Keweenaw National Historical Park

Junior Ranger Book

Welcome!

Keweenaw National Historical Park Junior Ranger Program

The Park is a very special place! As a Junior Ranger you will learn a lot. Have you ever…

- Visited an underground mine?
- Studied rocks and minerals?
- Learned about your heritage?
- Studied old buildings and ruins?

The park is filled with stories, adventures, and fun places to explore!

Junior Rangers are important people. They help park rangers by learning about the history of the park while exploring and protecting what remains. Becoming a Junior Ranger is hard work, but also a lot of fun. If you are interested, read on!

How to become a Junior Ranger

If you are 8 years of age or older, here is what you need to do to become a Junior Ranger.

Stage 1

Complete 8 of the 16 activities in this book. Show your work to a ranger and receive a 'Junior Ranger Explore-Learn-Protect' sticker.

Stage 2

Complete 12 of the 16 activities in this book. Show your work to a ranger and receive a badge to display as you please! Rangers are located year-round at park headquarters in Calumet.

Parents – you can help your child enjoy the activities too.

Meet Rusty and Digger

Hi! My name is Rusty and this is my friend Digger. I am interested in becoming a Junior Ranger too! My great-great-great grandfather was a copper miner. He and his family lived in this area in the 1890's. Stories about the Keweenaw Peninsula's copper mining days were passed down to me and I want to learn more.

So come along with us as we explore the area's history and become Junior Rangers. (By the way, Digger is quite curious and adventuresome at times. So if she gets a little ahead of us – just let her go. We'll catch up eventually.)

Fun Facts

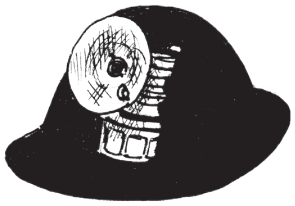
- Digger is a red fox.
- The red fox is in the dog, coyote, and wolf family.
- They live and hunt in fields and open woods.
- Foxes eat snakes, mice, and rabbits.
- They have babies in dens.
- Baby foxes are called kits.

Learn!

Good explorers keep records of what they see and learn. Taking pictures, drawing sketches, and writing are important. By doing this, we leave things as they are and others can enjoy them too! Protecting the park's history is one of the most important jobs of park rangers. Let's use the journal to help guide our visit.

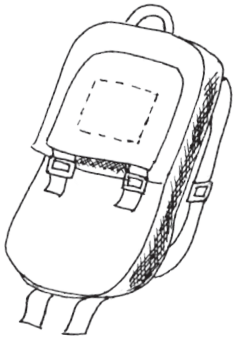
The symbols below will also be our guides.

Helmet means **Protect**



Lantern means **Explore**

Backpack means **Learn**



National Park Service Motto

"The National Park Service cares for the special places saved by the American people so that all may experience our heritage"

Journal

Name one place you want to explore while visiting the park.

Name one thing you want to learn about the park.

Name one thing you want to protect at the park.

Create Your Own Motto!

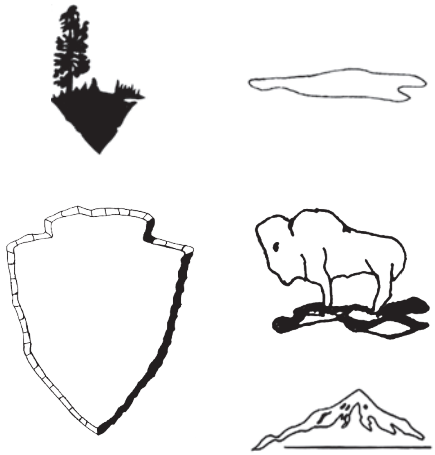
_____

_____

The Arrowhead

The arrowhead is the emblem for the National Park Service. It is found at park information centers. Rangers also wear it on their uniforms. Each item on the arrowhead means something special. All items are protected at all national park sites.

Look at the design of the emblem and find the items that fit in the blanks below.



