

Sleeping Bear Dunes

National Park Service
U.S. Department of the Interior



National Lakeshore

Junior Ranger book



Name: _____

Age: _____

How to become a Junior Ranger

Great! You want to become a Sleeping Bear Dunes National Lakeshore Junior Ranger! Start by completing the steps outlined below. When you are finished, take this book and go with an adult to a ranger station (visitor center, campground, island ranger station), and a ranger will issue your official Junior Ranger awards.

Have fun exploring Sleeping Bear Dunes!

To earn a Junior Ranger badge, complete step A.

A. Book

If you are 4-6 years old, complete at least 4 activities. (Hint: check out activities like Casting Call, this page; Sand box on its side, p. 6; Traveling the waterways, p. 11; and A day on the farm, p. 13.)

If you are 7-9 years old, complete at least 8 activities.

If you are 10-110 years old, complete at least 11 activities.

Activities are marked with a . When you finish an activity, put a inside the box.

Number of activities completed: _____

To earn a Junior Ranger patch too, complete steps B and C.

B. Ranger-led activity or your own adventure

Attend a ranger-led activity such as a walk, talk, bike tour, movie, snowshoe hike, demonstration, or evening program; or take a hike, camp out, paddle, or bike with your family or friends in the National Lakeshore.

What did you do? _____

Ranger or parent's name: _____

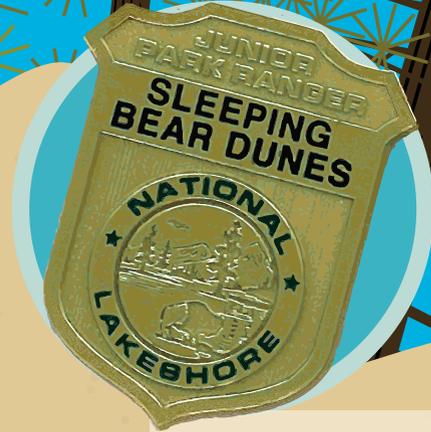
C. Service project

Complete one of the projects listed, and then have a parent or another adult sign below when your project is finished.

1. Pretend to be a ranger, and give a program to your family or lead them on a walk. Tell them about something you learned in the park or at school.
2. Collect any recyclables that your family may have used during your stay, and dispose of them properly in recycle bins.
3. Re-use something you have already used in a different way (for example, reuse your plastic pop bottle as a water container).
4. Pick up five pieces of trash.
5. Create an original Sleeping Bear Dunes service project idea of your own.

Your service project _____

Adult's signature _____



■ Casting call

Grab a few friends or family members, and act out the legend of the Sleeping Bear (it's written in the park brochure), or draw pictures of it here.

Bonus items!

Look for the fun facts sprinkled throughout the book. They are marked by a maple leaf. 

How many mystery photos did you identify?

For more information about Sleeping Bear Dunes National Lakeshore, go to www.nps.gov/slbe

What do rangers do?

National park rangers do a lot of different things for their park—and so do Junior Rangers! Learn what you can do.

Use the following words to complete the crossword puzzle:

stewards
disturb
special
safe
artifacts
trails
flowers
litter



Across

- Protection rangers keep visitors safe and enforce park rules. Junior rangers obey rules and stay _____.
- Park rangers keep the park clean. Junior Rangers never _____ and always help pick up after people who don't know how to care for their parks.
- Cultural resource rangers preserve museum objects and historic buildings. Junior rangers help by never vandalizing old farmsteads or taking _____.

Down

- All rangers take care of the park's resources (beaches, lakes, animals, forests). Junior Rangers help by leaving rocks, shells, and _____ where they find them.
- Maintenance rangers make sure the roads, trails, buildings and campgrounds are clean and in good shape. Junior Rangers help by staying on the _____ and not creating shortcuts.
- Interpretive rangers tell visitors all about the park and why it's an important place. Junior Rangers tell their friends and family about _____.

_____ parks they visit and why these parks are so _____.

- Park rangers and Junior Rangers are good _____ of the park, which means they help take care of the park so everyone can enjoy it.
- Natural resource rangers study and manage the plants and animals in the park. Junior Rangers learn about the plants and animals and never _____ or feed them.

