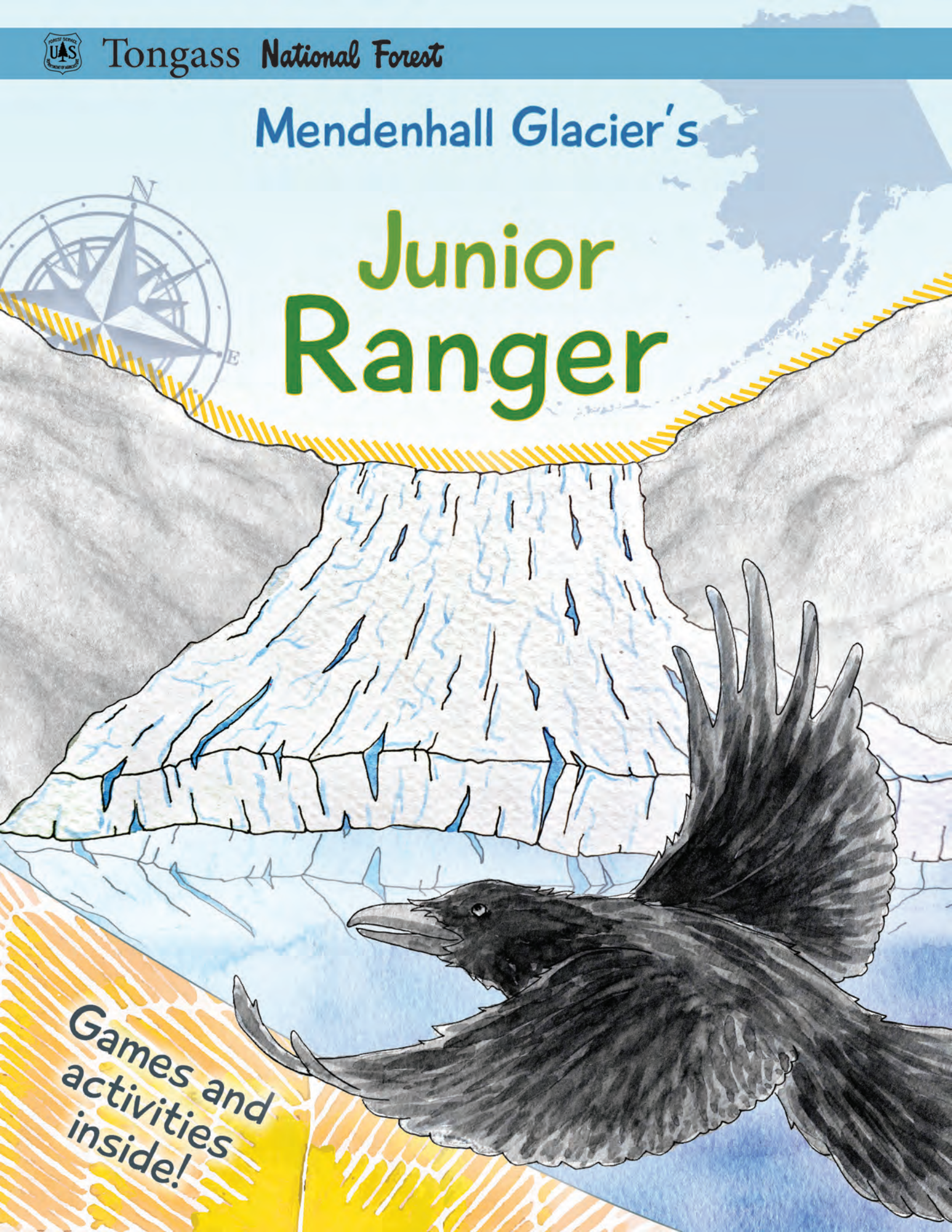
Tongass National Forest

Mendenhall Glacier's Junior Ranger



Games and activities inside!

What's a Junior Ranger?

As a Junior Ranger you...

Explore the land around you.

Learn about plants, animals, and culture in southeast Alaska.

