

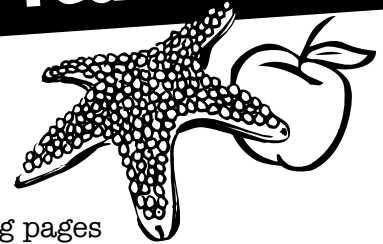
Scavenger Hunt



Teacher Page

Thank you for choosing the Aquarium of the Pacific as your field trip destination! We are excited to share the wonders of the Pacific with you and your class.

Use this scavenger hunt to make the most of your students visit to the Aquarium. Inside this packet are vocabulary words, activities, and background information to make your field trip a fun and educational experience for your students. Simply make a photocopy of the following pages (double sided please!) and hand out one copy to each student the day of your visit. All of the answers to the questions can be found in the galleries on signs, from our knowledgeable volunteers, or in our informative presentations. We also have a helpful answer key available on our website at www.aquariumofpacific.org. Here are a few hints to keep in mind before your visit.



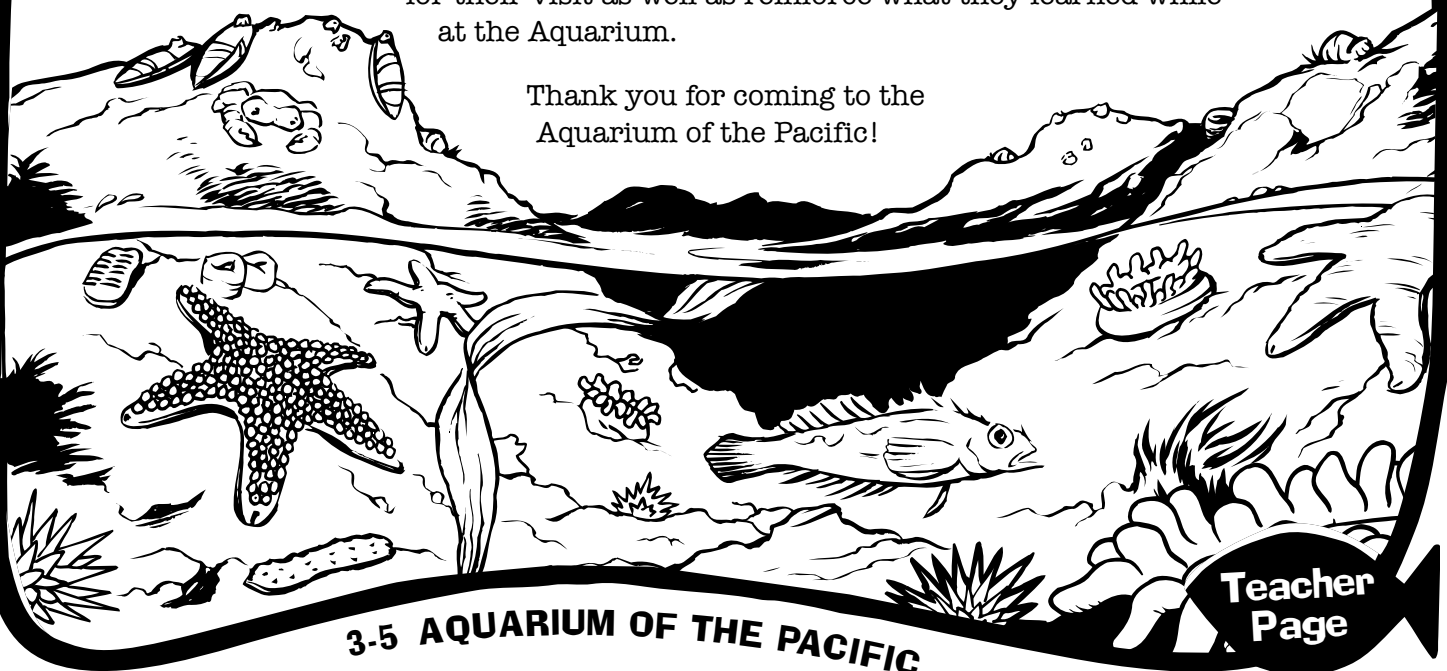
You may want to review the vocabulary page as homework before your Aquarium visit. This activity will be a fun way to introduce your students to the Aquarium and prepare them for all that they will experience.

