

Junior Ranger

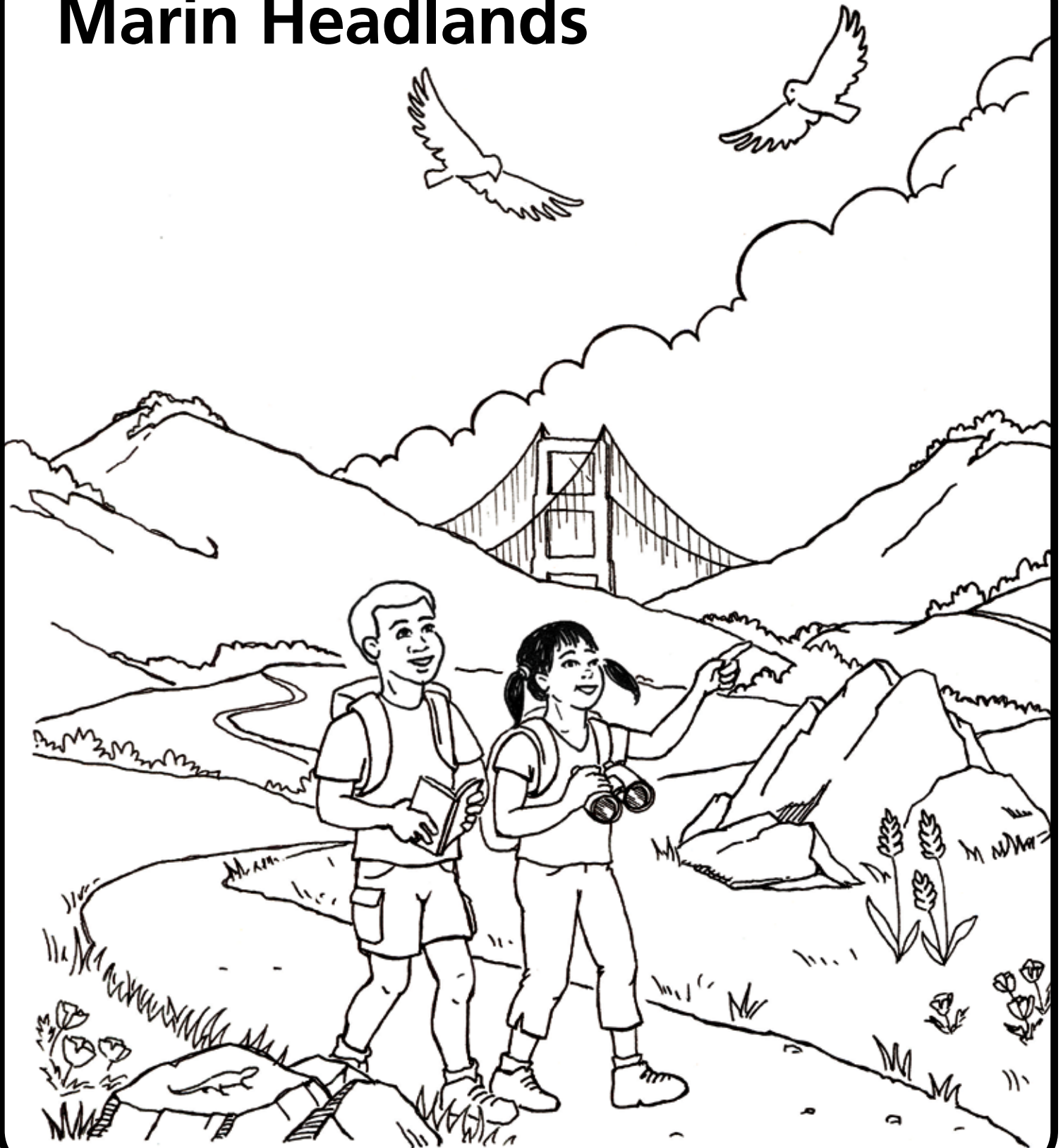
Activity Book

National Park Service
U.S. Department of the Interior

Marin Headlands
Golden Gate National Recreation Area





Marin Headlands



Getting Started

So you want to be a Junior Ranger? Welcome. Your National Parks need you!

If you are...	then you should...
6-8 years old	Look for pages with a duck in the corner Choose 4 pages & complete them 
9-10 years old	Choose 8 pages & complete them
11-12 years old	Complete the entire booklet and try to answer the Challenge Questions marked with a heron 

The map below will help you find your way around. Pages 4 through 10 need to be completed at specific places (look for the location at the top of the page). The other pages can be completed wherever you like in the Marin Headlands.

Orient Yourself!

North, south, east, west—do you know which direction you're facing? While you're in the Marin Headlands (or anywhere on the coast of California) turn toward the ocean. This is west. If the ocean is at your back, you're facing east. If you can see San Francisco from the Headlands, you're facing south. The sun can also help you orient yourself; it rises in the east, it sets in the west. At night, the stars will show you the way. Google "monthly star charts" and print out a star chart; learn just a few constellations and you can orient yourself anywhere.



