OCEAN ON THE EDGE
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 Ocean with you and your class.

Use this scavenger hunt to make the most of your students' visit to the Aquarium. Included in this packet are background information and activities to make your field trip a fun and educational experience for your students. Simply make a photocopy of the following pages (double-sided to save paper, please!) and hand out one copy to each student on the day of your visit. All of the answers to the questions can be found on signs in the galleries, from our knowledgeable volunteers, or in our informative presentations. We also have a helpful answer key available on our website at www.aquariumofpacific.org/education/schoolprogramsinfo/C220/.

This scavenger hunt focuses on ocean conservation issues, culminating at our new *Oceans on the Edge* gallery. The various gallery pages will guide you to some of our key exhibits and give your students activities to make their visit more interactive and educational.

Thank you for coming to the Aquarium of the Pacific and enjoy your visit!

SOUTHERN CALIFORNIA BAJA
KELP FOREST

Giant kelp forms an essential Southern California habitat: The Kelp Forest!

Giant kelp is a type of brown algae. Not only does the kelp forest provide food and shelter for many Southern California animals, but algae also provides a lot of the basic products we use everyday!

Can you find the algae ingredient in this food label? What does it do?

_____

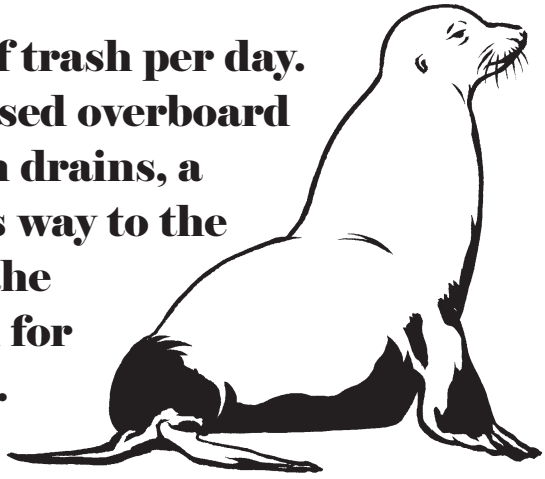
INGREDIENTS: SUGAR, DEXTROSE (FROM CORN), CORNSTARCH, COCOA PROCESSED WITH ALKALI, CORNSTARCH MODIFIED, SALT, POLYSORBATE 60 (PREVENTS SCORCHING), CALCIUM CARRAGEENAN (THICKENER), FUMARIC ACID (FOR THICKENING), ARTIFICIAL FLAVOR, NATURAL FLAVOR.

Name three everyday products that are made with kelp:

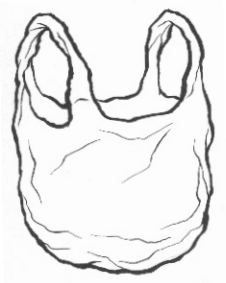
1. _____
2. _____
3. _____

SOUTHERN CALIFORNIA BAJA

SEALS AND SEA LIONS



Each of us throws away about 3-4 lbs of trash per day. Whether left behind by beachgoers, tossed overboard from boats, or washed in through storm drains, a significant portion of our trash finds its way to the ocean, where it harms marine life and the environment. Some items are mistaken for food and eaten, making the animal sick. Many items entangle and trap ocean animals, causing them to suffocate or starve.



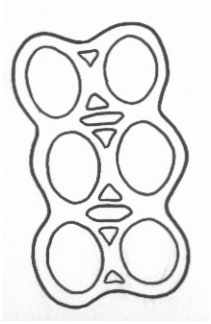
Pretend you are a sea lion entangled in fishing line: tuck the arm you write with into your shirt. Now try and write your name with your other hand:

_____

How easy is it to try and use your other hand?
What do you think it would be like for a sea lion to be entangled?

_____

Even if a sea lion is successful in becoming detangled, it still costs valuable time and energy for the animal. Is it easy for animals to pull trash off their body?