What do rangers know?

Circle the correct word.

- Sleeping Bear Dunes is a **national** / **state** / **county** park.
- The official name is Sleeping Bear Dunes National Park / **Seashore** / **Lakeshore**.
- This park is on the shores of Lake **Erie** / **Ontario** / **Michigan**.
- National Park Service rangers **ignore** / **protect** / **adopt** all living things. They **preserve** / **sell** / **destroy** beautiful and interesting places. They also **tear apart** / **throw away** / **care for** historic things.
- Junior Rangers help **ruin** / **decorate** / **care for** their national parks.

Indoor "Hike"

Take a "hike" through the **displays at the visitor center in Empire** featuring Beach, Active Dunes, Shrub Zone, Pine/Oak Forest, and Beech/Maple Forest habitats. Which habitats do these animals and plants belong in? Write the letter in the plant or animal's photo in the correct habitat circle below. You may find the answers inside the display cases or on the walls.



Acorns



Porcupine



Trillium



Fox



Hoary pu...



Beach

Esch Beach
Glen Haven Beach

Active Dune

Esch Beach
Glen Haven Beach

Shrub Zone

Esch Beach
Glen Haven Beach

Pine/Oak Forest

Esch Beach south of Esch
D. H. Day Campground



Outdoor hike: If you want to take a hike through the succession of dune habitats, try hiking inland from Esch Beach or Glen Haven beach. The Old Indian Trail green arrow loop is another trail that takes you from forest to beach.



A beautiful itch?

Look for the poem about poison ivy in the visitor center auditorium. And look out for poison ivy in the park—it's waiting in the low undergrowth along the trails to the beaches and in the forests.

- Auto Tour
- Dock
- Backpack
- Farm
- Beach
- Ferry
- Beaver
- Fire
- Boats
- Fish
- Camping
- Hike
- Cemetery
- Hunt
- Chipmunk
- Islands
- ~~Cormerant~~
- JR

Where have all the plants gone?

South Manitou Island (SMI) has many more plants growing under the forest trees than North Manitou Island (NMI). Where did all the plants on NMI go? In 1926, a new animal arrived and began eating them. With no predator to eat these animals there were over 2,000 on the island by 1981. That was too many; they ate all the food and some died of hunger. A short time later, the National Park Service began a new resource management effort that included hunting, and now the plants and animals are recovering, which is helping restore the balance of the ecosystem on NMI.

What animal was this newcomer, and how did it get there?

Complete this word search and find out. Find the words from the word list box and cross them out. Some letters will be left uncrossed. Write these leftover letters on the spaces below to solve the mystery. The puzzle has been started for you. Hint: The words can go in any direction—even backwards or diagonally!



Esch Beach

Loon

Esch Beach north of Esch Rd.
Alligator Hill Forest

Beech/Maple Forest

- Lake
- Light
- Map
- Morazan
- NMI
- Plover
- Rabbit
- SMI
- Ship
- Tent
- USLSS
- Village
- Water
- Wave
- Wild

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

H

■ A sand box on its side

The Dune Climb looks like a giant sand box tipped on its side—a sand box you can climb! Scramble up to the top of the first hill. You'll be 110 feet up from the parking lot! If you go all the way to the benches, you'll have climbed 284 feet! Turn around for a great view.

Draw yourself on the dune at the highest point you climbed.



110 feet

Where is this and what's happening?

■ At the Dune Climb:

Look down at the sand around your feet. Pick up a handful of sand and study it closely. Did you know that sand is really just fine grains of rock?

How do you think the sand grains formed? _____

How do you think they got here? _____

Do all the grains of sand look the same? _____

Sand comes from rocks and minerals that break down into smaller pieces.

Most of this sand comes from a mineral called quartz.

What colors do you see in the sand? _____

Study the sand in a different part of the park. Is it the same? _____

Sandtastic!

284 feet

From here, you can see the Glen Lakes.

