Nature's Nurseries Traveling Trunk

Cabrillo National Monument

Objective

Developed by first-graders at High Tech Elementary North County, the Nature's Nurseries Traveling Trunk was designed to highlight the life cycles of four animals found at Cabrillo National Monument – the Gray Whale, Garibaldi, Peregrine Falcon, and White-Lined Sphinx Moth. The books, songs, and games within this trunk will help kindergarten, first, and second-grade students explore life cycles, patterns, and ecosystems based on Next Generation Science Standards, all from the comfort of your classroom!

What's Inside

Books:

- *When Whales Cross the Sea: The Gray Whale Migration* by Sharon Katz Cooper
- *Little Gray's Great Migration* by Marta Lindsey
- *The Life Cycle of the Fish* by Darlene Stille
- *Life in a Kelp Forest* by Mary Joe Rhodes and David Hall
- *Peregrine's Sky* by Consie Powell
- *The Peregrine Falcon: At Home in Cabrillo National Park* by HTeNC First Graders
- *The Painted Lady Butterfly and the White-lined Sphinx Moth: A Book of Comparisons* by HTeNC First Graders
- *Nature's Nurseries: Animals and Their Life Cycles in and Around the Point Loma Peninsula* – by HTeNC First Graders

- *What is a Life Cycle?* A Bobbie Kalman Book
- *Tidepool Treasures: An Activity Book* by HTeNC First Graders
- *Tidepool Treasures: An Explorer's Guide* by HTeNC First Graders
- *Tidepool Creature Features to Treasure* by HTeNC Kindergartners
- *Treasure our Tidepools!* by HTeNC Kindergartners

Activities:

1. The Moon's Cycle
2. Baby and Adult Matching Game
3. Nature Journaling
4. Gray Whale Puzzles (9)
5. Garibaldi Nursery Rhymes (6)
6. Peregrine Falcon Board Game
7. Sphinx Moth Board Game

How to Use This Trunk

The Nature's Nurseries Trunk is designed to be used in a variety of ways. The activities in the trunk can be adapted for any number of people, for any amount of time, but most activities are better suited for small groups. If desired, teachers can set up stations of different activities and have groups of students rotate through them at prescribed times or allow students to explore at their own pace. Associated worksheets can be found at the back of the binder and copies can be made for each person in the class – **please do not take the original copies.**

Additional Activities

In preparation for creating this trunk, the High Tech first-graders learned about life cycles by completing some in-class projects and field work that you may find interesting and applicable to your own classroom. These activities include the following:

- Raising Painted Lady Butterflies
    - Buy a kit online at: https://www.nature-gifts.com/shop/grow-butterflies/
- Raising Chicken Eggs
    - Eggs and heat lamps can usually be purchased from your local feed store. Make sure you prepare to care for the chicks once they hatch, and contact someone who can take them.
- Field Trip to Cabrillo National Monument
    - To make a reservation for a Ranger-led program, or to obtain a Self-Guided permit, visit the Education section on the Cabrillo website at https://www.nps.gov/cabr/learn/education/index.htm.

Next Generation Science Standards
Kindergarten

Performance Expectation: K-LS1-1

Use observations to describe patterns of what plants and animals (including humans) need to survive.

K-ESS2-2

Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.

K-ESS3-1

Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

Science & Engineering Practices:	**Disciplinary Core Ideas:**	**Crosscutting Concepts:**
Analyzing and Interpreting Data Engaging in Argument from Evidence Developing and Using Models	**LS1.C:** Organization for Matter and Energy Flow in Organisms **ESS2.E:** Biogeology **ESS3.A:** Natural Resources	Patterns Systems and System Models

Interdisciplinary Common Core Connections:

ELA/Literacy: W.K.7 RI.K.1 W.K.1 W.K.2 SL.K.5

Mathematics: K.MD.A.2 MP.2 K.CC.A K.MD.A.1 K.MD.B.3 K.CC

Grade 1

Use observations of the sun, moon, and stars to describe patterns that can be predicted.