● The tile rubbings pages are for the brass tiles that you will find in front of the preview exhibits in the Great Hall. Let the students choose a favorite and make a rubbing with a crayon or pencil. Bring along a few old crayons without the wrappers to make the rubbings.

● The gallery pages will guide you to some of our key exhibits and give your students activities to make their visit more interactive and educational.

● The final page in this packet contains some pre-post activities for your students. These standards-based activities are a great way to prepare your students for their visit as well as reinforce what they learned while at the Aquarium.

Thank you for coming to the
Aquarium of the Pacific!



Vocabulary

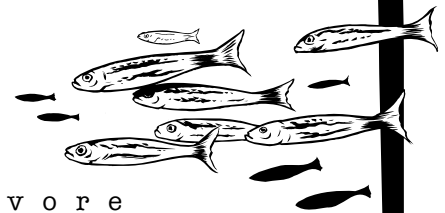


Select the appropriate word from the word bank below to fill in the blanks in the sentences. Once all the blanks are filled in, place the letters in the numbered slots into the phrase at the bottom of the page to read the secret message.

Word Bank:

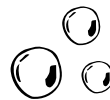
Adaptation	Echolocation	Omnivore	Algae	Food chain	Plankton
Baleen	Habitat	Predator	Camouflage	Herbivore	Prey
Carnivore	Invertebrate	Vertebrate	Getaceans	Mammal	

- B a l e e n are hairy plates inside the mouth of a whale used for filtering food from the water.
- An animal that eats other animals is called a c a r n i v o r e.
- Marine mammals such as whales and dolphins are called c e t a c e a n s.
- E c h o l o c a t i o n is a type of sonar that toothed whales use to locate prey by making special sounds and listening to their echoes.
- An animal that is warm-blooded, has hair, breathes air, gives live birth, and nurse its young with milk is called a m a m m a l.
- P l a n k t o n are aquatic plants and animals, generally tiny, that drift with ocean currents.
- An animal that captures and eats other animals is called a p r e d a t o r.
- An a d a p t a t i o n is a feature of an organism that allows it to better survive in its environment.
- C a m o u f l a g e is a behavior, shape, coloration, and/or pattern that helps a plant or animal blend in with its surroundings.
- A f o o d c h a i n is when smaller organisms are eaten by larger organisms which are in turn eaten by even larger organisms.
- An animal that eats only plants is called a h e r b i v o r e.
- An animal that does not have a spinal column or backbone is called an i n v e r t e b r a t e.
- An animal that eats both plants and animals is called an o m n i v o r e.
- An animal that is captured and eaten by another animal is called p r e y.
- A v e r t e b r a t e is an animal with a spinal column or backbone.
- A l i g a e is a primitive plant-like organism often referred to as seaweed.
- A h a b i t a t is the place where a plant or animal lives, its home.



What kind of noise annoys an oyster? Answer:

A n o i s y n o i s e a n n o y s a n o y s t e r
1 2 3 4 5 6 7 8 9 5 10 11 12 13 14 6 5 15 16 17 6 5 18 19 20
m o s t !
21 22 5 23



Blue Whale

Fill in the blanks with your own funny words!
Or complete the story using the words
below to learn about the blue whale.