_____ Represents **land formations**

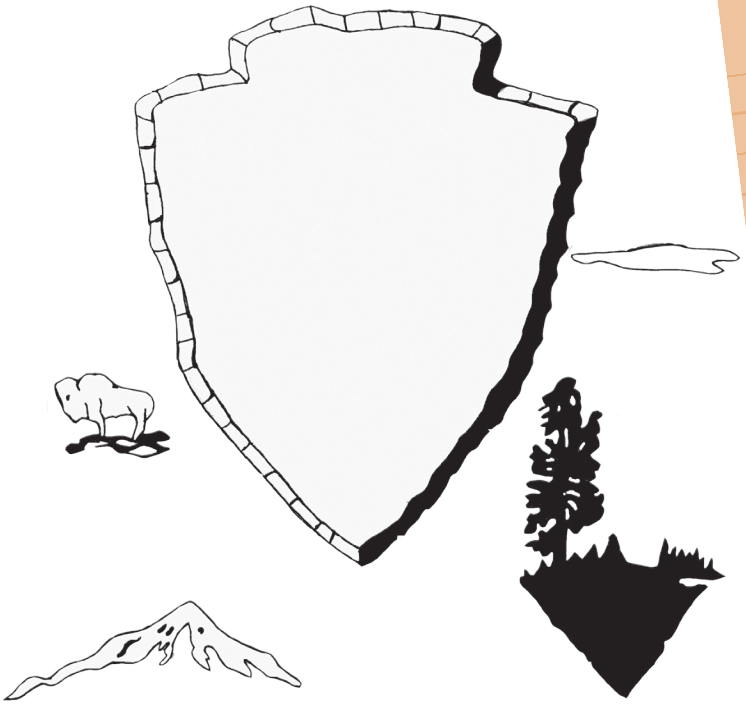
_____ Represents all **waters**

_____ Represents all **animals**

_____ Represents all **plants**

_____ Represents **history**

Below is an outline of the arrowhead. Draw each item within the arrowhead.



Journal

In the space below, draw your own emblem of something you care about.

Park Introduction

Keweenaw National Historical Park has its own emblem. It represents the people who once worked here. It also represents the mining buildings that remain today. Lastly, it represents the northern climate and the northern lights.

Fill in the black shaded areas of the emblem

Today, Keweenaw National Historical Park preserves the history and heritage of copper mining. The park also preserves the many stories associated with copper: stories of human struggle, ingenuity, vision, and conflict.

What is a Park Ranger?

National park rangers wear many hats. They fight wildfires, help visitors, talk to school groups, and do scientific research. Rangers at Keweenaw National Historical Park also wear many different hats.

Draw a line to match the ranger's job with the correct description.

Ranger Job	Job Description
Archivist	Manages the park.
Historical Architect	Collects and saves historic photos, letters, documents, and objects.
Landscape Architect	Leads visitors on walks and tells them important things about the park.
Superintendent	Reads and writes about people and how they lived in the past.
Historian	Manages park money.
Maintenance Worker	Works to save old buildings. Makes plans to fix buildings.
Administrative Assistant	Works to save ruins and landscapes from the past.
Interpreter and Educator	Assists staff with paperwork and answers phones and visitor questions.
Budget Analyst	Keeps the park maintained and looking good.

Journal

What type of hat will Rusty choose?

Which ranger job would you like to do?

Why?

The First Copper Miners

For thousands of years, many different Native American Tribes came to the Keweenaw for copper. They used the copper to make fish hooks, knives, spear points, bracelets, and many other things. These items were used and traded far and wide.

The Ojibwe, or *Anishinaabe*, came here hundreds of years ago. In fact Keweenaw comes from the Ojibwe word meaning "place of the crossing" or portage. The Ojibwe value copper even today, both it's spiritual aspects and for it's utility. In the Ojibwe language, copper is called *miskwaabik*.

The Ojibwe people who came here still live in this region. Animals were spiritual creatures to the Ojibwe, and were respected for their attributes. Maybe you have seen a black bear, a loon, or even caught a whitefish.

Get to know the Ojibwe language by using words from the list to describe the animals and nature around you.

Ojibwe Words

ziigwan	spring
niibin	summer
biboon	winter
dagwaagin	fall
asin	rock
binesi	bird
giigoonh	fish
jiimaan	canoe
ma'iingan	wolf
maang	loon
makwa	bear
nibi	water
waawaashkeshi	deer
wiigiwaam	lodge
wiigwaasi-mitig	birch tree

Journal

What other languages or cultures have you learned about?