For a view of Lake Michigan, it's a 1½-mile hike (one way) up and down about seven dunes with no shade or water. Round trip is approximately 3 hours. Be prepared, and tell someone where you are going.

go figure

Dunes are not just stationary piles of sand—they are constantly moving and changing. You can figure out how fast the dune at the Dune Climb is moving toward the parking lot. Walk along the base of the dune to the end farthest from the Dune Center. Rangers put a measuring beam there many years ago. Find the beam, read the sign, and figure out the answers to these questions.

A: The sand was first at the 0 (zero) foot mark.
Now where is it? _____

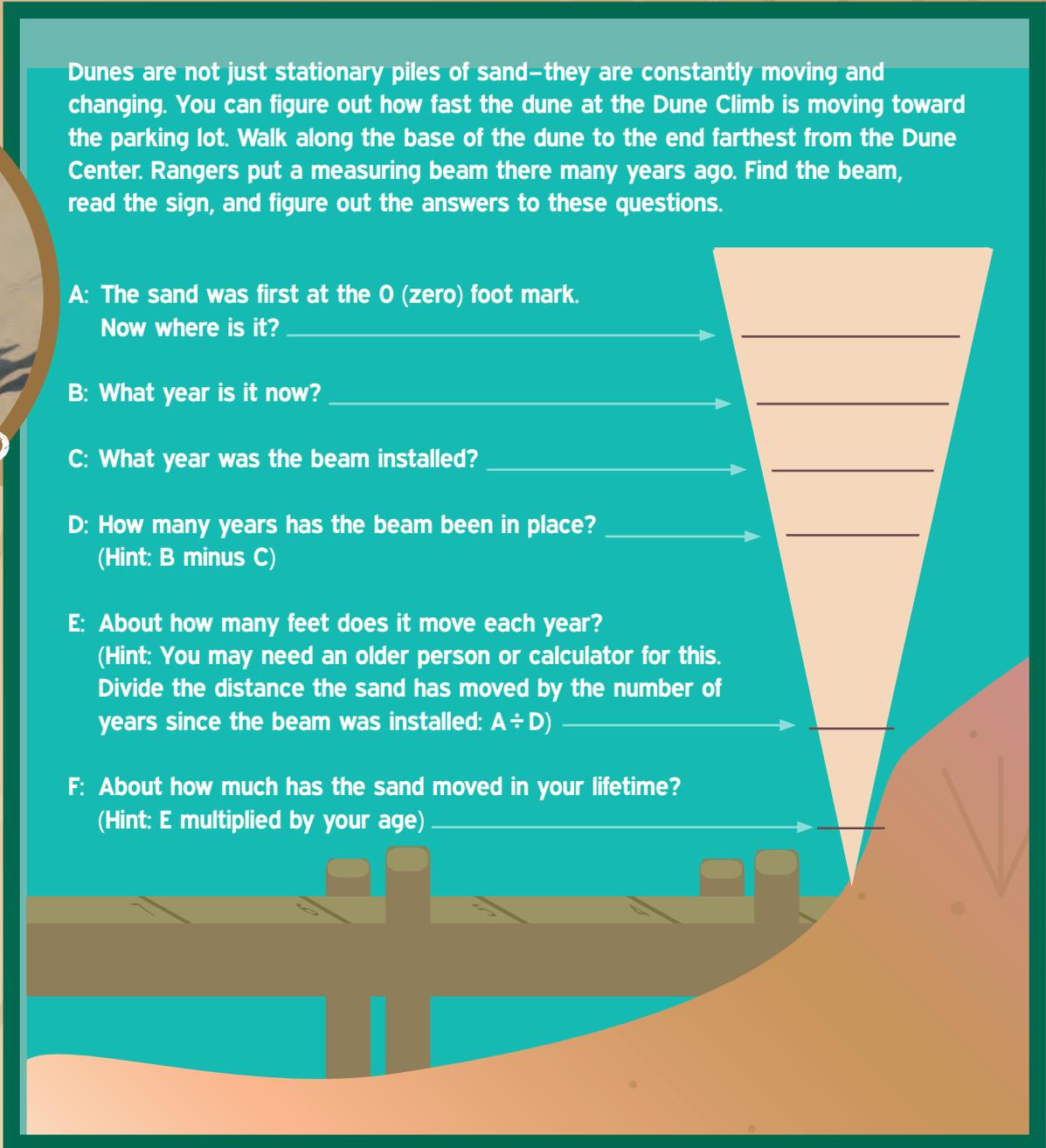
B: What year is it now? _____

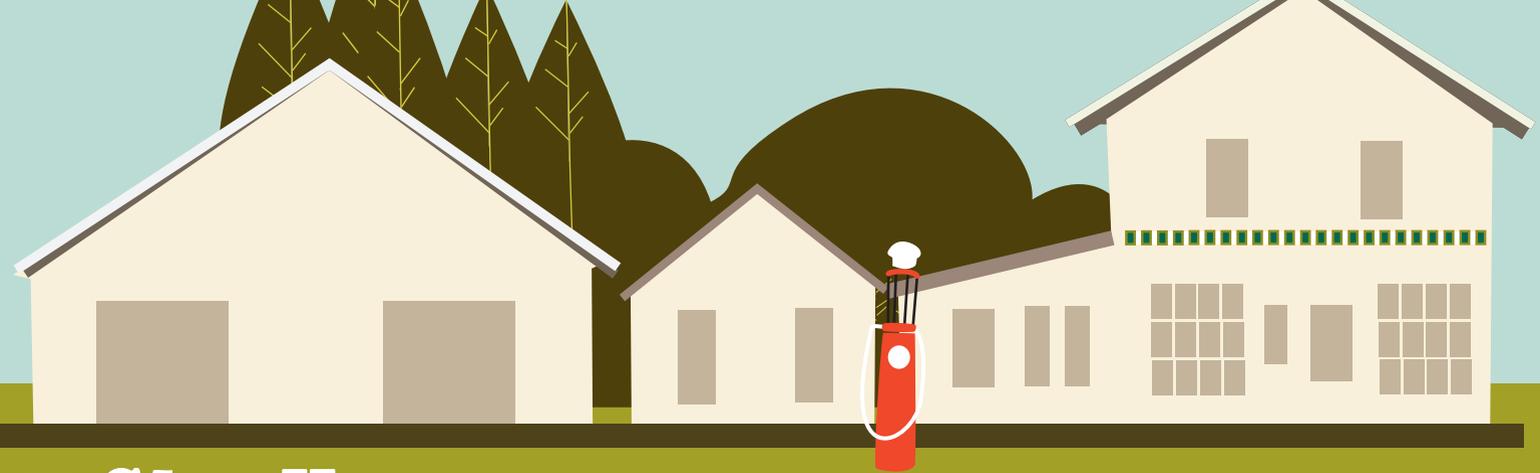
C: What year was the beam installed? _____

D: How many years has the beam been in place? _____
(Hint: B minus C)

E: About how many feet does it move each year?
(Hint: You may need an older person or calculator for this. Divide the distance the sand has moved by the number of years since the beam was installed: $A \div D$) _____

F: About how much has the sand moved in your lifetime?
(Hint: E multiplied by your age) _____





■ Glen Haven

Visit the historic village of Glen Haven, an early 1900s company lumbering town.

List three ways that this town is different from where you live:

1. _____
2. _____
3. _____

How do you think your life would be different if you lived here in the early 1900s?

Why do you think it is important to preserve the town of Glen Haven?

 D. H. Day once "owned" this town. Who was he? Ask at the general store.

■ Blacksmith Shop

The blacksmith shop was the fix-it center of Glen Haven. Look at the photos below—what do you think these tools were used for?







■ Navigate the passage



 The South Manitou Lighthouse went dark in 1958. It was relit in 2008. How many years was it dark?

The South Manitou Lighthouse keeper needs to get back to work—but first he needs to cross the waterway between the Manitou Islands and the mainland: the treacherous Manitou Passage. This passage is very dangerous because of its hard-to-see shoals and sandbars, half-hidden shipwrecks, wild waves, and stormy weather. That is why the keeper must hurry back to his lighthouse: to keep the light lit so it will light the way for passing ships.