(Answers will vary)

_____ whales are the _____
(Color) (Adjective)

animal on the planet! Our model is 88 feet long, but these whales can reach

lengths up to _____ feet (about the size of 3 _____ and weigh up
(Number) (Type of Vehicle)

to 300,000 pounds. The African _____ is the largest animal
(Animal)

that lives on land and weighs about 8,000 pounds. Just the _____
(Body Part)

of the blue whale weighs that much! The heart of the blue whale is about the
size of a _____. Blue whales love to eat a type of plankton
(Brand of Automobiles)

called krill, tiny shrimp-like crustaceans that float in the ocean. They take in

large quantities of _____ (up to _____ gallons at once) and strain
(Liquid) (Number)

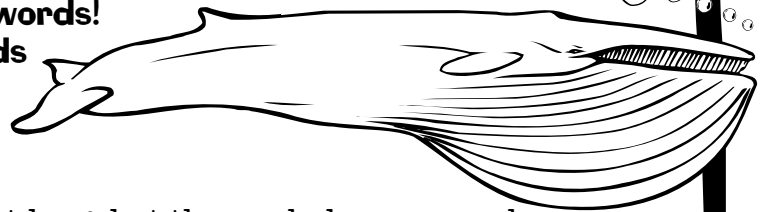
the tiny animals through their baleen. Baleen are hairy plates that hang from

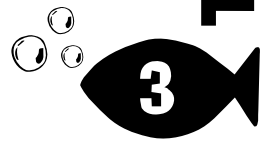
the upper _____ of the whale and look like a mustache inside its
(Body Part)

mouth. The baleen catches all the krill while it lets the _____
(Same Liquid)

out. Then the whale takes its elephant-sized tongue and licks its food-coated
baleen clean!

Actual Paragraph: Blue whales are the **largest** animal on the planet! Our model is 88 feet long, but these whales can reach lengths up to **110** feet (about the size of **3 school buses**) and weigh up to 300,000 pounds. The African **elephant** is the largest animal that lives on land and weighs about 8000 pounds. Just the **tongue** of the blue whale weighs that much! The heart of the blue whale is about the size of a **Honda Civic**! Blue whales love to eat a type of plankton called krill, tiny shrimp-like crustaceans that float in the ocean. They take in large quantities of **water** (up to **17,000** gallons at once) and strain the tiny animals through their baleen. Baleen are hairy plates that hang from the upper jaw of the whale and look like a mustache inside its mouth. The baleen catches all the krill while it lets the **water** out. Then the whale takes its elephant-sized tongue and licks its food-coated baleen clean!





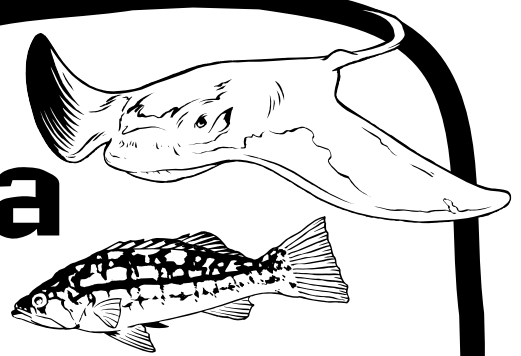


4 Tile Rubbing Page

Southern California Baja



Fishy Shapes



A fish's body shape gives important clues about where the fish lives and how it moves. There are five main body shapes for fishes.

Match each of the following shapes to the fish that best represents that shape.