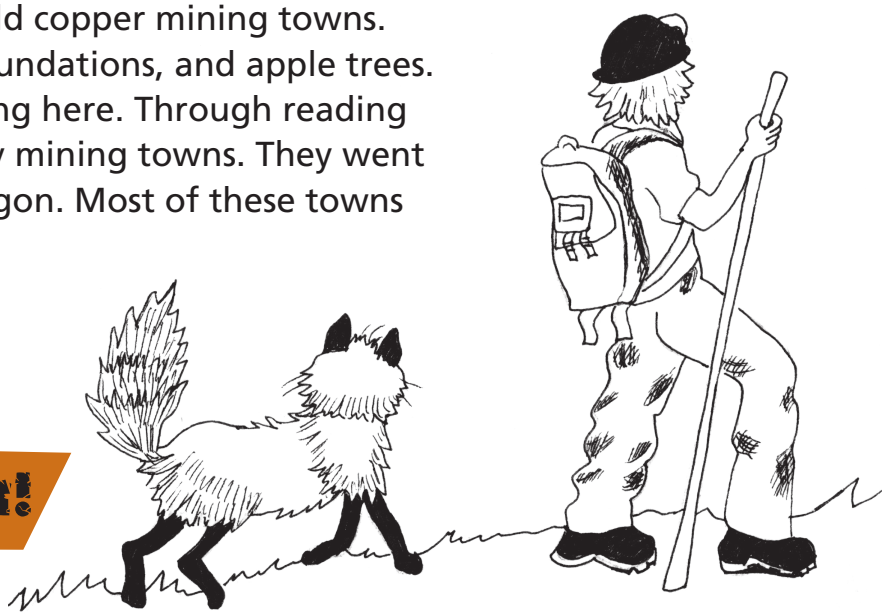
What type of wild animals have you seen? Where were you when you saw them?

Write a story using as many of the Ojibwe words as you can.*

*Words and spelling provided by Earl Nyholm Otchingwanigan, Keweenaw Bay Indian Community Tribal Elder

Mining Towns Galore!

Digger and I like to spend time exploring old copper mining towns. In the woods, we find cemeteries, house foundations, and apple trees. It's fun to imagine children living and playing here. Through reading books, I have learned that there were many mining towns. They went all the way from Copper Harbor to Ontonagon. Most of these towns no longer exist, but their stories remain.



Activity - Word Search!

Names may be forward, backward, diagonal, up, or down

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

Word Bank

Ahmeek
Boston
Calumet
Central
Cliff
Mohawk
~~Osceola~~
Painesdale
Phoenix
Allouez
Delaware
Houghton
Laurium
Mass
Rockland
Swedetown
Tamarack
Quincy