Military Site



Parking



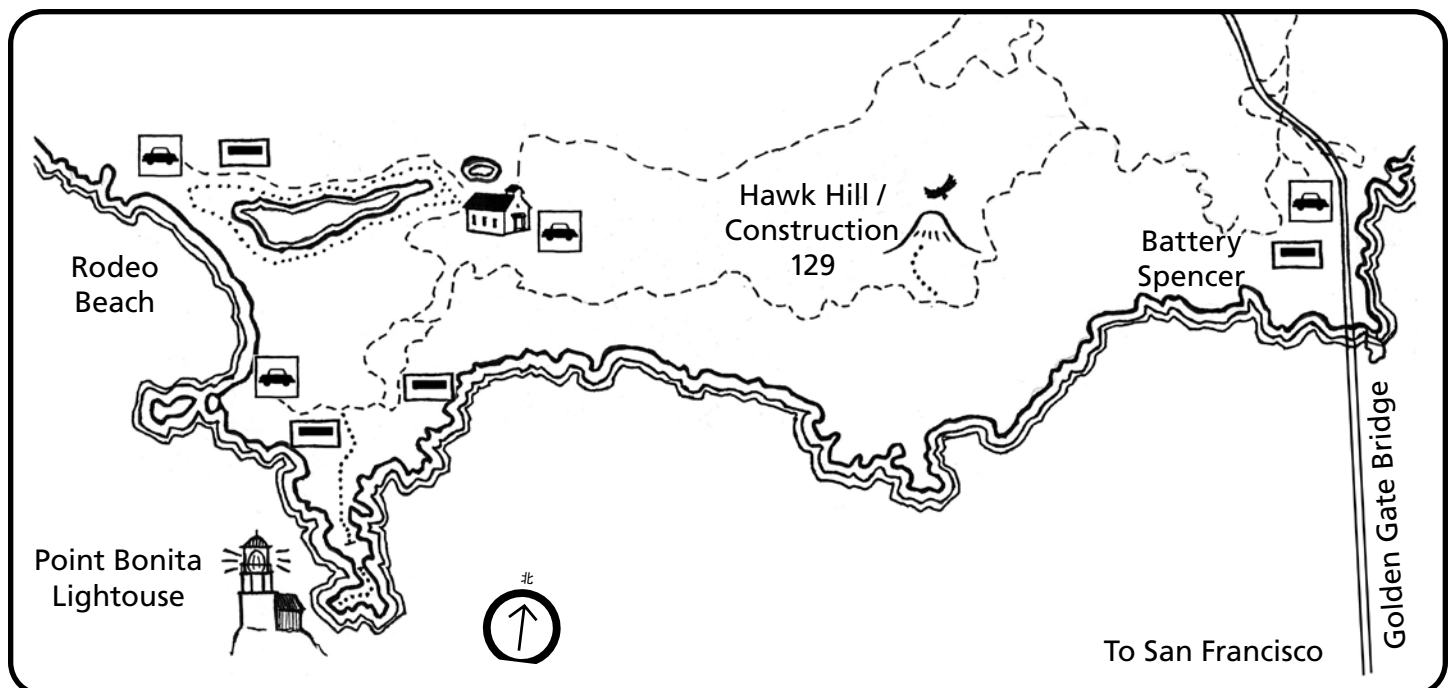
Roads



Trails



Historic Chapel



Scavenger Hunt BINGO



As Junior Rangers, we always watch the world around us. On your journey through the Marin Headlands today watch for these things. Put an "X" on the picture when you find them. See if you can find them all!

<p>Dragon Fly</p>	<p>Fog</p>	<p>Fresh Water</p>	<p>Cypress Tree</p>
<p>Chert</p>	<p>Harbor Seals</p>	<p>Lookout</p>	<p>Pelicans</p>
<p>Salt Water</p>	<p>Ship</p>	<p>Spider Web</p>	<p>Poison Oak</p>
<p>Sun</p>	<p>Turkey Vultures</p>	<p>Draw your own...</p>	<p>Deer</p>
<p>Bobcat</p>	<p>Basalt</p>	<p>Butterfly</p>	<p>Wildflowers</p>

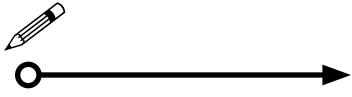
What didn't you see today? Why do you think you didn't?



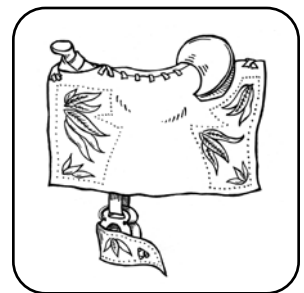
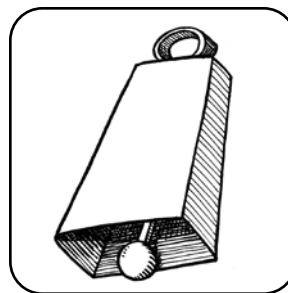
Explore the Marin Headlands

The place we now call the Marin Headlands has been home to many people over the years. Each group used the land differently. On your journey through the Marin Headlands, learn how these people and objects relate.

Who lived in this area?



Draw lines to match the group of people to the objects they used.



Sense Your Way Around

When you explore a new place, you get a lot of information from your senses. Using your senses adds to your fun.

Your Eyes Tell Time

Locate the Lagoon Trail near the corner of the Historic Chapel parking lot. This old picture of Fort Barry helps you look back in time. Using your eagle eyes, find three things that are the same and three that are different.



What is the same?

What is different?

All the Better to Smell You With!