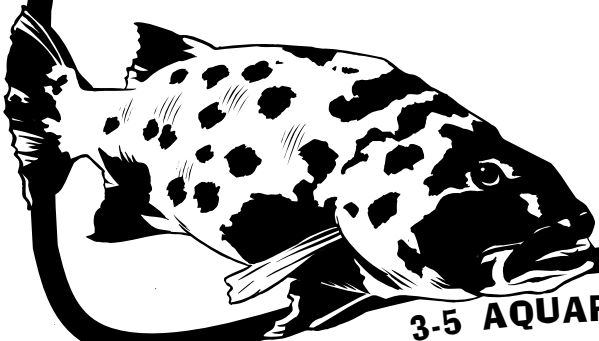
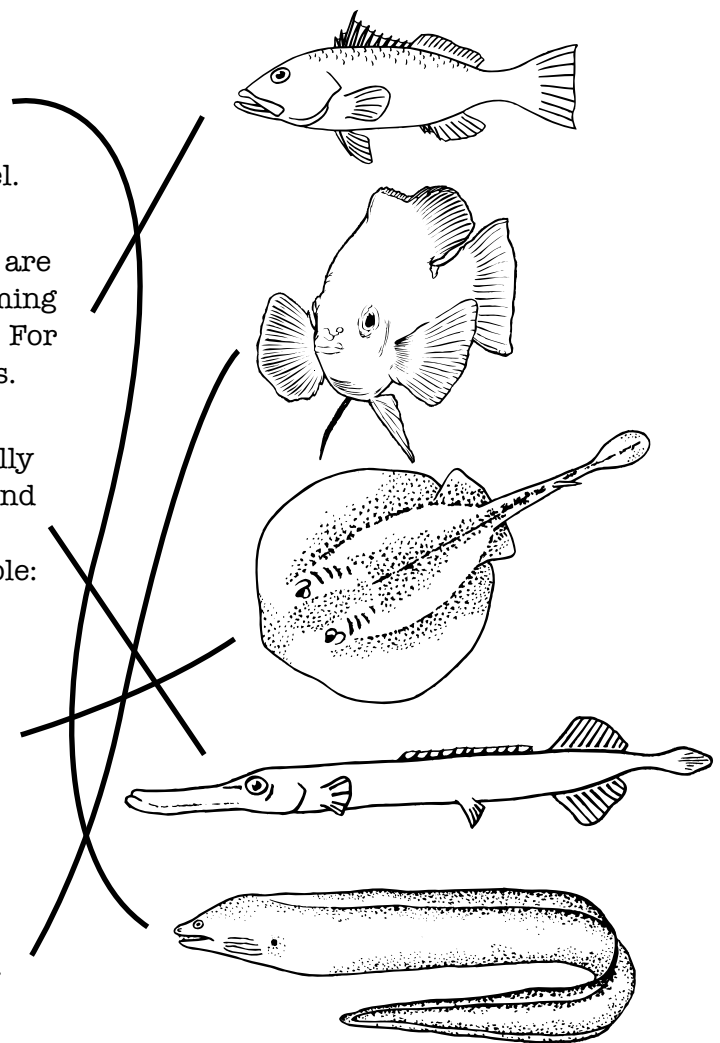
Ribbon-shaped- long, tubular and flexible. These fish are slow swimmers, but they can easily maneuver through cracks and crevices. For example: gunnel and moray eel.

Fusiform- shaped like a football. These fish are fast swimmers and are usually found swimming out in the open ocean at the midwater level. For example: mackerel, yellowtail, and kelp bass.

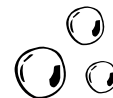
Rod-shaped- elongated. These fish are usually found near the surface of the water. They tend to be ambush hunters; they wait motionless until prey swims by, then attack. For example: barracuda.

Depressed- flat pancake-like. These fish often live near the bottom of the ocean and can camouflage themselves in the sand. For example: stingray.

Compressed- flattened from side to side. These fish can maneuver quickly in and out of narrow hiding places such as a coral reef. For example: garibaldi and angelfish.



Black
Sea Bass



Southern California Baja

Seals and Sea Lions

At first glance, seals and sea lions look a lot alike. They both have sleek, streamlined bodies, a thick layer of blubber, highly sensitive whiskers, and excellent hearing, especially under water. But while they do share some physical traits, seals and sea lions also have significant differences. Can you match the following physical characteristics to the correct animal?