Protect land and water through your words and actions.

How to Become a Junior Ranger

Follow these 2 Easy Steps to earn your patch!

1. Complete 4 activities in this booklet AND the 'Ask a Ranger' activity below.
2. Find a ranger and complete the Junior Ranger Pledge.

Hi! I'm Yéil the raven! I'll be your guide. Look for me throughout the book. As you go through the book see if you can figure out what my name means.

Ask a Ranger

Find a ranger on your visit and ask them a question.

Ranger's Name _____

Question _____

Answer _____

_____

Everything is Connected

If you play connect-the-dots, everything at Mendenhall Glacier is connected. The glacier carves the landscape and makes room for plants to grow. The plants provide food and shelter for wildlife. We all get to explore and help take care of this amazing place. As you work on becoming a Junior Ranger, think about how Mendenhall Glacier is connected to each activity.

Key

Activity Levels

- Easy
- Medium
- Hard

Look for these symbols in the top right corner of each page.

(This illustration should NOT be used as a map.)

MAP

Please check the visitor center or information kiosk for a full map.

Yéil's Glacier Journey

Join Yéil on a journey over the Mendenhall Glacier. First, fill in the blanks. Then, read the story aloud to a friend or family member.

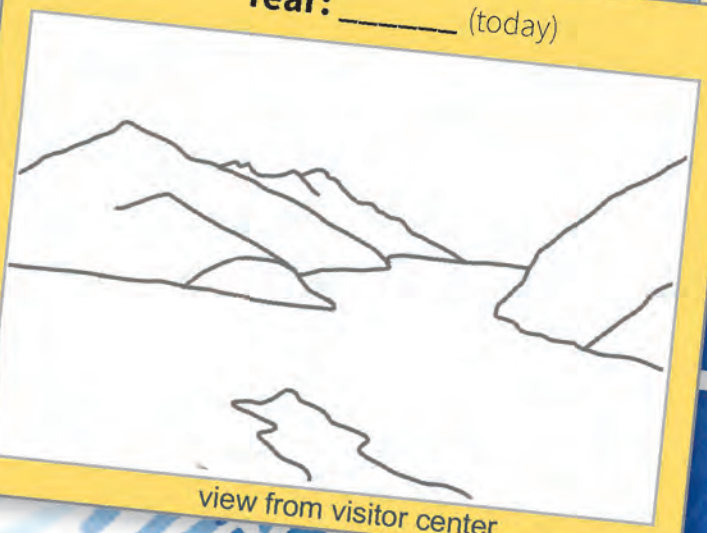
Yéil was sitting on the top of a tall tree by the visitor center when it stretched out its wings and started flying towards the glacier. Yéil flew across the lake where the water looked like _____ (liquid that is hard to see through). The water looks like that because rocks are ground together by the glacier, creating silt. Icebergs as clear as _____ (something clear) float in the lake and melt into funny shapes. One looks like a _____ (animal). Yéil flew towards the face of the glacier when all of a sudden there was a sound like _____ (something that roars). A large chunk of ice the size of a _____ (something large) fell from the glacier into the water! _____ (exclamation)! That was close. Yéil flew up higher along the surface of the glacier. Looking below, there were deep cracks, or crevasses, with ice as blue as _____ (something bright blue). The glacier ice flows down the valley like _____ (a liquid that moves slowly). The glacier has carved the mountains like a _____ (a machine that moves things). Yéil flew upward. At the top of the glacier there was a field of snow as white as _____ (something bright white). This place is the Juneau Icefield, the birthplace of the glacier. Snow that falls here compresses into glacial ice. What a journey!

A Changing Glacier

Imagine being covered in a mile of ice. Many years ago the glacier covered the exact spot where the Visitor Center is. Did you know the Mendenhall Glacier has shrunk over 3 miles in the past 250 years? That's a lot of change! In your lifetime it's melting fast. Below, draw the glacier today then guess what it might look like in 50 years.

Year: 1950's

Year: _____ (today)



view from visitor center

Year: _____ (50 years from now)

Scientists don't know everything that is under the glacier. What do you think is there?