Coyotes have a great sense of smell. Their noses are big and moist, and they search for scents by moving their heads. Dampen your nose with water and turn your head slowly from side to side. What do you smell?




Make Deer Ears!

Mule deer hear really well with their big ears. Sit quietly, close your eyes for one minute, and listen. Then cup your hands behind your ears. Can you hear better?

List all the natural sounds you hear.
(Made by an animal, plant, or other things in nature)



List all the human sounds you hear.
(Made by machines or people)



_____

The Ocean Needs Your Help

WELCOME TO THE PLANKTON CAFE!

Today's Specials:

- Fresh Plankton
- Halibut Stuffed With Plankton
- Plankton A La Mode



Many living things (including people) depend on the ocean for food. Yet today, the ocean and the creatures that live in it are being hurt by something we use every day: plastic. Plastic is made mostly of oil, so it never **biodegrades** (breaks down and becomes part of the soil or water). Almost all the plastic on earth today will still be here a thousand years from now.

Many birds and marine animals eat **plankton**, tiny ocean-living animals and plants that drift on the currents. Some are so small that thousands could fit in the period at the end of this sentence. Plastic rubbish that finds its way to the ocean looks a lot like food to hungry marine animals—bottle caps, foam cups, and plastic bags have all been found in the stomachs of sea lions, dolphins, sea turtles, and birds. Tiny pieces of plastic mimic (look like) plankton but hurt the creatures who eat them.

The trash you pick up today won't go into the ocean, and that helps whales, fish, and pelicans. And when the ocean is healthier, so are we!

You can help reduce the amount of plastic in the ocean.

- Use paper instead of plastic disposable items.
- Share what you have learned with others.

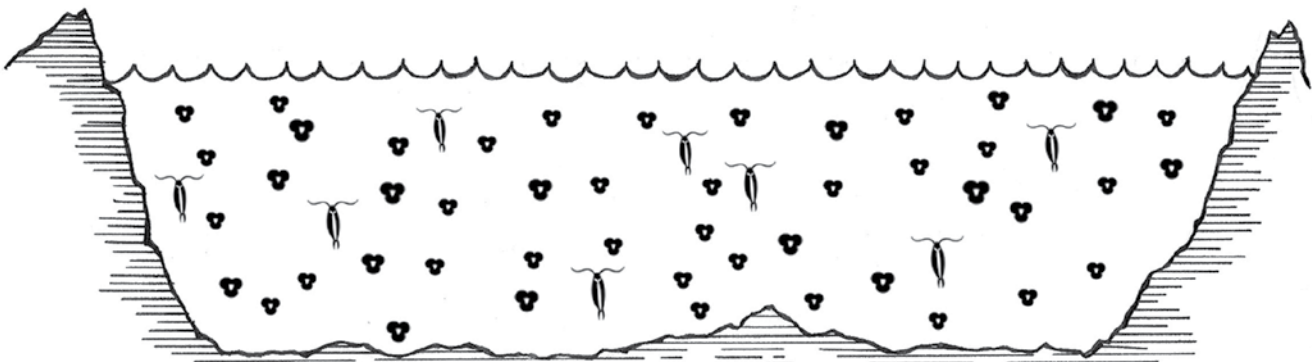
What else could you do?




Count the plastic and plankton in the ocean below.

Plastics: _____

Plankton: _____



 = 1000 pounds of plastic

 = 1000 pounds of plankton



What is the **ratio** of plastic to plankton in the ocean? _____

*Ratios describe relationships. If a classroom has one teacher and thirty students, the teacher/student ratio is 1:30.

On the Beach...

Every wave that crashes onto a beach is different. Some are small, some are huge, some bring sand and trash onto the beach, and some take them away. And waves never stop coming!

Have someone time you as you count the number of waves that crash onto the beach in one minute.

How many waves did you count? _____

Rainbow Sand

Take a handful of sand. Put it on this page. (Slightly damp sand is the easiest to sort. Try a few handfuls until you find grains that are big enough to see easily). Now sort the sand by color.

What colors do you see in the sand? _____

Look at the hills around you.


Can you see any of the same colors? _____

How do you think these pieces got here? _____

How did they get so small? _____

Sometimes rocks on a beach come from far-away mountains. Since Rodeo Beach is located in a crescent shaped cove, (shown right) we know that these rocks came from nearby cliffs.