Harbor Seal

External ear flaps

No external ear flaps

Long front flippers

Short front flippers

Short neck

Long neck

Propel with front flippers and
steer with the hind flippers

Propel with hind flippers and
steer with the front flippers

Clumsy on land

Moves easily on land

California
Sea Lion

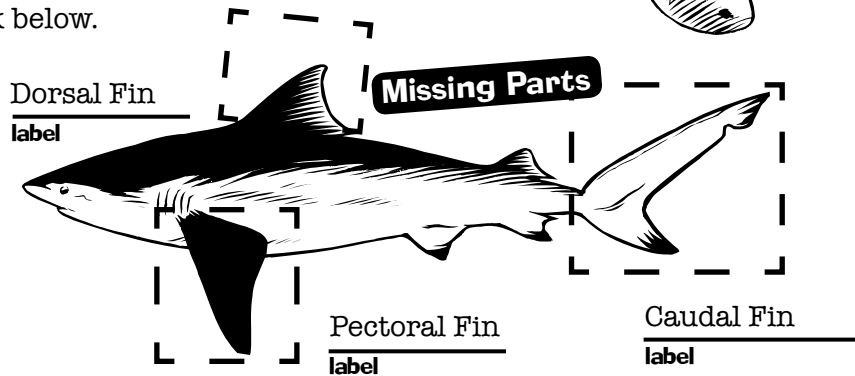


Shark Lagoon



Sharks are amazing predators! Their streamlined shape and heightened senses make them excellent hunters. Their teeth are designed to grind, grab, or tear off chunks of meat. Their fins steer, stabilize, and push them through the water. Look closely at the sharks in the large window at Shark Lagoon. Compare them to the shark below.

What is the shark missing? Can you draw and label the missing parts?



Shark Math

Did you know that there are over **360** different species of sharks in the oceans? Sharks come in a variety of different sizes, from the tiny pygmy shark that is less than a foot in length to the whale shark that can grow to 50 feet! Using the following shark lengths, solve the math problems below.

<u>Shark</u>	<u>Length</u>
Whale shark	50 ft
Great White shark	22 ft
Sawfish	21 ft
Blue shark	12.5 ft
Blacktip reef shark	6.5 ft
Leopard shark	6 ft
Horn shark	4 ft
Bamboo Shark	3.5 ft
Pygmy shark	10 in

If a leopard shark swam in a straight line head to tail with a black tip reef shark, which shark would the two together be as large as? Blue shark

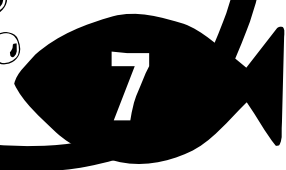
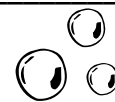
How much longer is a whale shark than a great white shark? How many bamboo sharks would that equal? 28 feet 8 bamboo sharks

How much larger is a great white shark than a horn shark? How many leopard sharks does that equal? 18 feet 3 leopard sharks

How many pygmy sharks would it take to equal the length of one whale shark? Horn shark? 60 pygmy sharks

The length of two blue sharks minus the length of a horn shark is the length of which shark? Sawfish