If you have more questions about this melting glacier, ask a ranger.

A Salmon Forest

Word Bank

bears
fertilize
migrate
salmon
soil
trees

START HERE

Scientist have discovered evidence of fish in the forest's trees. How is that possible!? Follow along in the salmon cycle. At each stop unscramble a word to complete each sentence.

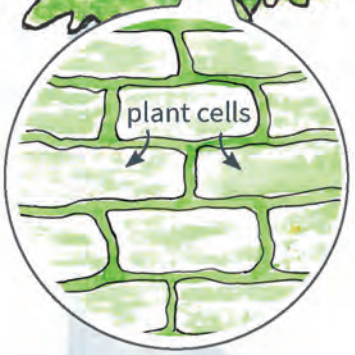
1. Every year millions of wild NALMOS _____ leave the ocean and return to their spawning streams across the Tongass. Spawning streams are streams where the salmon are born.

2. Adult salmon spawn. Female salmon lay eggs and male salmon TIZERFEIL _____ the eggs.

Look for adult salmon late summer to early fall.

3. Wolves, river otters, birds and RASEB _____ carry salmon into the forest to feed.

4. Nutrients from the fish filter down into the OLIS _____.



5. Scientists have discovered a marine nutrient, Nitrogen 15, in ERSET _____ near spawning streams. This nutrient is brought into the forest by the salmon. After all, you are what you eat!

6. The fertilized salmon eggs hatch and the young salmon TREAMIG _____ to the ocean. The cycle continues.

Ocean

Temperate Rainforest

Did you know that you are in a rainforest!? It's not a tropical rainforest with monkeys and toucans. You are in a **temperate** rainforest. Temperate rainforests are much cooler than tropical rainforests but just as wet. Explore the forest and report what you find.

Weather

Some areas of the Tongass National Forest get drenched by over 100 inches of rain each year! That is over eight feet of rain. What is the weather like today? *Today, I see...*

Rain

- ☐ Strong rain
- ☐ Drizzle
- ☐ Mist
- ☐ No rain

Clouds

- ☐ Completely cloudy
- ☐ Partly cloudy
- ☐ Fog
- ☐ Clear sky

Temperature

- ☐ Cold
- ☐ Warm
- ☐ Hot

Plant Smells

Temperate rainforests have a lot of plant matter, or biomass. All of that plant matter creates fragrant smells. Smell the following things -