Performance Expectation: 1-LS1-2

Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.

1-LS3-1

Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.

1-ESS1-1

Science & Engineering Practices:	**Disciplinary Core Ideas:**	**Crosscutting Concepts:**
Obtaining, Evaluating, and Communicating Information Constructing Explanations and Designing Solutions Analyzing and Interpreting Data	**LS1.A:** Structure & Function **LS1.B:** Growth and Development of Organisms **LS3.A:** Inheritance of Traits **LS3.B:** Variation of Traits **ESS1.B:** Earth and the Solar System	Patterns Structure and Function

Interdisciplinary Common Core Connections:

ELA/Literacy: RI.1.1 RI.1.2 RI.1.10 W.1.7 W.1.8

Mathematics: 1.NBT.B.3 1.NBT.C.4 1.NBT.C.5 1.NBT.C.6 MP.2 MP.5 1.MD.A.1

Grade 2

Performance Expectation: 2-LS4-1

Make observations of plants and animals to compare the diversity of life in different habitats.

Science & Engineering Practices:	**Disciplinary Core Ideas:**	**Crosscutting Concepts:**
Planning and Carrying Out Investigations	**LS4.D:** Biodiversity and Humans	

Interdisciplinary Common Core Connections:

ELA/Literacy: W.2.7 W.2.8

Mathematics: MP.2 MP.4 2.MD.D.10

Introduction to the Life Cycles of Highlighted Species

Key Vocabulary

- Life Cycle: all the stages a living species goes through from the time it is born to the time it dies.
- Reproduce: the creation of new life from oneself.
- Adult: a fully grown, sexually mature organism (usually refers to an animal).
- Offspring: a young organism produced by an adult.
- Adapt: when species develop certain characteristics over time that enable them to best survive and reproduce in their environment.
- Mammal: an animal that generally gives birth to live young, has hair or fur, and whose offspring drinks milk.
- Arthropod: a group of invertebrates that includes insects and spiders.
- Baleen Whale: a type of whale that doesn't have teeth but has long filter-like plates to filter prey (usually plankton, krill, or other shrimp-like creatures) from the water or sediment.
- Migration: the act of an animal moving from one place to another, usually seasonally, to find better feeding grounds, places to give birth, or other resources.
- Raptor: a bird of prey; one that has sharp talons and a curved beak used for eating meat.
- Internal Fertilization: when egg and sperm meet inside the (usually female) body.
- Incubate: in birds, the process of keeping a fertilized egg warm (usually by sitting on it) so the baby can grow inside.
- Eyas: a newborn Peregrine Falcon.
- Fledgling: a juvenile Peregrine Falcon or other bird that is not yet independent of its parents but can fly.
- Invertebrate: an animal without a backbone.
- External Fertilization: when egg and sperm meet outside the body; primarily in aquatic animals.
- Fry: a newly-hatched fish.
- Proboscis: a long, tube-like tongue used by some insects and birds for consuming nectar from flowers.

- Larva: a term given to an animal once it hatches from an egg; usually refers to aquatic animals or insects.
- Cocoon: a protective covering produced by caterpillars as they undergo a change into adulthood.
- Metamorphosis: a change an animal undergoes before becoming an adult that results in a very different appearance and behavior than it had before.
- Phase: refers to the changes the moon appears to make as it travels around the earth in a 29.5-day cycle from New Moon to Full Moon and back again.
- Tides: the rise and fall of large bodies of water caused by the gravitational pull of the moon and sun on the earth.
- Amphipod: small, shrimp-like creature eaten by Gray Whales.
- Keratin: the protein that creates Human hair and nails and Gray Whale baleen.
- Dorsal Ridges: bumps along the backs of Gray Whales that distinguish them from other whale species, which usually have dorsal fins.