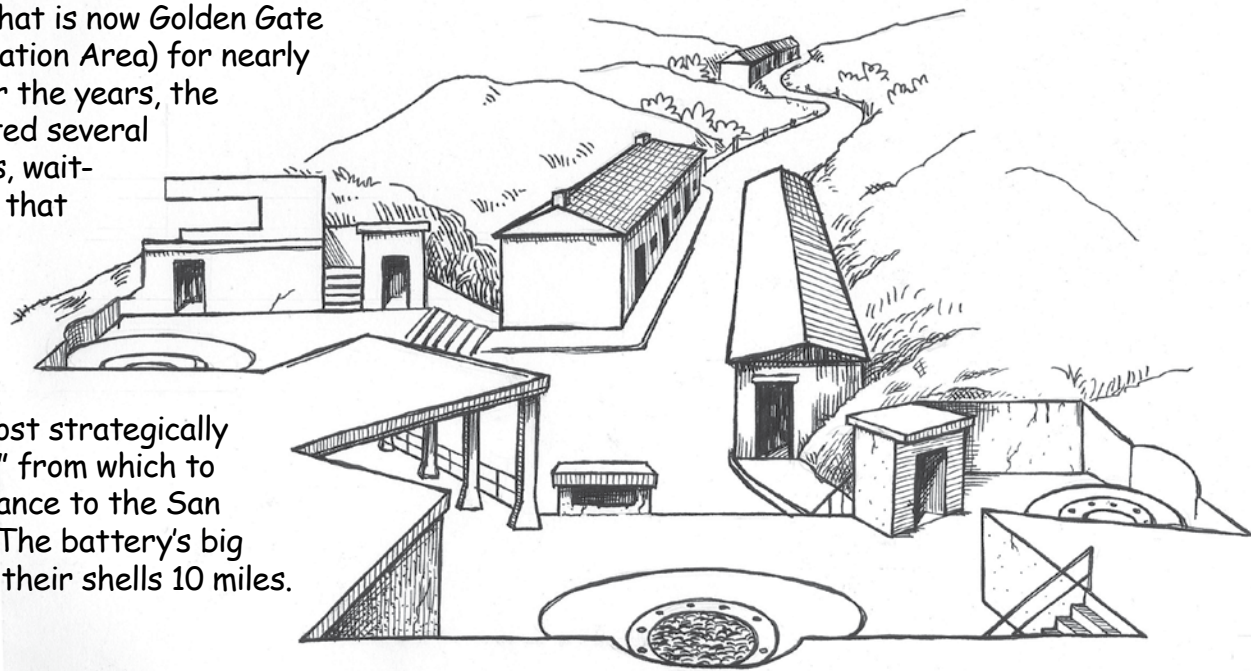


 Multiply the number of waves per minute by minutes in an hour (60), and then multiply the result by the number of hours in a day (24). About how many waves crash on Rodeo Beach in one 24-hour day?

NEXT STOP: As you leave Rodeo Beach, head toward Battery Spencer and the main viewpoint for the Golden Gate Bridge.

Guarding the Gate

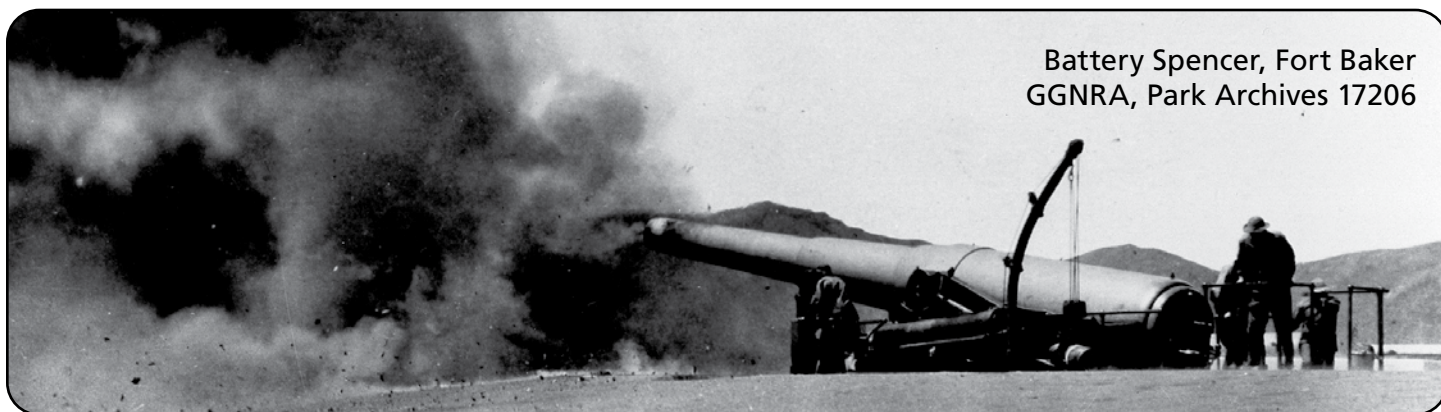
The U.S. Army occupied the Marin Headlands (and much of what is now Golden Gate National Recreation Area) for nearly 125 years. Over the years, the army constructed several defensive posts, waiting for attacks that never came. Battery Spencer, was built in 1897 on what was considered the "most strategically important spot" from which to guard the entrance to the San Francisco Bay. The battery's big guns could fire their shells 10 miles.



As you walk through the area, chart your path on the illustration above. Mark the places where you see the following, or guess where they would go:

L (lookouts), G (places for guns), F (fireplace), Q (living quarters), S (switchboard).

If you were in the Army and worked at this spot, what kind of job do you think you would want to have?



Battery Spencer, Fort Baker
GGNRA, Park Archives 17206

 Why do you think the entrance to the Golden Gate was such an important place to guard?

NEXT STOP: Look to the Northwest, up on the hill. (Remember your orientation clues from page 2). There is another battery, Construction 129, or Hawk Hill. Go there next.

A Place with Two Names...

Every fall, thousands of hawks and other **raptors** (birds of prey) fly over this very spot on their way to their winter homes. As these birds make their journey, they orient themselves using the ocean and the sun. Raptors use **thermals** (patches of warm air rising up from the land) to make their long flights less tiring. In this spot, the break in the coastline (the entrance to the bay) funnels them right over our heads! If you are here in the fall, **LOOK UP!!!!**



Cooper's Hawk



Kestrel



Red Tail Hawk




Turkey Vulture

The Army gun battery inside the hill is called *Construction 129*. Work started on this battery during World War II (1941 to 1945), but it was never finished. What do you think? Was the money wasted? Is it possible that no enemy attacked because the forts and gun batteries were here?