Help the keeper find his way safely across the Manitou Passage!

■ Texting the old fashioned way

Before there were radios or telephones, the surfmen of the U.S. Life Saving Service used signal flags to communicate with passing ships. You'll find signal flags in the boathouse at the Maritime Museum; each flag is a different letter. Use them to spell your name or to make up your own message. The person in charge there can help you.

What did you "say" with the flags?

Can you decode this message to find out where you are now?

 The motto of the U.S. Life Saving Service was "You have to go out, but you don't have to come back."



■ Early paddlers

Native Americans used the waterways to travel around the Sleeping Bear Dunes area. Read the exhibit about Native Americans in the visitor center, and list two natural resources they used.

■ Becor

Help a ranger
ship (okay, it's
Heroes of the

Traveling the waterways

Most visitors who go to North and South Manitou Island get there by riding a boat from the mainland. In the Cannery Boat Museum in Glen Haven, you can see many small Great Lakes boats. Look for a wooden dugout canoe that Native Americans used to travel on inland lakes and rivers many, many years ago.

If you could invent any vessel to get across Lake Michigan, what would it look like? Draw a picture or describe it below. Does it have any special features to help it get across the lake?



me a hero

save Raggedy Ann and Andy from a sinking
s really a flagpole). This is an activity called
e Storm. Ask the ranger to sign here.



What is this called?
How was it used?



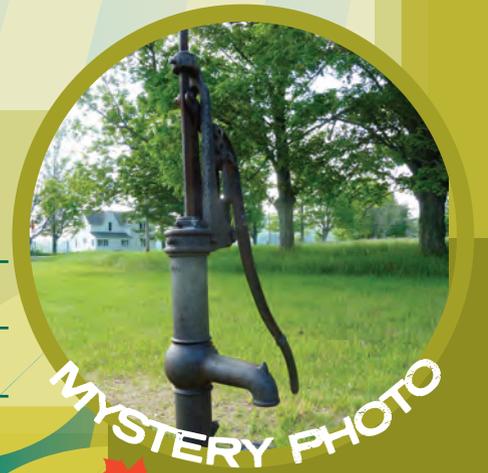
■ Preserving Port Oneida

Visiting the Port Oneida Rural Historic District is like taking a step back in time. The farm buildings, fields, and trees are the same ones that the farmers built, cleared, and enjoyed the shade from almost 100 years ago.

Explore the area. Then find a place that you like and take a moment to sit or stand quietly and take in the sights and sounds of the landscape. Draw or write a poem about something you see here that you do not see at home.

Now close your eyes and imagine that Port Oneida was not preserved. What would you see and hear at this spot? A mall? An expressway? A subdivision? Draw or write about the unpreserved Port Oneida.

Do you think it is important to preserve this cultural landscape forever? Why or why not?

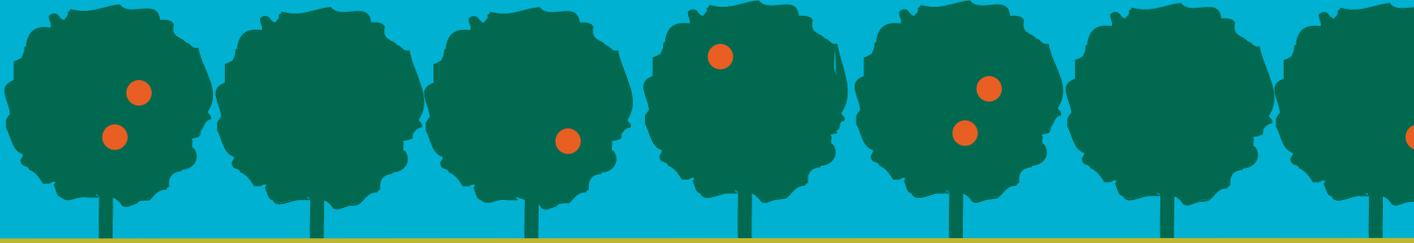


What is this called?
What is it used for?