- ☐ The air
- ☐ A tree trunk
- ☐ A leaf

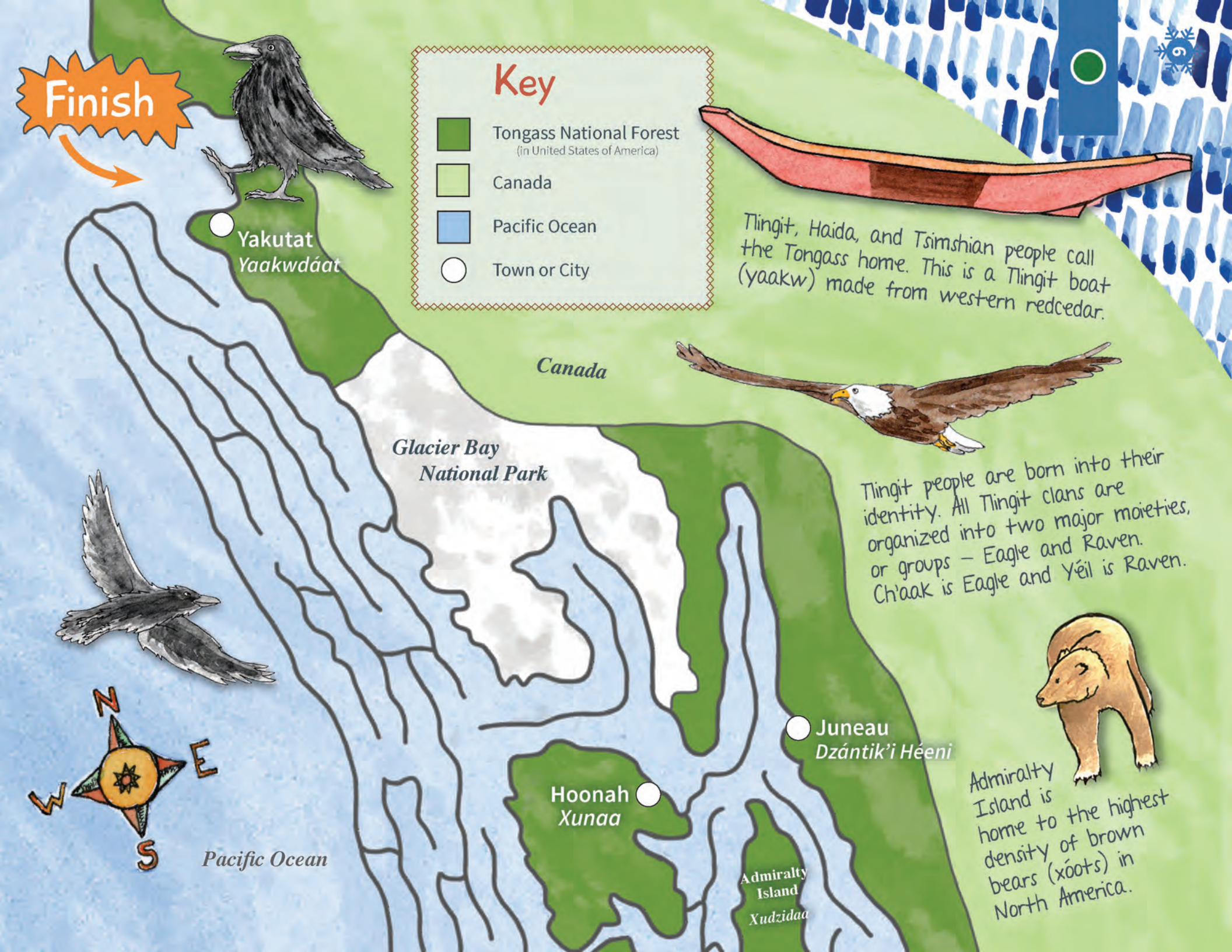
Moss

Mosses need to live in wet areas. Check out the rock outcrops around the visitor center. Look at the colors, shapes, forms, and patterns of the moss. Find a moss and circle the words that describe it.

dry fragile
cool moist
soft sharp
hard

Draw an interesting moss that you see.

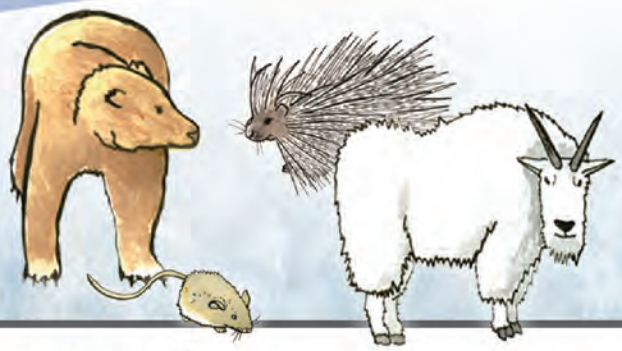
Sitka
Sheet'ká
Petersburg
Gántiyaakw Séedi
Wrangell
Kaachýaxa.áak'w
Prince of Wales Island
Thorne Bay
Craig
Sháan Séet
Ketchikan
Kichxáan
Tongass National Forest
You are in the largest temperate coastal rainforest in the world!
Humpback whales (yáay) spend their summer in the bays here and migrate south in the winter to have their young.
Look for the Tlingit words for the towns and animals on this map. Try to say them out loud.
Did you visit a town or village that isn't on the map? Add it in!
Adventure
in the Tongass
At nearly 17 million acres, there is a lot to explore across the Tongass National Forest. Join Yéil on an adventure from South to North.
Start
8