All living things have a **life cycle** – whether they are born, hatched, or merely produced from a parent; living things grow, undergo changes, and eventually die. Hopefully if everything goes right, living things will also **reproduce** as **adults**, creating **offspring** that begin the cycle over again. All living things are **adapted** to their environment, which means they have special characteristics that have developed over time to allow them to best survive and reproduce. This is how species continue to survive and thrive, inhabiting almost every corner of the planet.

While all living things have a life cycle, not all life cycles are the same. The life cycles represented in this trunk include that of a **mammal** (Gray Whale), bird (Peregrine Falcon), fish (Garibaldi), and **arthropod** (White-Lined Sphinx Moth). While these species are good representatives of other species in their group, this is by no means a comprehensive guide to life cycles in the Animal Kingdom. By using these species as examples, you can help your students make additional connections and comparisons to other animals, plants, and even themselves.

The Gray Whale (*Eschrichtius robustus*) is a large marine mammal found exclusively in the Pacific Ocean. Gray Whales are **baleen whales** with long, filter-like teeth that they use to separate their prey from other matter. They eat by turning to one side and sucking in large quantities of sand and silt from the ocean floor, which is then pushed out through their baleen, leaving only tasty amphipods (shrimp-like animals) behind. Gray Whales undergo one of the longest **migrations** known in the Animal Kingdom. They spend their summers feeding in the cool, nutrient-rich waters off the coast of Alaska, then travel roughly 10,000 miles to mate and give birth in the warm, shallow lagoons of Baja California, Mexico. During the migration, mother whales hardly eat, if they eat at all, and spend all their time caring for their young calf. Like other mammals, Gray Whale calves drink the milk produced by their mothers – newborns can drink 50-80 gallons of milk per day! Once the pair returns to the Alaskan Coast, the calf is weaned off milk and learns to capture amphipods on its own. The small whale continues to eat and grow until it is old enough to start the cycle over again. Gray Whales can live for approximately 60 years.

Additional Information:
http://www.marinemammalcenter.org/education/marine-mammal-information/cetaceans/gray-whale.html

The Peregrine Falcon (*Falco peregrinus*) is a **raptor** that can be found on all continents of the world except Antarctica. It is the fastest animal on Earth – diving at speeds of over 200 miles per hour! Peregrine Falcons nest in high places, such as cliffsides or even skyscrapers, and eat other birds, especially ducks, pigeons, and seagulls, hunting and capturing them in midair. Like other birds, Peregrines reproduce through **internal fertilization,** meaning egg and sperm meet within the females' body, but they care for the eggs externally by **incubating,** or warming, them while the babies grow. Male and female Peregrines typically form strong bonds, returning to the same nest site and mating together each year. Peregrine pairs come together in the spring, when the female will typically lay two to four eggs. The couple incubates the eggs for about 34 days until the chicks hatch. Newborn Peregrines, called **eyas**, are covered in down feathers and cannot yet fly, relying completely on their parents to bring them food. At only 2 weeks old, however, the chicks begin to grow their flight feathers, which are darker and stronger than their down feathers.

By 4 weeks old, the chicks are almost as big as their parents, and their down feathers are covered by flight feathers. At around 6 weeks, the chicks take their first flight, and are then called **fledglings**. The fledglings stick around their parents for about one more month, practicing their flying and hunting skills until they're ready to take off on their own. The young Peregrines then find their own perfect dwellings, and the cycle starts again. Peregrines have been known to live for approximately 12 years.