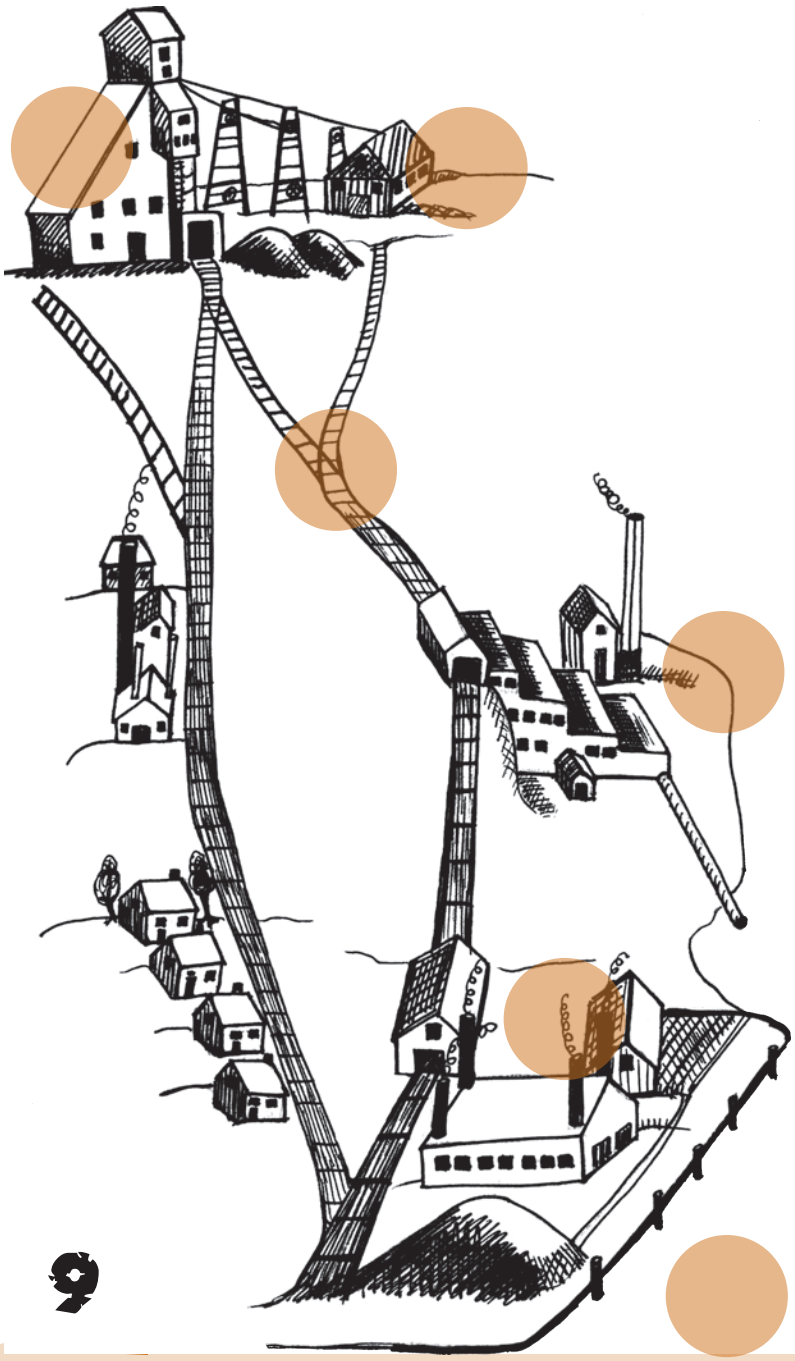
From Rock to Ingot

Processing Copper

Turning copper rock into pure copper takes a lot of work.

Activity

Match the number to the correct copper process.



Matching

1 Drilling and Blasting

Miners worked underground. They drilled holes and filled them with explosives. Once blasted, the copper rock could be hauled away. Miners rode man-cars in and out of the mine from the shaft-rockhouse.

2 Hoisting

Huge steam-powered drums with cables pulled skips (carts) out of the ground. These skips were filled with copper rock.

3 Transporting

Trains took the copper rock from the mine to the stamp mill.

4 Stamping

At the stamp mill, the copper rock was stamped into very small pieces.

5 Smelting and casting

From the stamp mill, the copper rock was sent to the smelter. Here, the copper rock was melted. Men then poured the melted copper into molds. As the copper cooled, it hardened into blocks called ingots.

6 Shipping

Ingots were sent to far away locations.

