think trash could affect hermit crabs?
- ☐ Monitor hermit crabs for comfort make sure bubblers are in place when not being observed by students.

Timing for this station:

- Introduction (5 min)
- Investigation (15 min)
- Hermit Crabs + Process Reflection (15 min)

Introduction:

- We are going to explore a type of scientist who might study the rocky seashore for their job.
- Introduce a biologist.
 - o (Show Biologist slide on PowerPoint.)
 - o Ask student what they think a biologist does?
 - o Define biologist:
 - bio = living things
 - ologist = a person who studies something
 - biologist – a person who studies living things
 - o Biologists can study all different types of environments and the organisms that live there. Some biologists study the plants and animals in the rain forest, some study the plant and animals in the desert, etc.
- Today we are going to be biologists who investigate the rocky seashore.

Investigation

- Investigation Prep:
 - Everyone will have a clipboard to put their science notebook on.
 - We will walk over to the tank where Ocean Discovery has a rocky seashore set up.
 - Expectations for investigation:
 - In your science notebook you will draw a sketch of what you observe at the rocky seashore.
 - Sketches do not need to be perfect, they just need to capture the idea of what you are seeing.
 - When we are done observing the rocky seashore you must have one observation and one question to share.
 - We will not be touching anything for this activity so hands will stay out of the tank.
 - Have students open to Make A Difference Day: I am a Biologist page in their science notebook.
 - Give every student a clipboard and a pencil.
- Investigation:
 - Give students 5-7 minutes to observe the tank.
 - Potential questions include:
 - How is this rocky seashore different from the one we saw at the Birch Aquarium?
 - How do you think trash could end up at the rocky seashore?
 - Give students 3 minutes to make a sketch of what they see.
- Debrief Investigation:
 - Alright biologists! Let's communicate what we saw.
 - (Point to Science Discovery Process Poster: Communicate)
 - Think-Pair-Share: What did you observe at the rocky seashore?
 - *Instructor note: The goal of this conversation is for students to notice the trash and perhaps wonder where it came from and how it might impact the animals. This is a time for students to share observations and questions NOT to answer those questions.*
 - Group Share: What questions do you have about what you saw?

Hermit Crabs + Process Reflection:

- Unfortunately, sometimes humans can leave trash at the rocky seashore.
- Hermit Crabs:
 - Let's think about how this trash could impact an animal at the rocky seashore.

- o In a moment you will all get a chance to look at a hermit crab. Hermit crabs live at the rocky seashore. While you are looking at your hermit crab I want you to consider how trash might impact this animal.
 - o (Pass out hermit crabs.)
 - o (Give students 2-3 minutes to observe hermit crabs.)
 - o (Remove hermit crabs.)
- Trash + Rocky Seashore Animals
 - o Think-Pair-Share
 - How do you think trash could affect hermit crabs and other animals that live at the rocky seashore?
 - o Trash can be very harmful to animals at the rocky seashore.
 - (Show Make a Difference Tomorrow: Trash slide.)
 - o Not all rocky seashores are filled with trash. When people take care of them, they are actually safe and healthy places for rocky seashore animals to live.
 - When you work with Ocean Discovery in 3rd grade you will visit a really clean rocky seashore to see animals in their habitat.
- Make a Difference Tomorrow and help protect the rocky seashore.
 - o Think-Pair-Share
 - If you were to become a biologist when you grow up what would you want to do to help protect hermit crabs and other animals at the rocky seashore?
 - o Now that we know how cool the rocky seashore and the animals that live there are, you might think about becoming a biologist in the future. As a biologist you could study the rocky seashore, the animals that live there, and find ways to protect them.

Imagination Station

Goal: I imagine I am a biologist who explores the rocky seashore.

Objective: Students imagine they are a biologist who explores the rocky seashore, by dressing up in field gear and “looking” for animals to study in the “field” through a hide and seek type activity.