Additional Information:

https://www.allaboutbirds.org/guide/Peregrine_Falcon/

Garibaldi (*Hypsypops rubicundus*) are bright orange, round fish typically found in relatively shallow waters off the coast among the Kelp Forest. They can be found from Monterey Bay, California to Baja California, Mexico and are the State Marine Fish of California. Garibaldi eat algae, sponges, and sometimes small **invertebrates** (animals without a backbone). Adults of this species are territorial and will try to scare off anything that enters their **territory**, even humans. Like other fish species, Garibaldis mate through **external fertilization**, where the female lays eggs and the male comes along afterward to fertilize them. For Garibaldis, mating happens throughout the summer. Male Garibaldis will find a nice spot along a reef or rocky outcrop and attract females to lay their eggs there. Once the eggs have been laid, the females have no role in raising their young – males are entirely responsible for caring for the eggs. The eggs will hatch in two to three weeks, after which the young Garibaldi, called **fry**, ride the current into the warmer, shallower waters of the tidepools. Juvenile Garibaldi are a darker orange than adults and have bright blue spots on their bodies. They continue to eat and grow in the tidepools until they are large and strong enough to journey back to the Kelp Forest and start their lives as adults. As adults in the Kelp Forest, they lose their blue spots and the cycle starts over again. Garibaldi are estimated to live for 15-25 years.

Additional Information:

https://www.montereybayaquarium.org/animals-and-exhibits/animal-guide/fishes/garibaldi

The White-Lined Sphinx Moth (*Hyles lineata*), also known as the Hummingbird Moth, is a large, flying arthropod (insect) typically seen at Cabrillo National Monument among the spring blooms. It is called a Hummingbird Moth because it is about the size of a small hummingbird, and drinks nectar from the flowers in the same way hummingbirds do – with a **proboscis**. Their wings are dark brown with tan, white, and pink stripes. Like many other insects, the Sphinx Moth has a complicated life cycle very different from most other animals. Throughout the spring and summer, females lay eggs among the leaves of their favorite plants. Females may lay their eggs once or twice per year, depending on the temperature and availability of flowers (if there are no flowers, there is no food, and the moths won't be healthy enough to lay more eggs). A few weeks later, the eggs will hatch to reveal a very small Sphinx Moth caterpillar, or **larvae**. The Sphinx Moth caterpillar is black with orange spots and has a distinct orange horn near its rear end. These caterpillars will eat leaves from a large variety of plants and continue to eat and grow until they're approximately 5 inches long. Then, the caterpillar stops eating and seeks a place to burrow underground and build a **cocoon**, where it will transform into an adult. This transformation is called **metamorphosis**, because the larvae look and behave very differently than the adults. Moths emerge after two to three weeks in the cocoon, and the life cycle starts over again. Adults typically don't survive the cold winter season, but larvae can survive by over-wintering in their cocoons and emerge in early spring.

Additional Information:

https://www.butterfliesandmoths.org/species/Hyles-lineata

Additional Information & Resources:

General Life Cycles:

https://www.kidzone.ws/animals/lifecycle.htm

Gray Whale Migration Tracker:

https://journeynorth.org/gwhale/index.html

Peregrine Falcon Live Cam:

https://explore.org/livecams/falcons/peregrine-falcon-cam

"Life Cycles of a Butterfly" on YouTube:

https://www.youtube.com/watch?v=O1S8WzwLPlM

Activity 1: The Moon's Cycle

Objective:

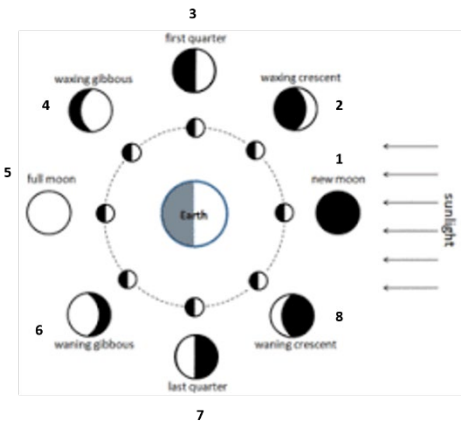
This activity is designed to introduce students to the concept of cycles through observations of the moon. Students will observe the moon each night and make connections between the moon's pattern and other patterns in nature.