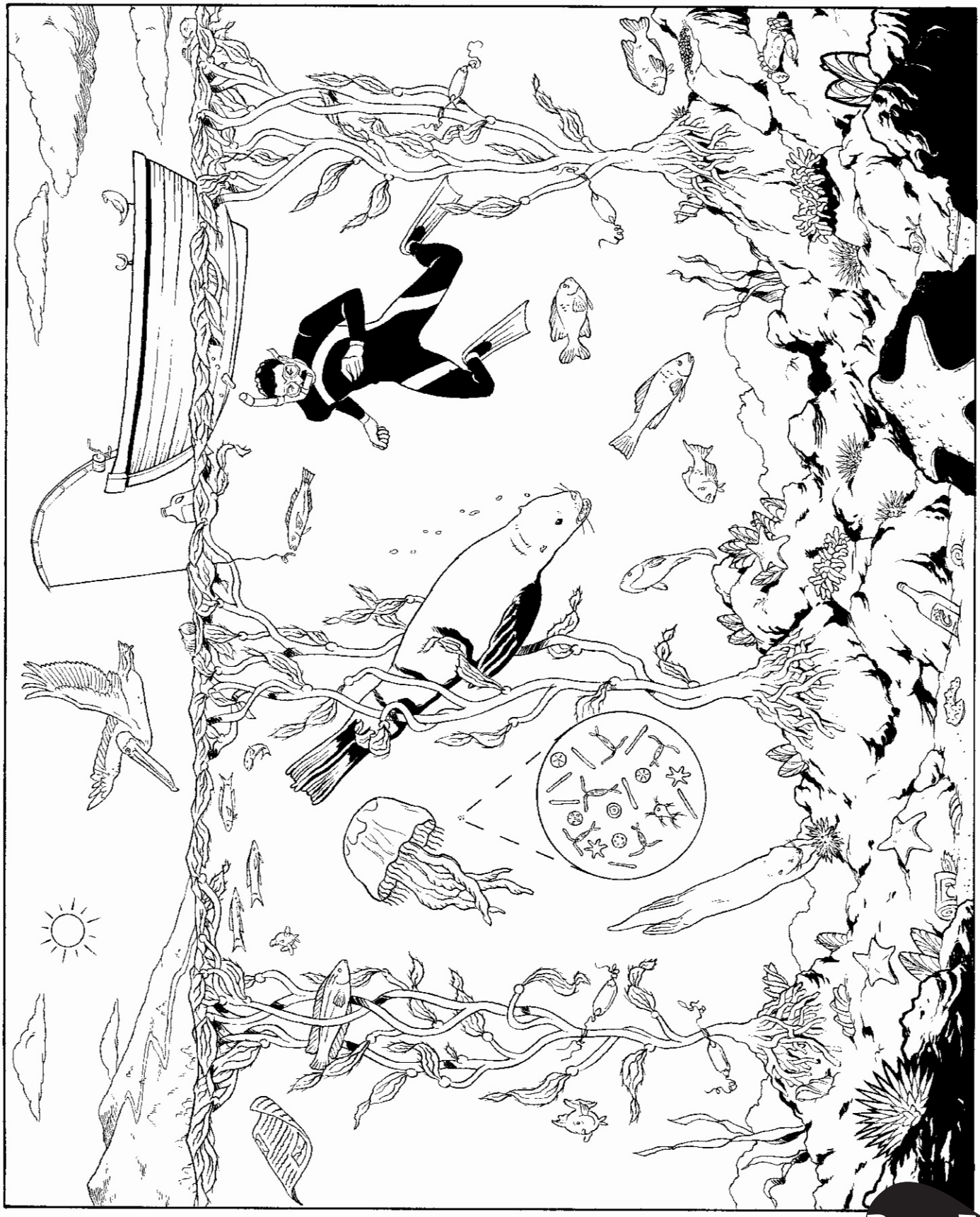
_____

What would happen if a bird or marine mammal were unable to remove trash from around its body?