Walk around. Make a list of all the ways *Construction 129* is different from Battery Spencer. (Does it look different? Does it feel different to be inside? Do you think it is stronger or weaker?)

Walk through the western tunnel (remember to orient yourself using the ocean). From here, you can see the lighthouse. How many seconds does the light stay on? _____ How many seconds is it off? _____ This is called the lighthouse's **signature**; every lighthouse has its own signature.

 The guns here could shoot shells 25 miles out to sea. Why did the Army move guns farther away from the entrance to the Bay?

NEXT STOP: Head to the Point Bonita Lighthouse trail.

Beacons to the Past

The lighthouse is only open on Saturday, Sunday, and Monday from 12:30 to 3:30. But even if you come when the lighthouse is closed, you will still find cool things to explore. (To take another peek at the lighthouse, go to the end of the road—west, toward the ocean—and look from the parking lot).



"City of New York" in San Francisco
GGNRA, Park Archives SH-060

While you're here: Count the ships you see.

Before gold was found in California, not many ships came this way. But in 1849, when the Gold Rush started, 775 ships entered San Francisco Bay. Today, almost 5,000 big cargo ships enter the harbor annually.

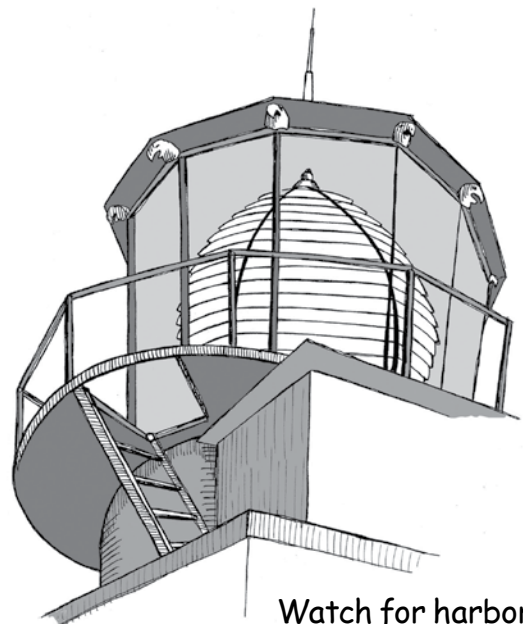
The number of shipwrecks grew too. Look at the Golden Gate and think about what makes it a hard place to sail a ship through.

Why do you think there were a lot of shipwrecks? (Think of waves, size of the channel, weather...)

In 1855, the lighthouse was built on a nearby hilltop; it was later moved to its present location. The lighthouse keepers had to stay here all the time to put oil in the lamp, trim the wick, clean the crystal lens and the window around it.... Back in the 1850s, there was no big city, or bridge, or soldiers. The people who lived here were far from everything and everyone.

The keepers brought their families with them.

If you lived here with your family 100 years ago, what would you do for fun?



Watch for harbor seals lying on the rocks in the cove to the east.

NEXT STOP: The next three activity pages can be completed on any trail or open space in the Marin Headlands.

Who Lived Here First?

Native plants are plants that have always lived in a place. Non-native plants are those that have been introduced to an area, usually by human activity. For example, most of the grass in the Marin Headlands was "planted" by seeds falling off the hooves and hides of cattle brought here by ranchers more than 150 years ago. Likewise, most of the trees you see here were planted by the Army and lighthouse keepers about 100 years ago, to serve as windbreaks and landscaping; over time, the trees' seeds spread and more trees grew.

Native Plant Wordsearch

C	Q	A	N	E	U	B	A	B	R	E	Y	R
D	I	O	K	P	Q	N	M	U	G	F	Y	P
V	S	K	B	X	W	O	R	R	A	Y	E	D
P	J	I	U	L	U	P	I	N	E	D	W	E
E	L	T	S	I	H	T	B	E	W	B	O	C
H	S	U	R	B	E	T	O	Y	O	C	L	D
C	O	W	P	A	R	S	N	I	P	N	L	N
H	U	T	N	A	L	P	P	A	O	S	I	O
P	O	P	P	Y	L	T	I	C	W	O	W	S
V	L	N	B	L	A	C	K	B	E	R	R	Y
J	P	O	I	S	O	N	O	A	K	Y	G	X

Blackberry

Cobweb thistle

Yerba buena

Soap plant

Lupine

Willow

Cow parsnip

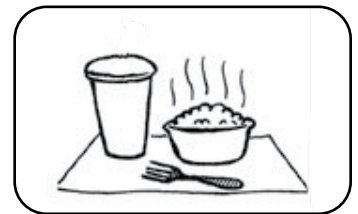
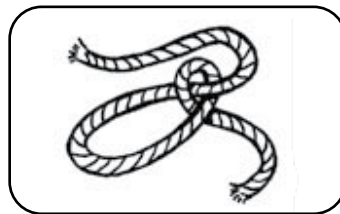
Poppy

Coyote brush

Yarrow

Poison oak

When only the Coast Miwok people lived here a thousand years ago, this was their grocery store, hardware store, and drugstore. Guess which word-search plants were used to make:



You can find out about native plants near your home by going to parks, museums, your local native plant society or State Department of Natural Resources.