Materials:

- One of the following worksheets for each student:
  - Moon Prediction Sheet (short-term, 1-2 nights)
  - Moon Journal (longer-term, 1-2 weeks)
  - Moon Observation Sheet (long-term, 1 month)

Background:

The moon has what we call **phases**, meaning it changes a little bit every night. The moon and Earth are in constant orbit at a constant speed, so we know that it takes approximately 29.5 days for the moon to complete one full orbit around the earth. During that cycle, the moon, sun, and Earth are all aligned with each other at different angles. The phase of the moon we see from Earth is a result of light from the sun reflecting off the moon at those different angles.



The cycle begins with the **New Moon (1)**, which is when the earth, moon, and sun are all in line with each other, and the side of the moon being lit up by the sun is facing away from us, so we don't see the moon at all. As the moon begins its cycle, it appears to start growing and we see part of the lit side from Earth in the **Waxing Crescent (2)** phase (waxing = growing; crescent = a thin slice). The next phase is the **First Quarter**, or **Half-Moon (3)**, because half of the moon is illuminated, and the moon is a quarter of the way through its cycle. Next is **Waxing Gibbous (4)** – where the lit face of the moon is still growing but is now over halfway illuminated. Exactly halfway through the moon's cycle is the **Full Moon (5),** where again the sun, moon, and Earth are aligned, but this time, the illuminated side of the moon is facing us, so we see a full circle. After the full moon, the moon appears to

shrink as we see more of its dark side. We call this **waning**. The last phases are **Waning Gibbous (6)**, **Third Quarter** (7 - another Half-Moon), and **Waning Crescent (8).** The phases between New Moon and Full Moon can be hard to remember, but as a simple trick – waxing moons are always illuminated on the right, and waning moons are always illuminated on the left.

The moon cycle is also important for other cycles in nature. The gravitational pull between the moon and Earth causes the **tides**, or the rise and fall of bodies of water, which are affected by the phases of the moon in a predictable fashion. Even some life cycles are linked to the moon's phases; for example, in some species, the moon's phase can trigger when a female lays her eggs.

Additional Resource:

Phases of the Moon: Astronomy & Space for Kids – FreeSchool on YouTube: https://youtu.be/f4ZHdzl6ZWg

Procedure:

1. There are three worksheets available in the "Worksheets" section of the Teacher Binder. Choose the one most applicable to your class based on the number of students, frequency of homework, time availability, etc.
2. Instruct your students to observe the moon each night for the number of nights described on your worksheet of choice. They will color in the moon based on what it looks like that night and use their observations to make predictions about what it might look like the next night.
3. Each day in class, use your students' worksheets and observations to discuss the phases of the moon – what causes them, what the pattern looks like, and why the phases of the moon are important.

Discussion Questions:

1. Describe the patterns caused by the moon's cycle. Does it remind you of any other patterns in nature?
2. Why do we study the phases of the moon? What can we learn from studying the phases of the moon?

Activity 2: Baby and Adult Matching

Objective:

This is a fun way to help students make the connection that all living things undergo a cycle that involves being born and growing up, and to emphasize the importance of physical features between adults and their offspring. The game consists of 12 "baby" cards and 12 "adult" cards; the objective of the game is to match each young organism with its adult counterpart. The player with the most matches at the end of the game wins. This game can be played with one to four people.

Materials:

- 24 Game Cards

Background:

All living things have some sort of **life cycle**, where they are born, grow, and eventually die. Some animals and plants look very similar to their adult counterparts, but some look very different. Sometimes physical characteristics remain constant from birth to adulthood. Some of these characteristics may include fur/skin color and eye color/shape. Behavioral characteristics may remain constant throughout the life cycle, as well. Examples of behavioral characteristics are where the organism lives and what it eats. However, sometimes these physical and behavioral characteristics are completely different from one part of the life cycle to the next. For example, tadpoles are completely aquatic, have no legs, and a long tail, but when they grow up to be frogs, they only spend some time in the water, have four legs, and no tail.