_____

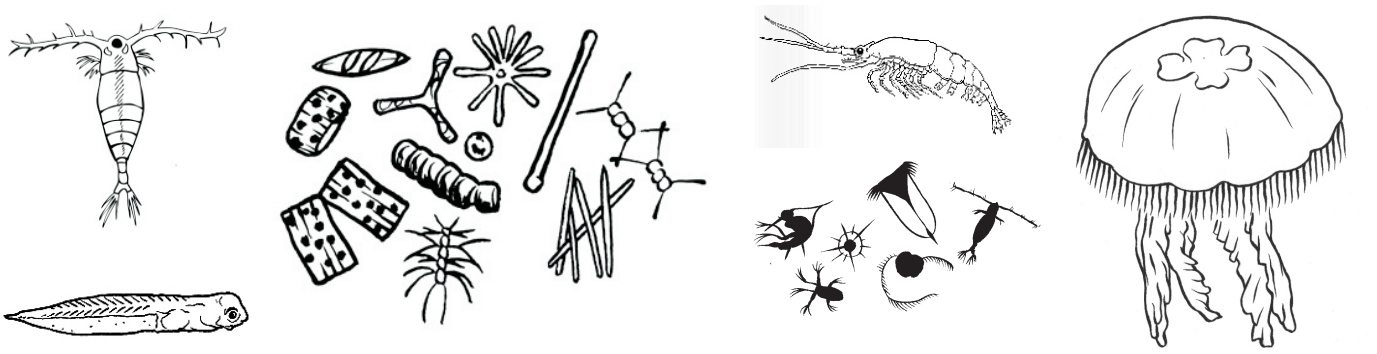
_____

WHAT'S WRONG WITH THIS HABITAT? CIRCLE ANY ITEMS THAT MAY BE HARMFUL TO THE KELP FOREST.



NORTHERN PACIFIC
PLANKTON

Plankton include both plant-like organisms (phytoplankton) and animals (zooplankton). Phytoplankton are typically single-celled organisms. Zooplankton include tiny shrimp-like crustaceans, sea jellies of all sizes, and the eggs and larval forms of fish and invertebrates, which are plankton for the early part of their lives.



Draw what you see in the plankton microscope.
Can you name your plankton?

NORTHERN PACIFIC
DIVING BIRDS

Pesticides, fertilizers, and other harmful chemicals frequently find their way into bodies of water through storm drains, river drainage, runoff, and illegal dumping. When these pollutants dissolve in the water, they can have negative impacts on the environment. One problem is bioaccumulation or build up of toxic chemicals in living organisms. As larger animals consume smaller animals in the food chain, the amount of harmful chemicals continues to accumulate, up to the top predator.

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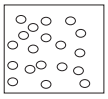
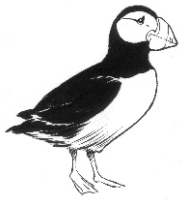
1 Puffin