Do you think it matters if new and different (non-native) plants start to live here?
Why or why not?

Scat and Tracks

What's that?!!!! EEEWWWWWWWW

"Scat" is what we call animal poop. Have you ever thought of what you could learn from studying scat? As you spend your day here, look for some dry scat. (Once it's dry, it isn't smelly anymore).


If you find some scat, break it up with a stick or a rock.

What do you think the animal ate?

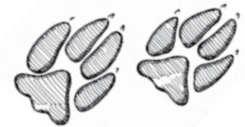
What kind of eater was the animal?

- An omnivore eats plants and animals.
- An herbivore eats only plants.
- A carnivore eats only animals.


What kind of eater are you?


 Why do you think it is important to pick up a pet dog's scat in wild places? Why do you think the scat of wild animals is important?


In the past, people used to hunt animals by following their scat and tracks. Rangers still do this, but now, they're hunting facts: what kind of animals live here, how many of them are there, what are their habits?





Draw lines to match each animal to its track and scat.










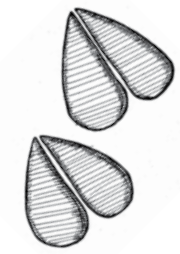


















The Gift of Open Space

When the U.S. Army realized they no longer needed this land to defend the Golden Gate, they gave it to the National Park Service and it became part of Golden Gate National Recreation Area. This gift of open space is vital to the animals who live here, many of whom need open space to stay healthy. Today, when we visit the Marin Headlands, we can look at the city of San Francisco and imagine what it may have looked like before the Gold Rush and before it was full of people and buildings and cars.

Facing the city, write a few words about what you see: _____

How does it make you feel? _____

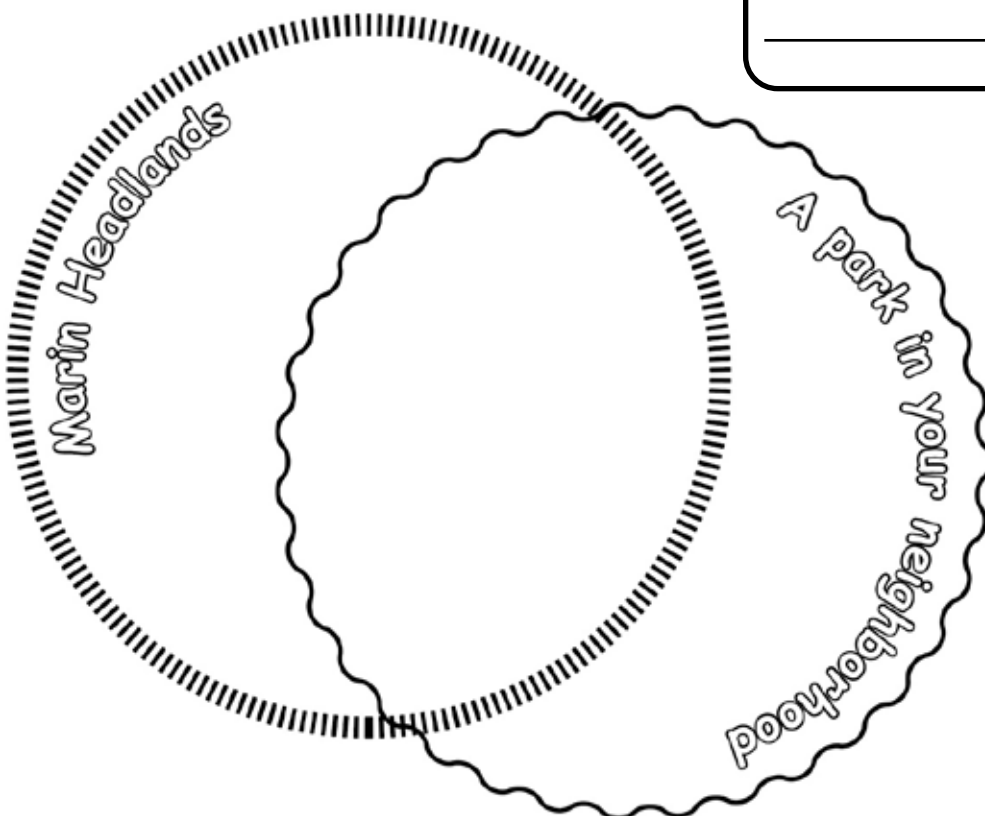
Now, turn your back to the city and scan the Marin Headlands. Write a few words about what you see: _____

How does it make you feel? _____

Anyone can write a poem

Some people follow rules, and others just write what they see and feel. Can you take your words and thoughts and make them into a poem? For example...

*Bustling traffic
You make me want to go fast.
Rolling hills
I love to see your colors
And the ocean beyond you.*



How is the Marin Headlands the same as a park in your neighborhood?

Write your ideas in the space where the circles overlap. In the outer circles, write the ways they are different.