During this activity, students are encouraged to use their powers of observation to make comparisons between adults and young to figure out the correct match. Students should also start to think about their own life cycles – what makes them different from babies and adults, but also what makes them the same.

Procedure:

1. Place all 24 cards face down on a desk or table.
2. Mix up the cards on the desk/table.
3. Put the cards in six rows of four cards each.
4. Each player takes a turn flipping over two cards each round.

a. The game moves in a clockwise direction, each person taking a turn.

5. When the player turns over a baby and its correct corresponding adult, they pick up both cards and keep them.
6. When all the cards have been picked up, the player with the most cards wins.

Discussion Questions:

1. Compare and contrast the physical and behavioral characteristics of young and adult organisms – what makes them the same? What makes them different?
2. How do you think you will change as you grow up? How might you look as an adult?

Activity 3: Intro to Nature Journaling

Objective:

Nature journaling is an important part of any scientist's work, as it highlights the first step in the scientific method – observation. Nature journaling brings science, art, and writing together to help students and scientists alike learn more about the world around them. This activity is designed as an introduction to nature journaling, and while it is specifically designed for groups that cannot leave the classroom, the practice of nature journaling can be done anywhere. At the end of this activity, students should be able to take the concepts of nature journaling with them into any natural setting to continue the practice on their own.

Materials/Setup:

1. Each student should create a Nature Journal based on the template provided in the "worksheets" tab of the binder. The template consists of a cover page, example, and five blank pages for students to complete. For more pages, simply make additional copies of the blank worksheet pages, or add blank pieces of printer paper to the center of the booklet.
2. Students will be observing nature via the models listed below. To set up the activity, place the models around the classroom, or pass them out to small groups or individuals.
    a. Gray Whale Adult & Calf
    b. Garibaldi Adult & Juvenile
    c. Large Peregrine Falcon hand puppet
    d. Small Peregrine Falcon stuffed animal
    e. Peregrine Falcon egg replica
    f. Peregrine Falcon talon replica

Background:

Nature journals are a tool used by many scientists who observe plants and animals in the field. These journals serve as a record of the things they have observed and provide a way to take a piece of nature home with them without *actually* taking a piece of nature home. These journals are used to identify plants and animals in the field and note any

behaviors or other organisms associated with them. A basic nature journal contains a few key components:

1. Page numbers for each page.
2. The date of observation.
3. The name of the organism being observed.
4. A drawing of the organism, in as much detail as possible.
5. A short description of the organism, including its color, size, behavior, where it was found, and any other additional information.

Procedure:

Using the provided models of the different animals featured in the trunk, have students observe and record in their nature journal as many animals as they can in the time provided. You may allot as much time as you would like for this activity, and students can go at their own pace. This should be an ongoing activity, and students should take these journals with them to observe plants and animals in their own schoolyard, near their home, or any other natural setting where they may find themselves.

Discussion Questions:

1. Where would you have to go to find this animal in nature?
2. What adaptations (special features) do these organisms have that allow them to survive in their environment?
3. In what ways would nature journaling in the field be different than in the classroom?
4. Where could you go to continue adding to your nature journal?

Activity 4: Gray Whale Puzzles

Objective:

This activity consists of a set of puzzles and a corresponding worksheet that illustrate the life cycle of the Gray Whale. Students will learn about the Gray Whale migration, the Gray Whale's diet and more while using math to reinforce those concepts.

Materials/Set-Up:

- Gray Whale Puzzles (9 total)
- Gray Whale Math Worksheet for each student
- Writing utensil for each student

Set up the activity by separating the puzzle pieces from the puzzle but keeping them together as a set. Spread the puzzles out around the room or hand them out to individual groups.