Finish
Key
Tongass National Forest
(in United States of America)
Canada
Pacific Ocean
Town or City
Yakutat
Yaakwdáat
Tlingit, Haida, and Tsimshian people call the Tongass home. This is a Tlingit boat (yaakw) made from western redcedar.
Canada
Glacier Bay
National Park
Tlingit people are born into their identity. All Tlingit clans are organized into two major moieties, or groups – Eagle and Raven. Ch'aak is Eagle and Yéil is Raven.
Juneau
Dzántik'i Héeni
Hoonah
Xunaa
Admiralty Island
Xudzidaa
Admiralty Island is home to the highest density of brown bears (xóots) in North America.
N
E
S
W
Pacific Ocean

Voices of the Land)))

People from many cultures call the Tongass home. Every group uses their own language to describe this land. Tlingit, Haida, and Tsimshian voices have been heard here the longest. The name "Tlingit" translates to "People of the Tides". Use the nature icon chart below to translate two Tlingit words into English.

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



atgutu.ádi

(pronounced "ah - gu tu - ah -de")

What is your favorite **atgutu.ádi**?

_____

hintaak.ádi

(pronounced "heen-tak-ad-i")

What is your favorite **hintaak.ádi**?

_____

What's In The Trees

What could be happening right over your head?

Birds aren't the only creatures we see in trees. Pretend to be some of the critters that spend time high above the ground. Be safe and stay on the ground while doing these activities.

Black Bear Race

Mother bears teach their cubs to climb trees to escape danger.

- [ ] See how fast you can "walk like a bear" in 10 seconds.

Red Squirrel Jump

Red squirrels look for nuts and berries in trees. Look and listen for squirrels jumping tree to tree.

- [ ] Try a standing long-jump and see how far you can go.

Porcupine Balance

Porcupines spend time in trees because they eat the leaves. They use their tail to keep their balance.

- [ ] Walk in a straight line, placing one foot directly in front of the other for 15 steps.

Plant Scavenger Hunt

As a glacier melts, bare rock is exposed. Plants begin to take over the rocky land in a special order. From the smallest forms of plant life to the tallest trees, each takes its turn in this process. This is called plant succession. Can you find a plant from each stage?

1 Moss and Lichens

Moss

Lichen

3 Shrubs

Willow

Alder

What's lichen?! Some algae and fungus work together to create an organism called lichen. Look for it on rocks.