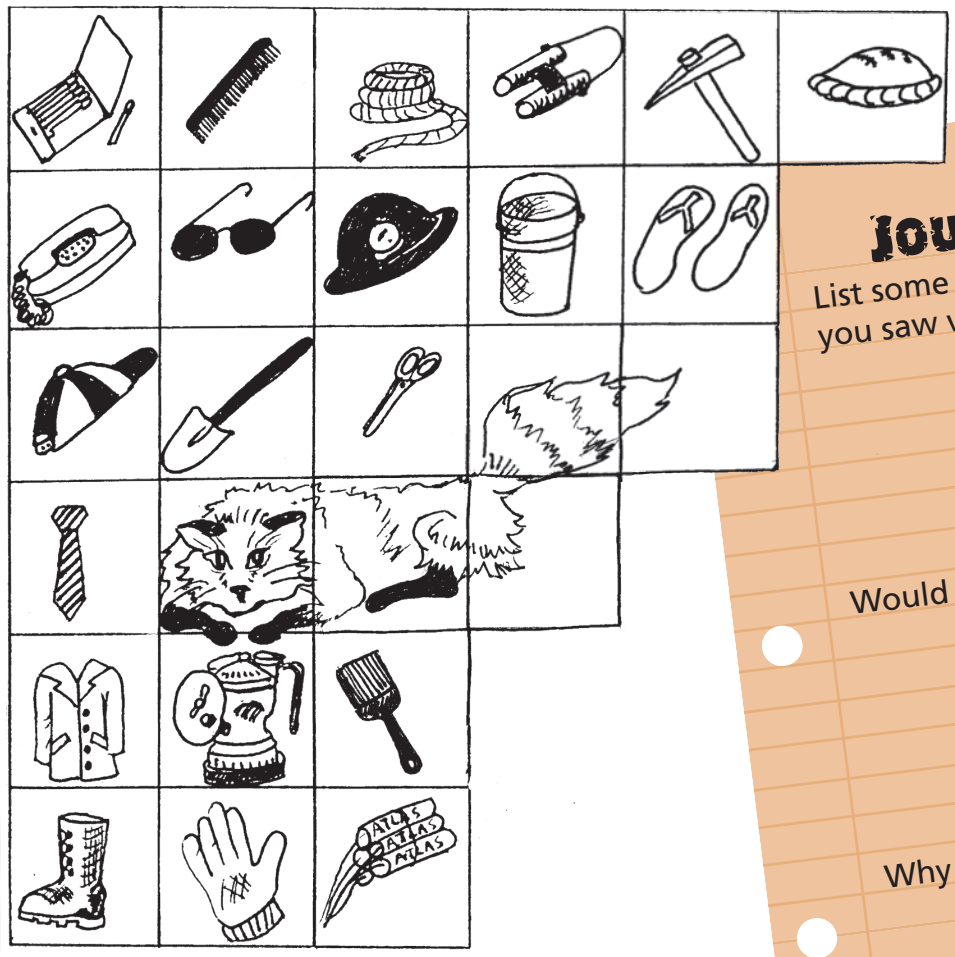
Miner's Supply List

Getting in and out of the mines wasn't easy. In the early days ladders were used. Later, man-cars (a box on wheels with benches) made the trip easier and faster, although it was still dangerous. Once underground, miners did not come back to the surface until the end of their shift.

Picture yourself as a copper miner in the early 1900's. There would be certain supplies and tools that you would need to take with you. (Digger seems to think you should take her underground.)

Activity

Circle the tools and supplies that a responsible copper miner would take down under.



Journal

List some of the items from the chart that you saw while visiting a mine.

Would you like to work in a copper mine?

Why or why not?

Shafthouses Stretching Skyward

What are the tall metal structures rising high into the sky? They are called shaft-rockhouses. These buildings were built over mine openings. Inside, men boarded man-cars and descended to their work sites. Skips hauled the mined rock up to the shaft-rockhouse. Here it was crushed, sorted, and shipped to the mill.

Match the label on the drawing to the correct definition.

Skip – metal box on wheels used to haul copper rock to the surface.

Rail tracks – parallel tracks for skips.

Cable – thick wire attached to hoist and used to pull skip from underground.

Rock bin - funnel like chute where copper rock fell into a railroad car.

Rock sorter – machine that separated pieces of copper rock.

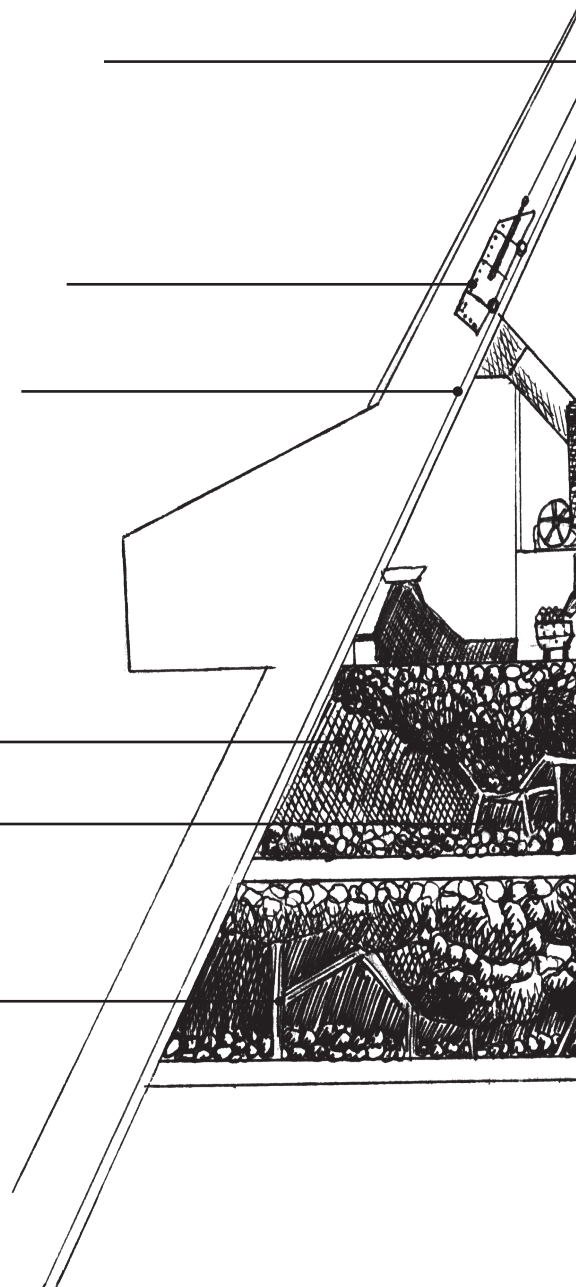
Railroad car – used to haul copper rock to stamp mill.

