

# Things to do

## ...at the Aquarium

- Touch a shark
- See a show
- Visit a Discovery Lab
- Ask questions
- Have fun!



## ...back at school

- Write or draw about your trip to the Aquarium
- Consider a classroom animal adoption
- Visit [aquariumofpacific.org/teachers](http://aquariumofpacific.org/teachers)
- Keep learning more



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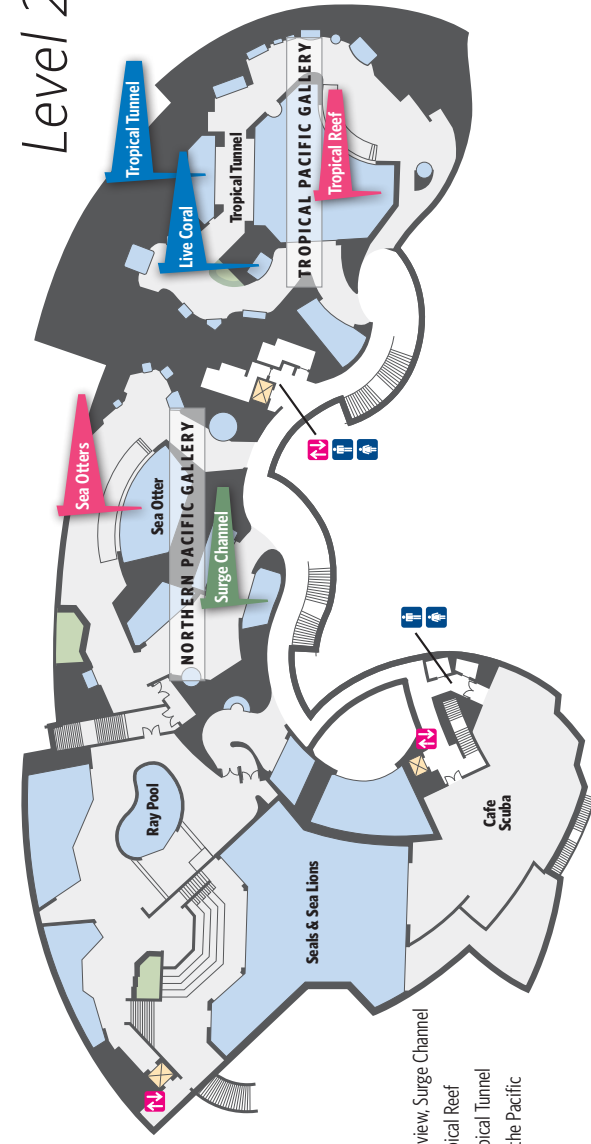
# FIELD TRIP CHAPERONE GUIDE

**Chaperones:**  
Use this guide to move your group through the Aquarium's galleries. The background information, guided questions, and activities will keep your students engaged and actively learning.



## The story of Oxygen

Animals and plants need each other. Plants use carbon dioxide and energy from the sun to build molecules of sugar and release oxygen. Animals breathe in oxygen and let out carbon dioxide through respiration. This cycle happens in the oceans as well, but instead of plants making the oxygen, it's algae! Take a trip through the Aquarium through the eyes of the oxygen molecule!



## Where are they?

This map shows the locations of exhibits where you can see the story of oxygen throughout the Aquarium.

- Exhibit Key:**
- **Photosynthesis** — Blue Cavern, Northern Preview, Surge Channel
  - **Respiration** — Shark Lagoon, Sea Otters, Tropical Reef
  - **Symbiosis** — Tropical Preview, Live Coral, Tropical Tunnel
  - **Water Usage** — Our Watershed: Pathway to the Pacific

# Photosynthesis

## Kelp

Often called seaweed, kelp is a primary producer found in cold, nutrient-rich, ocean environments. As a producer, it makes its own food and releases oxygen through the process of photosynthesis. Southern California also has phytoplankton, plant-like drifters, which produce oxygen and provide food for kelp forest animals.

### Guiding questions:

Why does the Aquarium have artificial kelp on exhibit? Coral reefs don't have as much phytoplankton as kelp forests. How are these two environments different?

### Activities for students:

Breathe in once. Thank our rainforests. Breathe in again. Thank our oceans! Over half the oxygen we breathe comes from our oceans.



*Did you know?*  
The algae in the Blue Cavern exhibit is an artificial replication of giant kelp.