Assistant Instructor Teaching Notes:

- ☐ Model good listening skills during intro and process reflection.
- ☐ Help students put on VR glasses and activate VR screen.
- ☐ Help “biologist” students get dressed in field gear:
 - o Clipboard
 - o Binoculars
 - o Camouflage bandanas
- ☐ Help guide “biologists” to the carpet squares.
- ☐ Monitor hiding “sea creatures” and make sure they stay within the boundaries.

Timing for this station:

- Introduction & Virtual Reality (10min)
- Imagine You Are a Biologist (20 min)
- Process Reflection (5 min)

Introduction and Virtual Reality:

- Introduce being a biologist.
 - o (Note: if you have already visited the Make a Difference Tomorrow station you can review this briefly).
 - o We are going to become a type of scientist who might study the rocky seashore for their job.
 - o Introduce a biologist.
 - (Show Biologist slide on PowerPoint.)
 - Ask student what they think a biologist does?
 - Define biologist:
 - bio = living things
 - ologist = a person who studies something
 - biologist – a person who studies living things
 - Biologists can study all different types of environments and the organisms that live there. Some biologists study the plants and animals in the rain forest, some study the plant and animals in the desert, etc.
 - o Today we are going to be biologists who investigate the rocky seashore
- Virtual Reality:
 - o Let’s take a moment to visit the rocky seashore. Everyone will get to put on some Virtual Reality glasses and visit the rocky seashore.
 - o Explain how to use VR glasses.

- o Encourage students to look up and down and all around while using VR glasses.
- o Let students know that when they are looking around they may see a person diving in the water with them and not to be afraid- that is just another scientist!
- o After students take off VR glasses ask them to share about their experience. Potential questions include:
 - How did it feel to visit the rocky seashore?
 - What did you observe?

Imagine You Are a Biologist:

- Introduction:
 - o You are going to become biologists and look for rocky seashore “animals” to investigate.
 - o Ask students if they think animals at the rocky seashore want to be found? – No, most animals want to hide so that they don’t get eaten by other animals.
 - o Sometimes scientists want to study animals that can be really difficult to find.
 - o Today you are going to imagine that you are biologist and you want to find some animals at the rocky seashore to investigate. The rest of us will be the rocky seashore animals trying not to be found.
 - o Expectations for activity:
 - The biologists want to find as many animals as possible.
 - The animals want to stay hidden and not get found.
 - o Divide students into three groups.
 - Take two groups outside and explain:
 - You are rocky seashore animals.
 - You need to hide so that you can’t be found by the biologists who will be standing on the carpet squares.
 - You must hide within the boundaries.
 - o (Explain boundaries to students – use orange cones to help.)
 - If a scientist points at you and says your name – you are caught and must stand up.
 - Keep one group inside and explain:
 - You are the biologists.
 - The animals are hiding in the rocky seashore right now.
 - When you go outside you will stand on a carpet square. You may not move off the carpet square.
 - Your job is to look for “rocky seashore animals”. If you see one you must point at them and say their name.
 - If you are correct they will stand up – they have been observed by you.
- Activity:
 - o Play 3 rounds of the game with 1/3 of the students being “biologists” each round.
 - o Give students approximately 1-2 minutes to hide.
 - While students are hiding, have biologists put on gear:
 - Binoculars
 - Clipboard
 - Camouflage bandanas
 - o Bring the biologists out and place them on a carpet square.

- o Monitor the game so that everyone plays fairly.
- o Give the biologists approximately 2 minutes to “look” for all the animals.
- o Once time is up, have all the animals who were not found stand up so the biologists can see them.

Process Reflection:

- Ask students what made finding some of the animals difficult. How do animals avoid being found?
 - o Camouflage
 - o Stay still
 - o Be quiet
 - o Hide
- Ask students what things a biologist might do to help them find animals?
 - o Look closely
 - o Use tools – microscopes, binoculars, etc.
 - o Be quiet so you don’t scare animals
 - o Move slowly so you have a better chance of seeing things
 - o Looking carefully so you don’t miss animals that are camouflaged
 - o Be patient sometimes it takes a long time.
- Ask students: When you were a biologist today were you working in a lab with a white coat? – No.
 - o It’s important to realize there are many types of scientist in the world and they all do different things.
 - o While some scientists do wear lab coats and work in a lab, many do not. Today you were a biologist, you were working outdoors and wore field gear like binoculars, a visor, and sunglasses.
 - o Scientists come in many shapes and sizes just like us!