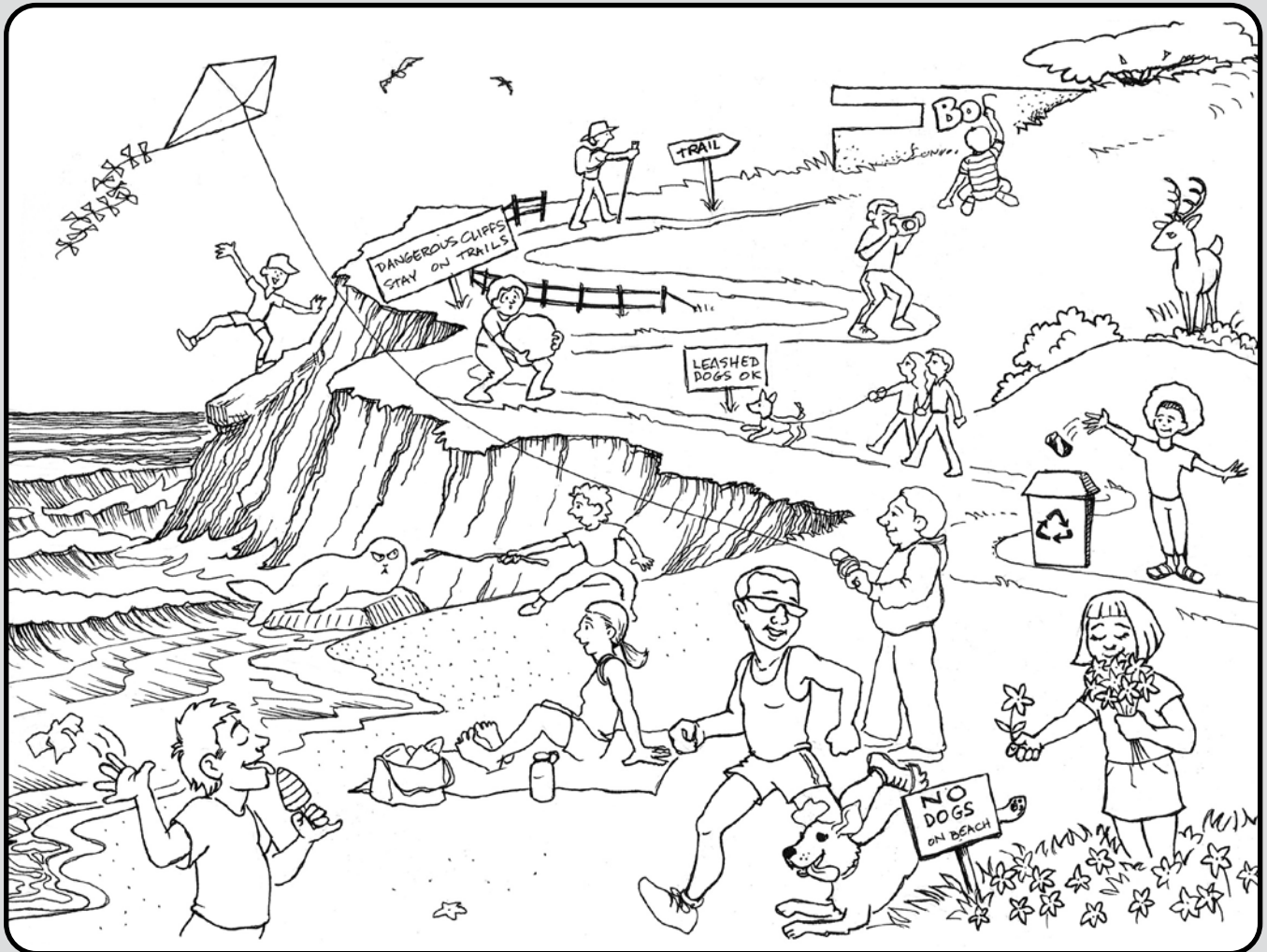
It's a Junior Ranger's Job.....



Because the Marin Headlands is so close to a big city, lots of people visit here, sometimes thousands every day.

Just as we wouldn't want someone to come into our house and take our things or walk on our furniture, when we're in a national park, we stay on trails and leave what we find. Everything in the park's ecosystem is connected in a web.

Help protect the Marin Headlands. Circle things you are encouraged to do while you visit. Put an X on things that could hurt the park.



Choose one of the ways we ask people to help protect the park and explain why it is important.

More ways to enjoy, explore, and help the parks.