■ Meet the Olsens

Visit Preserve Historic Sleeping Bear at the Olsen House in Port Oneida to learn more about life on the farm.

What did you enjoy most about this farm?



■ A day on the farm

Life on the farm was a lot of hard work, but fun too. Write a letter home telling about your day on the farm. When you come to a blank space in the letter, pick a word from the word list and write it in the space. You can be as serious or silly as you want. Read your letter out loud to your family and/or friends when you are finished.

cows
milk
water
hay

maple
hoe
fish
beans

chickens
rocks
elephants
eat

pineapples
cornflakes
manure
plant

ice cream
worms
pull
caterpillars

skunks
bears
cacti
chocolate

Dearest Mother and Father,

I am having a good time at Aunt Hattie's farm in Port Oneida. We have a lot of chores to do with our cousins. This morning we helped Uncle Charles in the dairy with the _____. One almost knocked over a pail of _____. Then we had to give the horses their breakfast of _____. We did all of this before we ate our pancakes with _____ syrup. Before we went swimming in Lake Michigan this afternoon, we had to _____ the weeds from 10 rows of _____. We caught _____ for dinner. Can I stay here all summer?

Here is a picture of the dirtiest chore I have to do.

Love,

Pitcher perfect

Pitcher's thistle is a special narrow-leaf plant that grows only on the beaches and sand dunes of the Great Lakes. Pitcher's thistle is a threatened species that takes 5-8 years to flower, flowers only once in its lifetime, and needs to be surrounded by bare sand to drop its seeds.

The piping plover is an endangered bird that nests on pebbled beaches in Sleeping Bear Dunes National

sand

pop bottles

dunegrass

human food

water

pets

rocks

candy wrappers

sunshine



Which leaf has fewer leaflets, wormwood or Pitcher's thistle?

Take charge

Pets and pop bottles aren't the only dangers for the Pitcher's thistles. Other plants threaten them as well. In fact at Sleeping Bear Dunes, non-native invasive plants and animals are the single biggest threat to our native freshwater, forest, and dune habitats. One non-native plant

threatening the park is baby's breath, a flower grown in gardens and used in flower bouquets. But in the park, it grows vigorously and overtakes the dunes, spreading everywhere, and taking all the nutrients from native plants.

What can you as a Junior Ranger do to help prevent the spread of baby's breath and other invasive plants in the Lakeshore? **Check all that apply.**

- Clean bike tires after a ride
- Pick wildflowers
- Buy only native plants for your garden
- Feed the park animals
- Clean the dirt out of your shoes after a hike
- Throw trash on the ground
- Clean your boats before putting them into a lake
- Volunteer with the Lakeshore

What else can you do to help protect the Lakeshore's plants and animals?

I spy

There are cool things to discover all along the Pierce Stocking Scenic Drive. Use your powers of observation to find these special sights and answer the questions.

Leaves of three, let it be. What plant is this?

Can you spot some on the scenic drive? Where?



 The dunes up here are called perched dunes because they sit on top, or are perched, on a high hill.



post 3: Can you see Lake Michigan off in the distance? What is the difference between an ocean and this lake?

Did you know that Picnic Mountain (post #3) is the biggest dune in the park? There's lots of sand beneath that grass!



post 2: Can you see the hill named after a reptile? (The reptile is not one you'll find in this area) What is the hill's name?



post 10: Can you spot the mother bear mentioned in the legend? What do you think might happen to her?



post 1: Can you spot the covered bridge? What is under the bridge? What is the sign on the covered bridge?



post 9: Lake Michigan is the biggest lake found entirely within the U.S. boundaries. If it's clear enough, can you see Wisconsin across the water? Why or why not?



post 11: Can you see where North Bar Lake connects to Lake Michigan? Is it an open channel or a closed sand bar today?

■ Nature journaling

Many people record their outdoor discoveries in nature journals—writing words and drawing pictures about the weather, plants, animals, and insects. Journals help us look closer and remember better what we have seen. Try these journal exercises here in the Lakeshore. Start a new journal when you get home.

Contour drawing

Find a natural object such as a feather, acorn, or stone. Place your pencil on this page. Looking only at the object, begin drawing an outline of your object without looking down at the page. Make one continuous line.