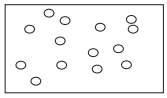


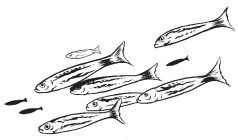


... each eat 5 plankton

_____ toxins x 5 = _____ toxins

5 Anchovies

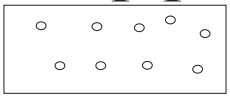




... each eat 4 plankton

_____ toxins x 4 = _____ toxins

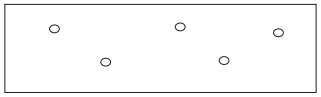
25 Copepods



... each eat 4 plankton

25 toxins x 4 = _____ toxins

100 Plankton

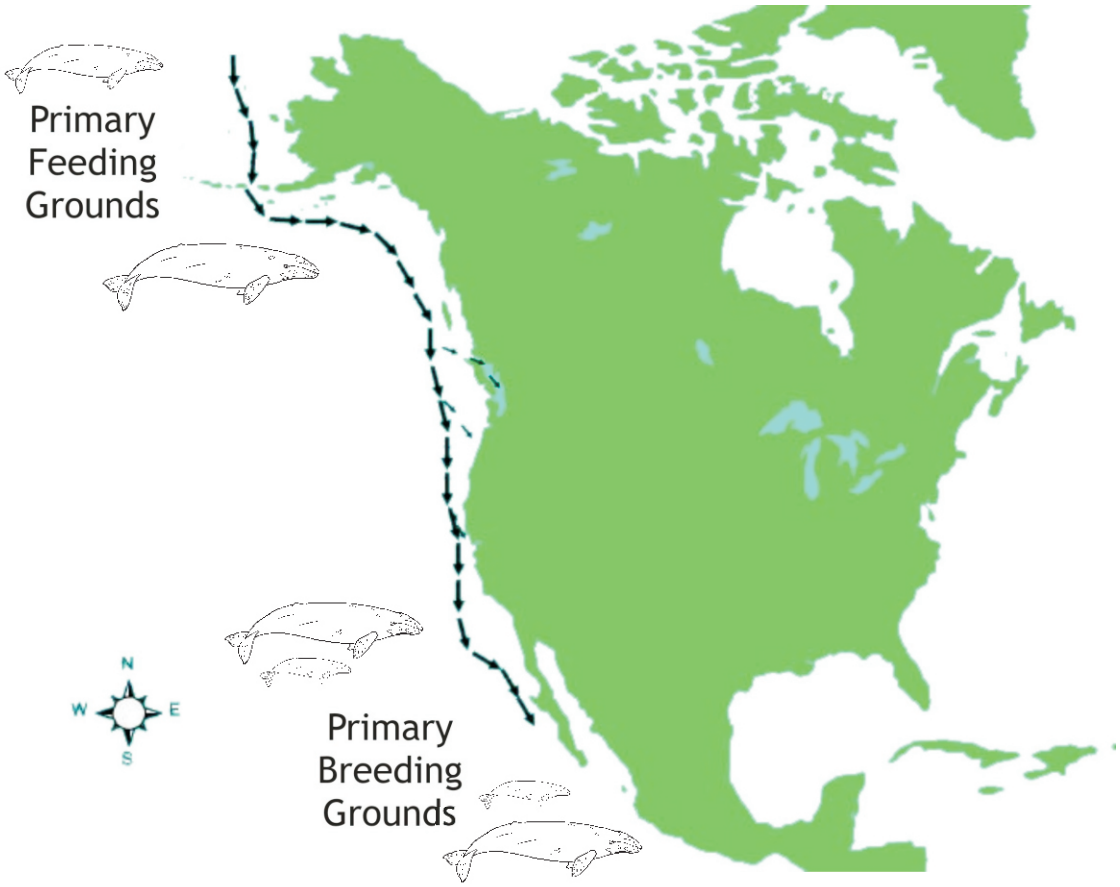


... each contain 25 toxins

Starting with plankton, at the bottom of the food chain, calculate the amount of toxin that each animal consumes as you move up the food chain.
How much toxin bioaccumulates in a top predator?

NORTHERN PACIFIC
WHALE MIGRATIONS

Eastern Pacific gray whales have the longest migration of any mammal. They travel 10,000-14,000 miles round trip from their Arctic feeding grounds in the summer to their Mexico breeding grounds in the winter.



If ocean temperatures were to change, how might gray whale feeding grounds and migration routes be affected? Could increased temperatures alter a gray whale's natural behavior?

TROPICAL PACIFIC
CORAL REEFS IN PERIL

Each coral head is a colony of many individual coral animals called polyps. Each coral polyp, about the size and shape of a pencil eraser, secretes calcium carbonate (limestone) to form a protective case around itself. When the polyp dies, its hard skeleton remains.

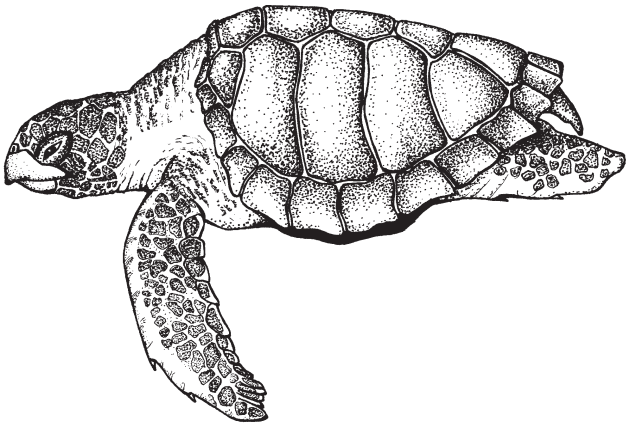
Draw multiple polyps on this fan coral.

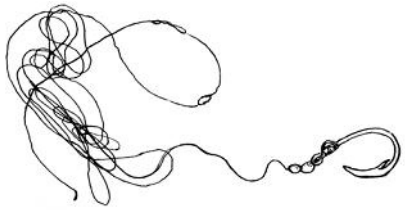
The colors found on coral come from millions of single-celled algae, called zooxanthellae, that live inside the coral's tissue. Through photosynthesis, zooxanthellae provide the polyps with oxygen and food. In return, the algae receive shelter and nutrients from the coral. There would be no reefs without zooxanthellae.

What causes coral bleaching?