Horn Shark Egg Case



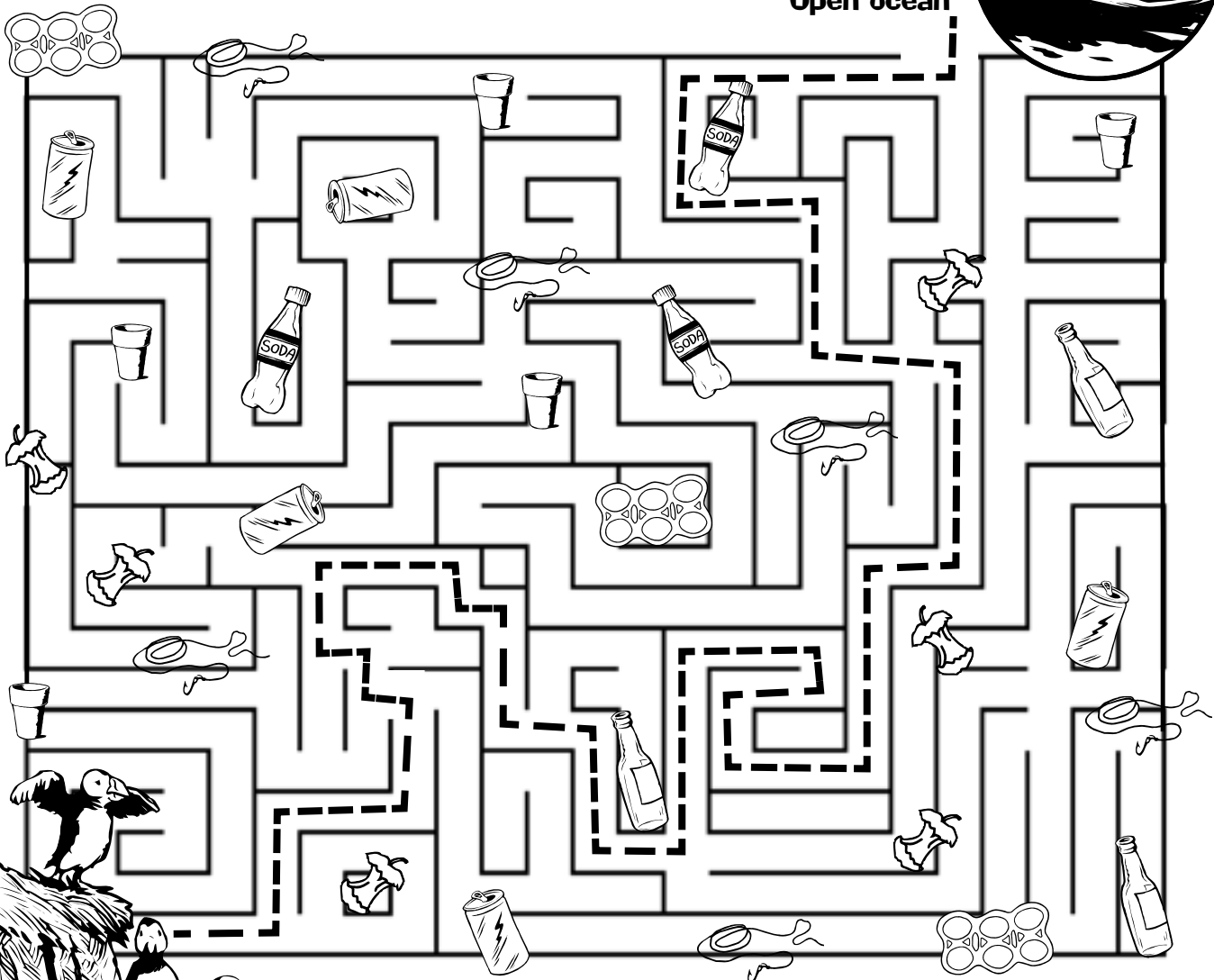
Northern Pacific

Diving Birds

Feathers keep them warm, wings let them soar, and their webbed feet help them swim. Diving birds have many amazing adaptations, but they don't have an adaptation that helps them pull free of trash when they are tangled up. Our trash and nets trap and kill thousands of sea birds each year. Can you help the puffin navigate from the **open ocean** to its **cliffside home** while avoiding all the trash?



Open ocean



Cliffside home





Northern Pacific



Sea Otters

Sea otters are mammals. They breathe air, have hair, do not lay eggs, nurse their young with milk, and are warm blooded. To stay warm in their chilly ocean habitat, they have the thick-

est fur of any animal on the planet. In just one square inch, they have 650,000 to 1,000,000 hairs! That is enough to cover 7 human heads or an entire German shepherd! Watch the otters roll at the surface of the water. They are trapping a layer of air inside their fur to insulate themselves from the cold water. Between their thick fur and this layer of air, water never touches the otter's skin!

🐟 **Watch the otter dive below the surface. What do you see happening to this layer of air?**

It is lost in the form of bubbles.

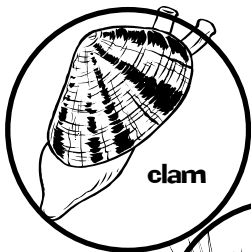
🐟 **What can the otter do to replenish the layer of air when some of it is lost?**

Roll at the surface.

Another way that sea otters stay warm is by eating. Sea otters have a very high metabolism. They eat 25-30% of their body weights in food each day! All that food converts to energy that keeps them warm. Do you know what food sea otters like to eat?