Skip dump – place where copper rock and mass copper was dumped.

Shaft – underground tunnel where trammers and miners worked.

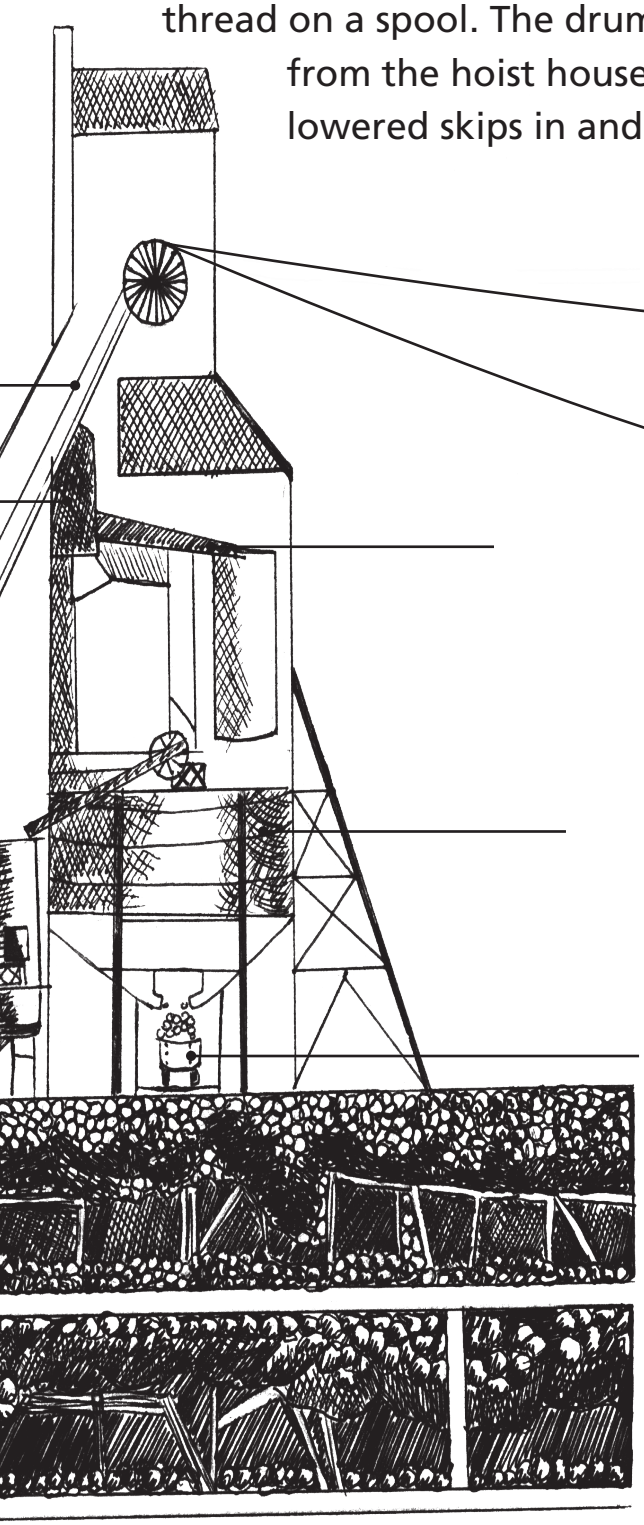
Stope – underground area where copper rock was removed.