Giant kelp can grow two to three feet a day.

# Respiration

## Fish & Otters

All animals need to breathe. Some, like mammals, use lungs to breathe air. Fish use gills to take oxygen out of the water. Marine mammals make more efficient use of each breath than humans by holding more oxygen in their muscles and blood.

### Guiding questions:

How does oxygen get from your lungs to the rest of your body? Do fish use the same body part to breathe? Why can marine mammals hold their breath so much longer than a person?

### Activities for students:

Watch the otters for three minutes. Keep track of everything they do during that time. What observations can you make?



GILLS



Otters can hold their breath for three to five minutes. Seals can hold their breath for over twenty minutes!



# Symbiosis

## Corals & Algae

Corals are animals! Each little polyp, which looks like a cup, is an individual animal. Corals need to eat in order to survive. They get food from small algae that live inside of their tissues. These algae, called zooxanthellae, provide most of the food the coral needs, as well as the coral's bright color.

### Guiding questions:

Coral bleaching occurs when the algae leaves the coral. What changes might cause this to happen? Can we do anything about it?

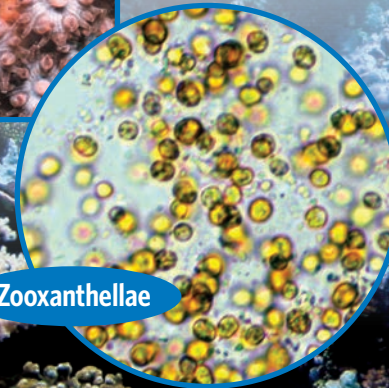
### Activities for students:

Find other examples of symbiosis around the Aquarium. (Hint: Look for one animal cleaning another or an animal living inside another one.)

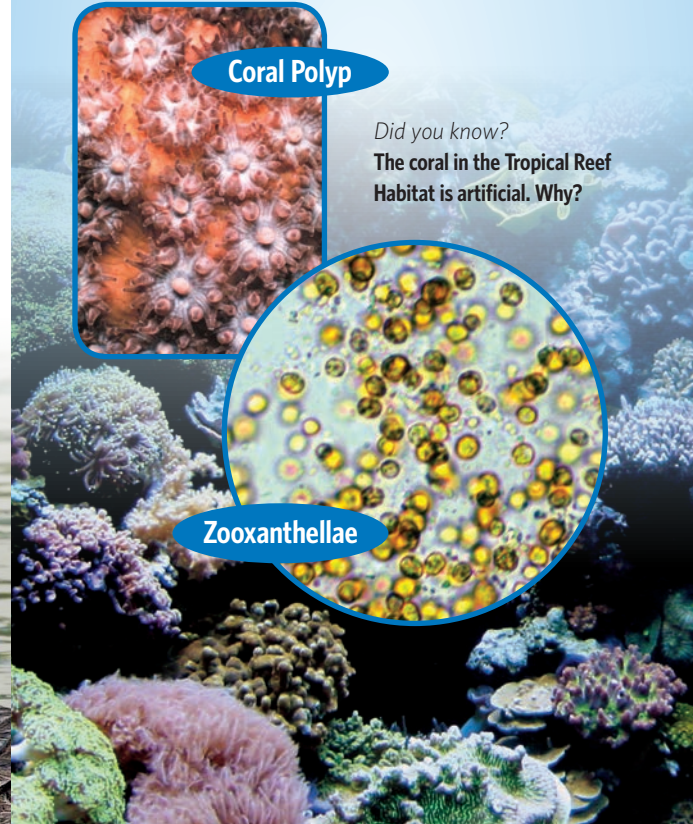


Coral Polyp

*Did you know?*  
The coral in the Tropical Reef Habitat is artificial. Why?



Zooxanthellae



## BONUS

# Water Usage

## Watersheds & People

A watershed is a specific land area that drains water into a river system or other body of water. This water can come from high in the mountains or from rain that falls. No matter where you are, you are in a watershed. What you do to your watershed impacts the ocean and the animals that live in it.

### Guiding questions:

What's the biggest use of water in the average home? If you left trash in the street, where would it go when it rains? What are ways you can save water in your home?

### Activities for students:

Find where you live on the map. What watershed do you live in? What river connects your neighborhood to the ocean? Make it rain. Where does the water go?

The L.A. River moves pollution and water through our watershed to San Pedro Bay.