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 rocky seashore.
 - 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 Team Lead (~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 rocky seashore 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 a chance to ask questions.
 - If needed, remind them about the questions they brainstormed earlier.
 - (Have students say "Thank you!" and all clap for the science leader.)
 - (Disconnect Zoom call.)

Lunch & Bathroom Break (20 min)

- Before lunch have students take a bathroom break.
- Give hand sanitizer to each student before lunch.
- Give students a five-minute warning before clean up.
- Remind student 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.

Self-Reflection (20 minutes)

Assistant Instructor Teaching Notes:

- € Help pair up students who don't have partners when the music turns off.
- € High five students and have a conversation with them about the question being asked.
- € Help classroom teachers sign onto laptops so they can take the Teacher Survey.
- € Help students with their drawings of returning to the Living Lab.
- € Ask students questions about what they draw. Potential questions include:
 - o Who did you draw in your picture?
 - o What are you doing in the picture?
 - o Are you interested in coming back to the Living Lab again with your family or friends?

High-Five Reflection (15 min)

- Activity:
 - o Music will play and students and adults will walk around the classroom.
 - o When the music stops, students and adults high-five the nearest person, hold the high-five and create a two-person bridge.
 - o 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.
- Instructor options:
 - 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.
- o After the first person responds the Instructor will prompt the second person to speak.
- o Choose 2-3 students to share their thoughts with the group.
- o Turn on the music again and students must walk around.
- o When music stops they must high five someone NEW and face them.
 - Walk around and help pair up any students who don't have a partner.
- o Repeat until you run out of time.
- o Questions:
 - What was something you enjoyed about being a scientist today?
 - Do you think you could be a scientist 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?
 - Tell you partner about the picture you drew on your fan today.
 - What is one thing you want to tell your family about the rocky seashore?
 - Who would you want to bring to visit the Living Lab with you?

- Have students return to their seats and sit down.

Draw a Picture of You Visiting the Living Lab (5 min)

(Have Assistant Instructor direct teachers to complete teacher survey on laptops.)

- (Show Draw a Picture of You Visiting the Living Lab slide on the PowerPoint.)
- Explain activity to students. Be sure to include:
 - They are going to have the opportunity draw a picture of themselves returning to the Living Lab.
 - They can include other people they would like to bring with them as well- 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.
 - (Set a time for three minutes.)
- If time allows have some students share or do a pair-share.

Clean-Up & Goodbye (5 min)

- Invite students back to Living Lab for next upcoming camp.
- Have students turn in reusable water cups.
- Collect science notebooks and give them to classroom teacher.
- Look around you on table and floor – pick up any trash you see.
- Note: While clean-up is happening also do a quick bathroom break before student begin walk or get on buses.
- Push in chairs at tables.
- Thank you for being your best self today scientists!
 - At Ocean Discovery Institute we **BELIEVE** that science is something you can do and a scientist 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 to watershed plaza.
- Have staff line up next to ODI and high five students on their way out.

Staff Clean-Up (30 min)

See protocol below.

Staff Clean Up

Trip Lead: Determine who will do each of the below activities. Check when complete.

1**GENERAL ITEMS - IMMEDIATE**

Run reusable cups through dishwasher and move to Transitional Storage
Mop student bathrooms, take out trash and place "Caution Wet Floor" sign up
Return Ocean Alcove screen to camera footage from the pier

2**PLAZA DEL SOL**

Spray and wipe tables.
Put chairs on top of tables.
Sweep Plaza Del Sol.
Put away technology.
Lower canopies.
Put hermit crabs away.
Remove "trashy" rocks from circle tank and let them dry out before storing.
Dry small aquaria before storing.
Put away all supplies in designated storage location.
Take out trash as necessary.