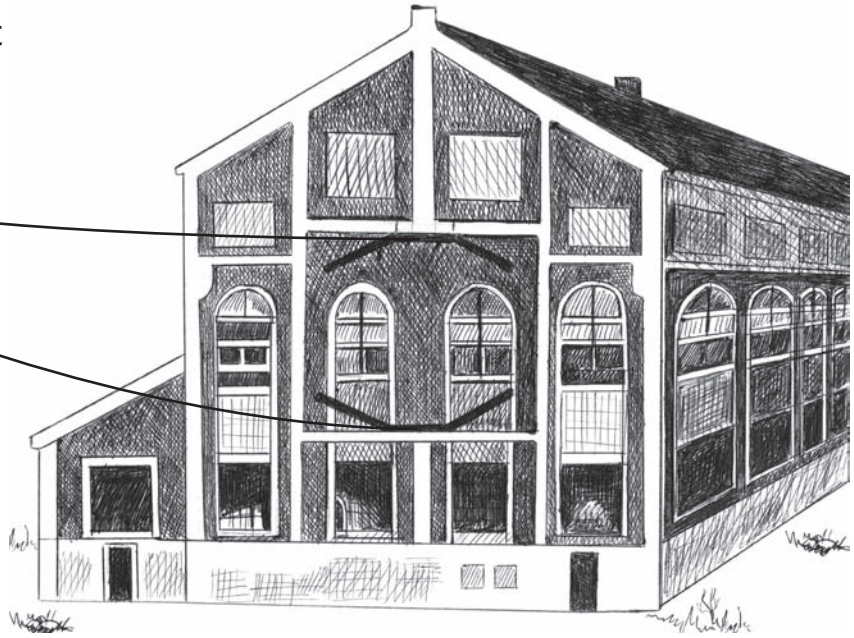
Timber – trees used to support the roofs and underground areas.



Hoist House

Inside the hoist house was a large steel drum. Wire cables wound around it like thread on a spool. The drum was turned by a steam engine. The cables went from the hoist house to the shaft-rockhouse. These cables pulled and lowered skips in and out





Journal

Shaft-rockhouses help tell the copper mining story.

Is there an old building near your house that should be saved?

Why?

Exploring The Underground

The underground was a busy place with blasting, drilling, and hauling. Men drilled holes into the rock. Dynamite was put into the holes and the rock was blasted away. The rock pieces were then loaded into tram cars and pushed by hand along rails. At the shaft, the rock was dumped into skips and hauled to the surface where it was sorted. It was a dark and damp place to work that required dedication.

Activity!

Take a trip with Rusty through the underground maze and get to the surface where Digger is waiting.