Background:

Gray Whales can be seen from Cabrillo National Monument as they pass through this area during their 10,000-mile **migration** from Alaska to the bays of Baja California, Mexico. These large marine **mammals**, which are about 60,000 pounds as adults, are **baleen whales** that eat shrimp-like animals called **amphipods** from the mud and sand on the ocean floor. Baleen is modified teeth made of **keratin** (the same stuff that our hair and nails are made from) and acts as a filter to separate food from the water or sand. Gray Whales spend their summers in the nutrient-rich, cool waters off Alaska, then travel to the warmer, shallower waters of Mexico to mate and give birth. At birth, baby Gray Whales are approximately 2,000 pounds and spend much of their time drinking their mothers' milk – up to 50 gallons each day. One thing that separates the Gray Whale from other whale species is its lack of a dorsal fin**,** or back fin. Instead, Gray Whales have **dorsal ridges**, or low-profile humps. Gray Whales are also known to be covered in smaller organisms such as barnacles and whale lice, giving their skin a bumpy appearance.

Procedure:

1. Divide the class into nine groups, each assigned to a different puzzle.

    a. *Note: ensure that each group knows what number puzzle they are starting with – these correspond to the number on their Math Worksheet.*
2. Within their groups, instruct the students to read the "Whale Facts" sheet attached to the back of each puzzle.
3. Students will then work as a group to put the pieces of the puzzle together.
4. Students then should be able to answer the corresponding question on their Math Worksheet.
5. After the allotted time, have each group rotate to the next puzzle (i.e. Group 1 goes to 2, 2 goes to 3, etc.). Repeat steps 2-4 until all nine puzzles have been completed by each group.

<u>Discussion Questions:</u>

1. What did you learn about Gray Whales from this activity?
2. Describe the life cycle of a Gray Whale. How is it different or similar to other animals you have learned about?
3. Gray Whales and Humans are both mammals – what makes us the same? What makes us different?

Activity 5: Garibaldi Nursery Rhymes

Objective:

This activity is designed to help students learn about the Garibaldi's life cycle through song. Students will work together in small groups to "act out" the songs using wooden pieces on mats depicting a tidepool or kelp forest.

Materials:

- 4 Nursery Rhyme Sets (A-D) with Laminated Songs and Wooden Pieces
- 4 "Let's Play!" Garibaldi in the Tidepool/Kelp Forest Learning Mats
- Magnetic Wooden Pieces (Teacher Set)
- Clickers (Optional)
- Pencil and paper for each student

Background:

Each nursery rhyme consists of a "Let's Learn!" side and a "Let's Sing!" side. From the "Let's Learn!" side, students will learn the important terms (in **bold**) needed to understand the Garibaldi's life cycle, as well as some fun facts about the fish. The bolded words also correspond to a wooden game piece, intended to be used to "act out" the song on the "Let's Play!" tidepool or kelp forest mat.

The activity includes the following songs:

- Rock-A-Bye Juvenile – to the tune of *Rock-A-Bye Baby*
- If You're A Happy Garibaldi – to the tune of *If You're Happy and You Know It*
- The Orange Garibaldi – to the tune of *The Itsy-Bitsy Spider*
- Create New Garibaldi (Parts 1 and 2) – to the tune of *Make New Friends*
- Welcome, Welcome, Juvenile – to the tune of *Twinkle, Twinkle, Little Star*

Procedure:

1. Introduce the lesson by singing the original nursery rhymes as a class (visit YouTube if necessary).
2. Using the wooden pieces and "Let's Play!" mats, explain how the Garibaldi nursery rhymes can be "acted out" by placing predators near prey, eggs near rocks, etc.