Do not lift your pencil from the paper until you're done. How did you do? Try it again with another object.



Listen up

Sit in a quiet place and close your eyes for a minute. Write down the first five sounds you hear. Were they natural or human-made? Loud or soft? Familiar or new to your ear?

Weather observation

What is the temperature today? _____

What do the clouds look like? _____

Is there any precipitation? _____

How windy is it? _____

 Remember all plants are protected in a national park. Want a bouquet? Don't pick! Instead, take digital pictures of flowers. Or, take pictures of different trees for a bark bouquet. Bring your camera when you go for your badge, and show the ranger your digital bouquet!

■ Fun in the Lakeshore

No matter what the season, there is plenty of fun to be had at Sleeping Bear Dunes National Lakeshore. Climb, hike, camp, swim, boat, float, sunbathe, ski, or roll your way to adventure!

What did you do while here? _____

Cut out the pictures below to make a souvenir mobile (instructions on the next page). Use the blank picture on back to draw or write what you enjoyed most during your visit.



To make the mobile, follow these instructions:

Materials needed: | **Directions**

wire coat hanger or twig
scissors
hole punch
string or yarn

1. Draw, color, and cutout the pictures below. You can also add other items from your visit: postcards, drawings, brochures, patches, poems, or stories.
2. Punch one hole near an edge of each shape.
3. Cut string or yarn into different lengths, and tie one end of the string to the item.
4. Hang up the coat hanger or twig. Tie items on the hanger one at a time, deciding how to shift their weight until the mobile is balanced.



Draw a picture of what you did here



The park in the dark

In the legend of the Sleeping Bear, the Manitou Islands represent the bear cubs. But there are also two bears in the sky: the constellations Ursa Major and Ursa Minor (Latin for Great Bear and Little Bear). Within these two official constellations are two familiar **asterisms** (mini-constellations/star patterns)—the Big Dipper and the Little Dipper!

create an asterism

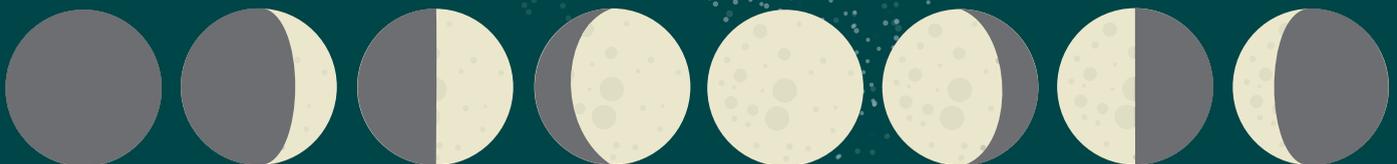
People have always used their imaginations to group stars into constellations. Can you make your own asterism? Draw lines in this circle to connect the stars (and even add more if you want) and make them look like something. Give it a name, and label it under the picture

stargazing

Sleeping Bear Dunes and other national parks are great places for stargazing. If you are here on a clear night, look up at the night sky. Can you find the dippers in the sky? Is the sky this dark at home?

Why might it be different?

Now look at the moon. How much of it can you see? Circle the phase the moon is in.



new moon

waxing crescent

first quarter

waxing gibbous

full moon

waning gibbous

last quarter

waning crescent



What's next?

Visit more national parks

Most national parks have a Junior Ranger program of their own. Whenever you visit a national park, ask how you can become a Junior Ranger there. How many badges will you collect?

Become a Web Ranger

Can't visit another park? Want to continue learning from home? WebRangers is a National Park Service site filled with online activities for kids of all ages.

Visit www.nps.gov/webrangers to start earning a special patch via the internet.



We'd love to hear from you. Tell us about your experience. Go to www.nps.gov/slbe and contact us; or call us at 231-326-4700.

If you didn't finish your book while in the park, take it home, complete the necessary tasks, and send it back to the rangers at the following address:

Sleeping Bear Dunes National Lakeshore
9922 Front Street
Empire, MI 49630.

We'll send your book back to you along with your award.