3**SCI TECH LAB**

Turn off SmartBoard
Spray and wipe tables.
Put chairs on top of tables.
Sweep floor (mop as necessary).
Put away all supplies in designated storage location.
Turn off all iPods in VR glasses.
Charge iPods.
Pick up carpet squares.
Return space to default setting (tables, chairs, and cushions).

4**ECO LAB**

Turn off SmartBoard.
Put away all supplies in designated storage location.
Put all animals away.
Spray and wipe tables.
Throw out dried up markers, broken crayons, etc.
Put chairs on top of tables.
Sweep floor (mop as necessary).
Take out trash as necessary

Return room to default setting (tables, chairs, rolling cabinets, and specimens)

5

THE COMMONS/ROCKY AMIPTHEATER

Empty water coolers.

Sweep trash and food waste.

Empty trash and replace bags.

Ensure rope fence is up.

6

GENERAL ITEMS – POST TRIP

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:

- Ponchos (1 per student)
- Large plastic bins w/ lids for storing/transporting ponchos (4)
- Extra towels (to protect floors in fellow bay)

1**Pre-Arrival**

Place "Caution Wet Floor" sign in the Ocean Discovery Gallery.

For Imagination station:

- Do not set up carpet squares.

For Make a Difference Tomorrow

- Move station into Fellow Bay 1.
- Set up canopies over the circle tank and surrounding area.
- Set up hermit crabs in Fellow Bay. Protect floor by laying towels under aquaria.

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

2**Arrival**

Take out ponchos and bring them to the bus stop.

Greet students and teachers on bus:

- Give each student a poncho to wear on the bus.
- Explain that this is their poncho for the day and they must keep it with them all day.

Take students to their Intro location to review Community Agreements.

Floor manager:

- Walk to all intro stations and have teachers:
 - 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).

3**MAKE A DIFFERENCE TODAY**

No changes.

4**MAKE A DIFFERENCE TOMORROW**

Take the students up to circle tank wearing ponchos.

Do Hermit Crabs + Process Reflection in Fellow Bay.

5**IMAGINATION STATION**

Light Rain:

- Proceed with station as is having students wear ponchos while in the Rock Amphitheater.
- Do not use carpet squares.

Heavy Rain

- This station will take place in the SciTech lab.

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**

Have students put on ponchos to walk to the bus.

After all students have boarded the bus have two adults on each bus collect the ponchos and put them in the bins to carry back to the lab.

8**CLEAN UP – POST TRIP**

See Clean Up Protocol above.

Spread ponchos out in the SciTech and Ecolab and leave them to dry out.

Activities for Extra Time

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

Crabby Says:

- Play a couple of rounds of Simon Says using crab anatomy.
- Simon Says Directions:
 - An adult starts by saying “Crabby says...”
 - Any direction that starts with “Crabby says...” needs to be followed.
 - Any direction that does NOT start with Crabby says should NOT be followed and any students who DO follow it are out.
 - Example: “Crabby says show me your eyes stalks.” (Students should hold their hands in the air with fists.) “Crabby says move like a crab.” (Students should show a side to side movement.) “Show me your claws.” (Any student showing claws 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.

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.

Mussel – Mussel – Sea star:

- This is a game of duck-duck-goose but played with rocky seashore animals.
- Students sit in a circle facing each other.
- One student is “it” and walks around the circle. As they pass each person they gently tap their head and say whether they are a “Mussel” or a “Sea star”.
- Once someone is a “Sea star they get up and chase “it” around the circle. The goal is for the “sea star” to tag the person who is “it” before they can sit back down in the “sea star’s” spot in the circle.
- If the “sea star” does not tag the person who is “it” before they sit down, they become “it” for the next round and play continues.
- If the “sea star” tags the person who is “it” before they can sit down the “it” person has to sit in the center of the circle and the sea star becomes “it” for the next round.
- The person in the middle can’t leave until another person is tagged and they are replaced.

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.
 - Idea Bank (ideas should ideally tie into the program):
 - Rocky seashore
 - Biologist
 - Anemone
 - Love
 - Exploring
 - Communication
 - Question
 - Sea star
 - Crab
 - Mussel