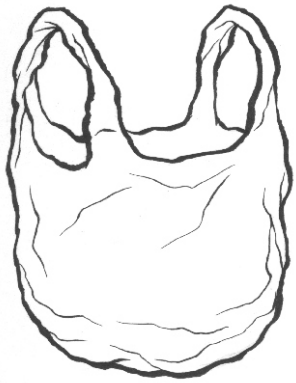
TROPICAL PACIFIC
SOFT CORAL TUNNEL

All species of sea turtles are threatened or endangered. Sea turtles do not have many natural predators, except the occasional large shark. The biggest threat sea turtles face today is human impact.





Some human impacts include polluting their food sources, disturbing their nesting sites, and entangling them in fishing nets.



List three ways you can help save the sea turtles everyday:

1. _____

2. _____

3. _____

WHAT'S WRONG WITH THIS HABITAT? CIRCLE ANY ITEMS THAT MAY BE HARMFUL TO THE CORAL REEF.

Comb jellies are native to the Eastern Atlantic coasts of North and South America. In recent decades, the ballast water of ships accidentally introduced comb jellies into the Black and Caspian Seas in Western Asia. As an invasive species, comb jellies have devastated native fish populations in Asia by eating up many of the fish larvae and eggs.

Draw a ship route that carried comb jellies from America to the Black and Caspian Seas.

OCEAN ON THE EDGE
GLOBAL WARMING

Fill in the blanks with the appropriate words from the Word Bank below. Then, place the letters from the numbered slots in the phrase at the bottom of the page. Once complete, read the secret message.

WORD BANK

Coastal	Drink	Floating	Melt	Raise
Cold	Expansion	Level	Predict	Warming

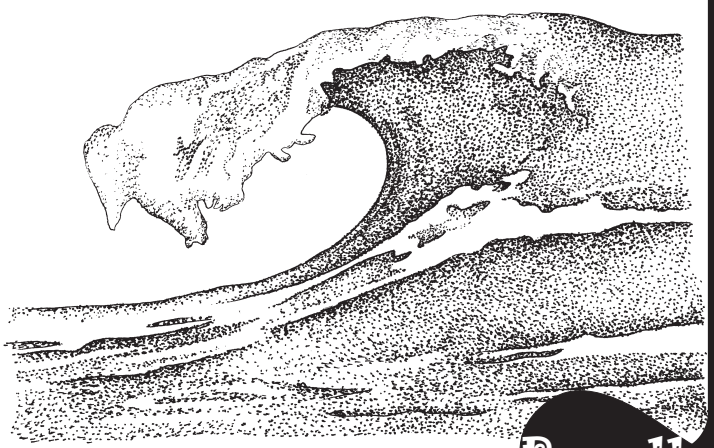
To predict the effects of global _ _ _ _ _ _ _ (1 10), scientists have found that world sea _ _ _ _ (14) rise can occur from two main processes: thermal expansion of ocean water and melting of glacier ice.

Thermal _ _ _ _ _ _ _ _ _ (9 3) of water occurs because warm water takes up more space than _ _ _ _ (3) water. That is to say, as water warms, it expands. Scientists have already witnessed rising sea levels due to rising ocean temperatures. Increased sea levels pose the largest threat to _ _ _ _ _ _ _ _ (18 7) communities like Los Angeles and Long Beach.

Floating ice bergs, like those in the Arctic Polar Ice Cap, already displace ocean water, similar to ice _ _ _ _ _ _ _ _ _ (13 4) in a glass. When large ice bergs melt, which they can do naturally, they do not _ _ _ _ _ (15 19) the level of sea water - just as the ice in your _ _ _ _ _ (11 17 8) does not make the glass overflow when it melts.

However, glaciers on land also contain a large amount of ice and water. If the world's glaciers, such as those in Greenland and Antarctica, were to _ _ _ _ (6 16), they would add more water to the ocean, thereby causing an increase in sea level. Scientists _ _ _ _ _ _ _ (2 12) that if Greenland's glaciers were to melt, oceans would rise by 7m or 23ft. If Antarctica's glaciers were to melt, scientists predict that oceans would rise by 61m or 200ft.

There is Power in Numbers!

_ _ _ _ _ _ _ _ _
1 2 3 4 5 6 7 8 9

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10 11 12 13 13 14 15 16 17 18 19