2 Pioneer Plants

Dwarf Fireweed

Lupine

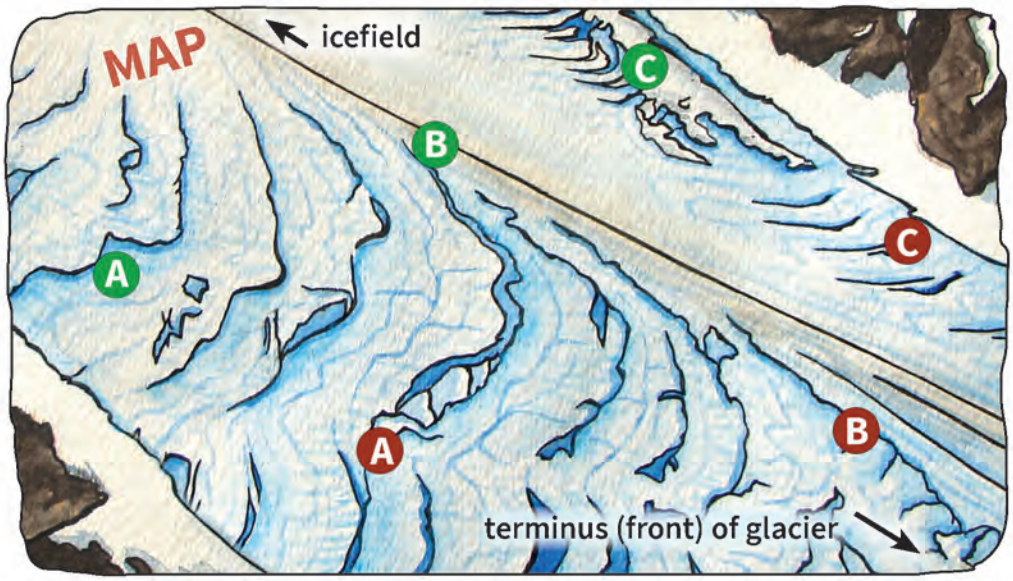
4 Tall Trees

Cottonwood

Sitka Spruce

Glacier Science

Every summer a group of students, professors and scientists do research on the ice. The group is called JIRP (Juneau Icefield Research Program). JIRP participants do several measurements to understand if the glacier and icefield have gained or lost mass in a year. For this activity, imagine you are a JIRP researcher. In the spring you place several large metal poles into the ice and record the locations. When you return in the fall you measure how far the ice has moved. Use the map and key to answer the questions below.



What is glacial ice?

1. How many feet did each pole move in 5 months?

Pole A	Pole B	Pole C
_____	_____	_____

2. Did the poles move the same distance or different distances?

3. Why? (hint: think about the rocks)

_____

_____

_____

Map Key

- pole in April
- pole in September
- = 50 feet

How does this research help?
This and other research help determine how much glaciers are melting. Glacier melt contributes to sea level rise.

photos by University of Alaska Southeast

Bird Pretender

There are many different bird habitats around Mendenhall Glacier. Some birds spend the summer here while others stay year round.

Step 1: Read the bird profiles and pick one to write a story about.

The Villager

Dark-eyed Junco

Junco hyemalis

Favorite Foods: Mostly seeds, sometimes insects.

Style: Black head, brown back, white outer tail feathers.

Where to Find: On or near the ground looking for seeds.

Fun Fact: Juncos spend their winters together in flocks. They can also be seen foraging with other birds, like chickadees and nuthatches.

The Traveler

Arctic Tern

Sterna paradisaea

Favorite Foods: Small fish, crustaceans, and insects.

Style: White with black cap and bright orange beak.

Where to Find: Flying across the lake & diving to catch fish.

Fun Fact: Arctic Terns travel up to 25,000 miles from its Arctic breeding grounds to its wintering grounds off of Antarctica!

The Icon

Bald Eagle

Haliaeetus leucocephalus

Favorite Foods: Mostly fish, also birds and small mammals.

Style: Brown with yellow beak, white head and tail.

Where to Find: On an iceberg, near the water's edge, or in a tree.

Fun Fact: Immature (young) eagles are dark brown. A bald eagle doesn't have bright white head feathers until it is about five years old.

Step 2: Pick one of the story ideas below and write about your bird's day.

Find food • **Run into a predator** • **Get caught in a storm** • **See a human**

Love Your Glacier Bingo

Show your love! The choices you make every day can help protect the health of our planet, including the land and water around you. Check the things you already do and circle the things you will do in the future.
You WIN if you find 4 in a row, 4 corners, or all 16!

Walk, bike or use public transportation (with adult supervision)	Recycle	Eat local food	Compost
Practice Leave No Trace	Take short showers	Share your Mendenhall Glacier experience with others	Turn off lights when not in use
Learn about your local plants and animals	Write your idea!	Learn about local cultures	Unplug electronics when not in use
Use reusable water bottles instead of plastic	Fix something instead of buying new (with adult supervision)	Use cloth instead of paper for napkins and towels	Wear layers inside in the winter to stay warm

If you have a question about how an activity helps the planet, ask a ranger!

Junior Ranger Pledge

As a Junior Ranger I, _____,
promise to help protect Mendenhall Glacier,
my community, and the earth.

I will explore the natural world
and discover other cultures
wherever I go.

_____
(Ranger)

_____
(Date)

This publication was made possible by
Alaska Geographic in partnership with the Tongass National Forest.
Produced by Mendenhall Glacier Visitor Center
& Elise Wahl | Timberdoodle Studio.

Alaska Geographic

FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE

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Printed in Canada.
Made with 100% Renewable Energy.