Circle the food below that a sea otter might eat.

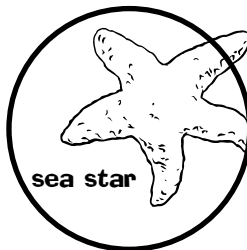
Sea Otters Eat:



clam



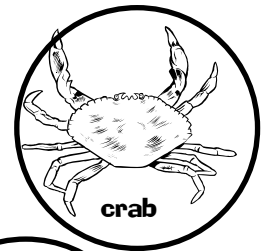
hamburger



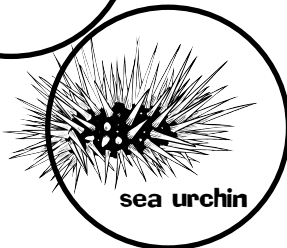
sea star



ice cream



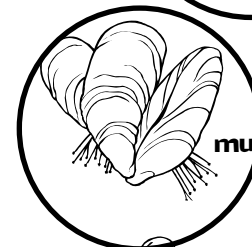
crab



sea urchin

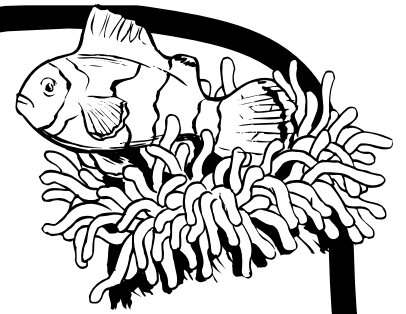


pizza



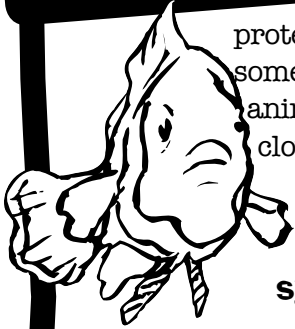
mussels

Tropical Pacific



Symbiosis

Symbiosis means “living together” and refers to several types of animal relationships. Sometimes these relationships benefit both animals, like that of the clownfish and the anemone. The clownfish is protected in the anemone’s stinging tentacles while the anemone is cleaned and even sometimes fed by the clownfish. This relationship—both animals benefit—is called mutualism. Can you draw a clownfish in this anemone?



There are other examples of symbiosis here at the Aquarium.

- Search for the remora in the large Tropical Reef habitat. The remora has a parasitic relationship with sharks and turtles. This type of relationship benefits one partner at the other partner’s expense.

Which animal do you think benefits?

The remora benefits from the shark or turtle.

How? The remora gets a free ride and scraps of food from the shark or turtle.

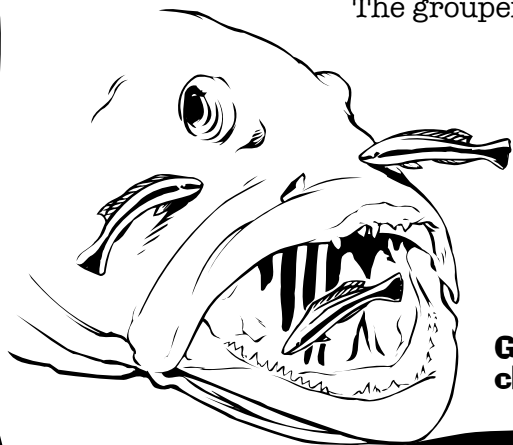
- Look for a grouper and cleaner wrasse in the Tropical gallery.

Can you describe their relationship?

The cleaner wrasse swims in and out of the groupers mouth and gills looking for parasites.

How does each animal benefit?

The grouper is cleaned and the wrasse gets a meal.