    a. Optional: You can also explain this step using the Teacher Set of game pieces (magnetic) and projecting the tidepool or kelp forest photo onto your white board. These can be downloaded from the flash drive in the Teacher Binder.
3. Break the class into four groups and give each group a set of nursery rhymes, corresponding wooden pieces, and a "Let's Play!" mat.
    a. Optional: Pass out clickers to each group to mimic the "clicking" noise Garibaldis make in the "If You're a Happy Garibaldi" song.
4. Select a nursery rhyme and instruct each group to read the "Let's Learn!" side. Together in their groups or individually, have each student write down what they learned. Some guiding questions may be:
    a. What does this nursery rhyme teach us?
    b. What are tides? How are they created?
    c. Where does the Garibaldi live?
    d. What color is the Garibaldi fish?
    e. What is a predator to the Garibaldi?
    f. How does a Garibaldi scare predators away?
5. Instruct each group to turn to the "Let's Sing!" side of the nursery rhyme. Within their groups or as a class, sing the song and act it out using the wooden pieces and "Let's Play!" mats.
6. Repeat steps 4 and 5 for as many songs as time allows.

Activity 6: Peregrine Falcon Board Game

Objective:

This activity is designed to introduce students to the Peregrine Falcon life cycle. Students will read picture books, then play a trivia board game to solidify their learning. *Note: this activity can be easily paired with the Sphinx Moth activity (Activity 7).*

Materials:

- *Peregrine's Sky* book by Consie Powell
- *The Peregrine Falcon: At Home in Cabrillo National Park* book by HTeNC First Graders
- Peregrine Falcon Game Board
- Peregrine Falcon & Sphinx Moth Game Rules
- Peregrine Falcon Game Cards (Blue and Yellow)
- Game Pieces
- Dice (1 die per game board)

Background:

All the background information needed for this activity can be found in the *Peregrine Falcon: At Home in Cabrillo National Park* book. All the answers to the trivia questions in the game can be found within the book.

Procedure:

1. Start by reading *The Peregrine Falcon: At Home in Cabrillo National Park* as a class.
2. Break into two groups. Allow each player to pick a game piece.
    a. *Note: both groups can play the Peregrine Falcon game, or one group can play the Peregrine Falcon game while the other plays the Sphinx Moth game.*
3. Players start by rolling the die to see who goes first – the highest number goes first.
4. The first player rolls the die and moves their piece the correct number of spaces, landing on a square.
5. The player will then pick a card that is the same color as the square they landed on. The player will read and answer the question.
    a. If the player answers it correctly, they move **forward** one space.
    b. If they don't answer it correctly, they move **back** one space.

6. Now it's the next player's turn – repeat steps 4-6.
7. Place used cards face-up, next to the deck on the cliff pictures.
8. First player to get to the STOP sign wins!

Activity 7: Sphinx Moth Board Game

Objective:

This activity is designed to introduce students to the White-Lined Sphinx Moth life cycle. Students will read a picture book, then play a trivia board game to solidify their learning. *Note: this activity can be easily paired with the Peregrine Falcon activity (Activity 6).*

Materials:

- *The Painted Lady Butterfly and The White-Lined Sphinx Moth* book by HTeNC First Graders
- Sphinx Moth Game Board
- Peregrine Falcon & Sphinx Moth Game Rules
- Sphinx Moth Game Cards (Pink and Green)
- Game Pieces
- Dice (1 die per game board)

Background:

All the background information needed for this activity can be found in *The Painted Lady Butterfly and The White-Lined Sphinx Moth* book. All the answers to the trivia questions in the game can be found within the book.

Procedure:

1. Start by reading *The Painted Lady Butterfly and The White-Lined Sphinx Moth* as a class.
2. Break into two groups. Allow each player to pick a game piece.
    a. *Note: both groups can play the Peregrine Falcon game, or one group can play the Peregrine Falcon game while the other plays the Sphinx Moth game.*
3. Players start by rolling the die to see who goes first – the highest number goes first.
4. The first player rolls the die and moves their piece the correct number of spaces, landing on a square.
5. The player will then pick a card that is the same color as the square they landed on. The player will read and answer the question.
    a. If the player answers it correctly, they move **forward** one space.
    b. If they don't answer it correctly, they move **back** one space.

6. Now it's the next player's turn – repeat steps 4-6.
7. Place used cards face-up, next to the deck on the cliff pictures.
8. First player to get to the STOP sign wins!