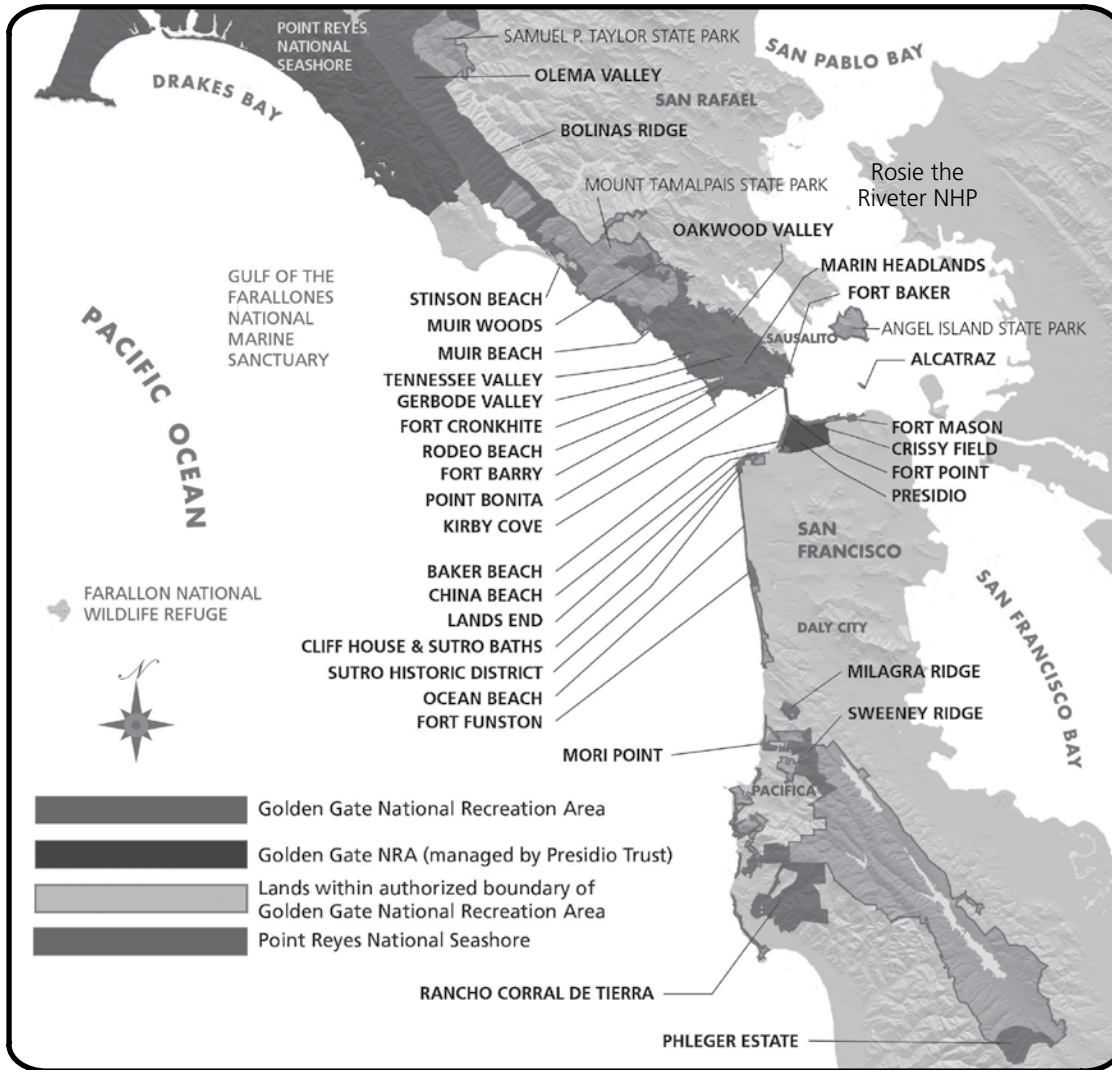
- Camp out overnight (Just reserve a campsite in advance).
- Ride a bicycle or take the bus.
- Pack your lunch in a reusable container. (Can you make a lunch with no waste?)
- Go to the Visitor Center for a bird or wildflower checklist.
- Ask about ranger programs or volunteer opportunities for young people.
- Keep a journal or scrapbook to record what you see, feel, and enjoy during your visit!



Getting Your Badge

When you have completed the booklet, you can bring it to any Interpretive/Education Park Ranger & they can check your work (They can usually be located at the Point Bonita Lighthouse OR Nike Missile Site). You can also mail your completed book in:
Golden Gate NRA | Bldg 201, Fort Mason | San Francisco, CA 94123.

Exploring your Bay Area National Parks & Monuments



John Muir NHS

Eugene O'Neill NHS

Golden Gate National Recreation Area
(415) 561-4700
www.nps.gov/goga

Muir Woods National Monument
(415) 561-2580
www.nps.gov/muwo

Point Reyes National Seashore
(415) 464-5100
www.nps.gov/pore

San Francisco Maritime National Historic Park
(415) 561-7000
www.nps.gov/safr

Fort Point National Historic Site
(415) 561-4959
www.nps.gov/fopo

Rosie the Riveter National Historic Park
(510) 232-5050
www.nps.gov/rori

John Muir National Historic Site
(925) 228-8860
www.nps.gov/jomu

Eugene O'Neill National Historic Site
(925) 228-8860
www.nps.gov/euon

All illustrations by Melissa West
Written by Suzanne Pegas

JUNIOR



RANGERS

This certifies that

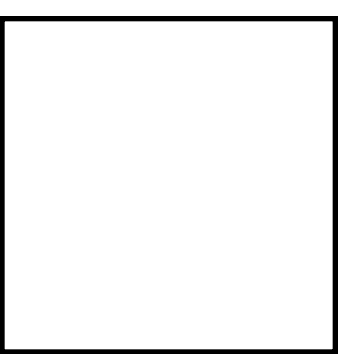
_____ has completed all activities, and is granted the title of Junior Ranger for taking on active interest in the

Marin Headlands

Junior Ranger Pledge

As a Junior Ranger, I promise to explore, learn about and help protect the Marin Headlands and all National Parks. Protecting the parks means I will share what I have learned with others and "leave no trace" by staying on trails and picking up trash. By recycling, reusing and reducing I pledge to be a friend to all National Parks and to the planet earth.

Official Park Stamp



Junior Ranger Signature

Park Official Signature

Date