Grouper with cleaner wrasses

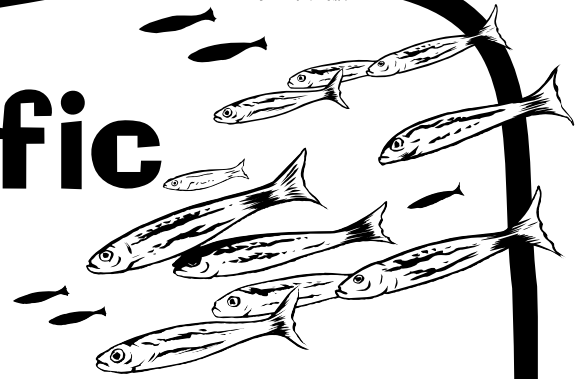


Tropical Pacific

Fishy Schools

You may see a large group of fish swimming together in our large Tropical Reef habitat.

When fish swim together like this, it is called a school of fish.



Why do you think fish school? ● Protection, confuse predators, find mates...

● Pick one fish in the school to watch. Try to follow that fish for 30 seconds. Is it easy or hard to follow it? Did you lose it? How might this benefit the fish?

It is difficult to follow the fish in the school. This might confuse predators and make it difficult to catch a fish.

Homey Habitats

An animal's home is called a habitat. There are all types of habitats on land such as rain forests, lakes, deserts, streams, and grasslands. You have seen several types of ocean habitats today at the Aquarium. Can you name at least three of them below.

1

kelp forest

sandy bottom

eel grass bed

2

tidepool

pier piling

open ocean

3

coral reef

rocky reef

deep sea



Pre-Post Activities



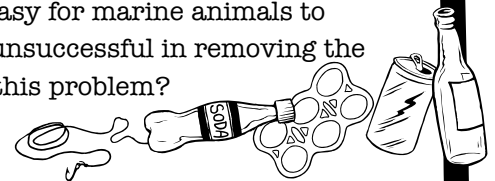
Seaweed Sleuths

Materials: A collection of items that have some form of kelp in them (i.e. ice cream, toothpaste, pudding, shampoo, salad dressing, brownies, cheesecake, lipstick, etc.). Look on the ingredient list for algin, alginate, sodium alginate, xanthan, xanthan gum, carrageenan, agar, or cellulose gum.

- Procedure:**
1. Place the items on a table.
 2. Choose two students to come up to the table and pick out three items that they think do not have kelp in them and three items that they think do have kelp in them. (Give them no more than a minute.)
 3. Go through the choices and ask the rest of the class if they agree.
 4. Explain then that all of the items have kelp in them. Ask students if they have used kelp today. Tell the students that if they brushed their teeth they did!
 5. Challenge students to find processed foods and household products containing algin and other algal derivatives as listed above. Have the students work individually or in teams. Set a time limit for the seaweed sleuths (from 1-3 days).

Tangled in Trash

Stretch a rubberband across the back of each student's hand from the thumb to the pinky. Twist the rubberband to make it fit a little tighter. Once each student is "entangled," explain that all the students are marine animals that have just been tangled up in trash. Since they are adapted for the marine environment, they have no hands available to pull the trash off their bodies. Each student must free themselves of the rubberband without the aid of their other hand, their mouth, or any other part of their body. Wait until some have succeeded and some have given up. Is it easy for marine animals to pull trash off their bodies? What will happen to the animals that are unsuccessful in removing the trash? How did this trash get to the ocean? What can we do to solve this problem?



Ultimate Predator

Materials: ● Three large squares of butcher paper
● Crayons ● Tape

- Procedure:**
1. Discuss the concept of adaptations and review some of their own adaptations (eyes, ears, brain, lungs, hands, etc).
 2. Brainstorm a list of adaptations a predator might have that would make it a good predator.
 3. Divide the class into three groups. Assign each group to be either the head, body, or tail of the ultimate predator.
 4. Pass out a square of butcher paper and some crayons to each group and let the group collectively design their assigned section of the ultimate predator. Give them 10- 15 minutes to work on it.
 5. Once all the groups are done, tape the butcher paper together on the wall and see what your ultimate predator looks like. Have each group describe their section and the adaptations that they added to the predator.