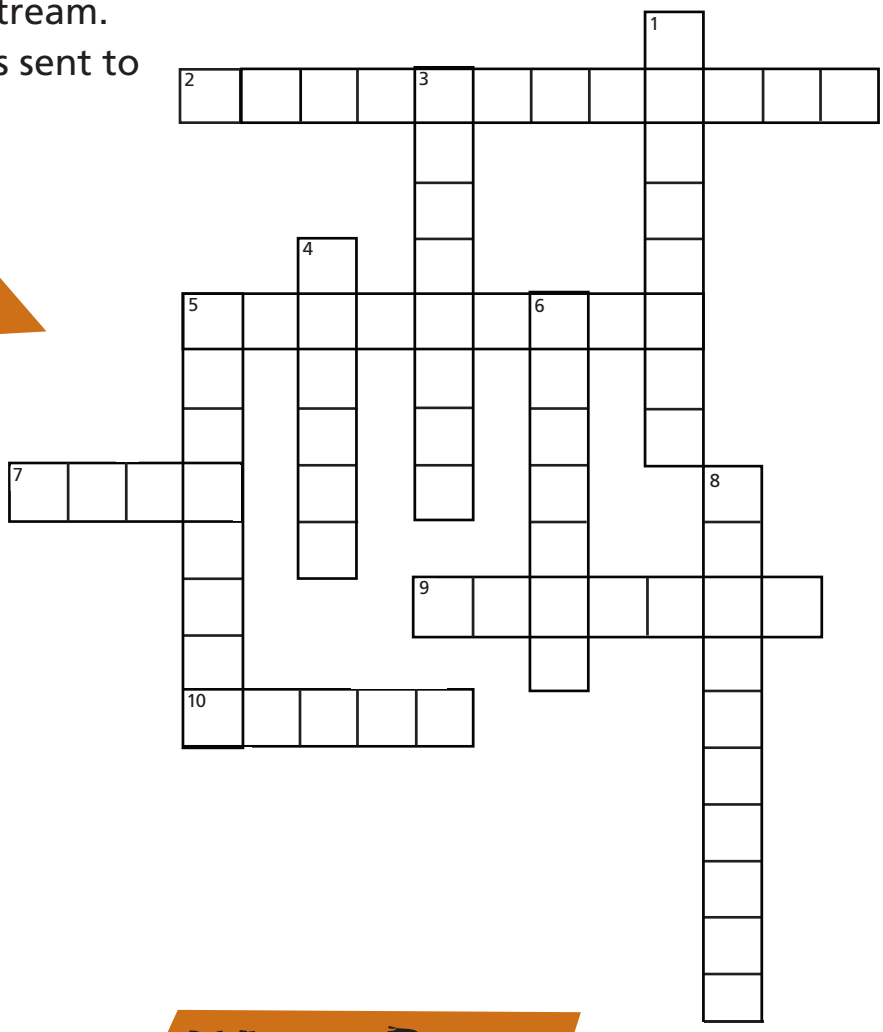
Journal

List at least three things that are mined underground today.

The stamp mill was a loud place to work with the constant pounding, crushing, sifting, and sorting. The copper rock was sent from the mine to the stamp mill. Here it was pounded into very small pieces, similar to sand. The copper was then separated from the rock by water - like panning for gold in a stream. After being separated, the copper was sent to the smelter.

Fun Fact

When the stamp mills closed, people couldn't sleep because of how quiet it was.



Crossword Puzzle

Across

2. Copper was washed and separated on a vibrating table called a _____ .

5. The shoreline of _____ was where most stamp mills were located.

7. _____ was used to heat the furnaces.

9. The _____ carried items from place to place.

10. The _____ was a large machine that acted like a hammer by pounding copper rock.

Down

1. _____ were wood and steel troughs that carried the tailings out to the lake.

3. The process where ammonia was added to dissolve copper was called _____ .

4. A _____ was used to make the lake deeper and dig up tailings.

5. _____ were also called waste sands.

6. A chemical called _____ dissolved copper when it was added to the stamp sands.

8. A person who feeds copper rock into a stamp mill is called the _____ .

Word Bank

tailings	stamp
coal	rail car
Torch Lake	head feeder
launders	Wilfley table
dredge	ammonia
leaching	

Smelting, Melting,

Imagine – copper rock melting! That's exactly what happened at the smelter. Giant furnaces heated the copper rock until it was liquid. Men used paddles to stir the molten mixture, which caused the copper to sink. The waste floating on the surface was called slag. This slag was skimmed off and sent to the slag pile – a large pile that looked like black molten lava.

The melted copper was tested for purity. Once it passed the test, it was poured into molds. These molds worked like a large ice cube tray. After hardening, the copper was removed from the mold and it was called an ingot. These ingots were loaded on ships and sent to far away cities. This copper was used to make pots and pans, wiring, and many other useful items.

Match the building description with the building footprint and map coordinates. (Not all of the buildings at the site are on the map.)

AB-1 Office building – the smelter manager worked here.

FG-9 Reverberatory furnace building (1898) – the place where copper was heated until it melted. Once melted, the copper sank to the bottom and the rest floated to the top. The stuff floating at the top was called waste or slag.

D-8 Cupola furnace building (1898) – the place where the slag was heated again to get even more copper out of the slag. Whatever was left floating was sent to the slag pile.

H-11 Dockside warehouse (1898) – ingots and supplies were stored here.

AB-10 Cooper shop (1898) – the place where barrels were made.

E-11 Charcoal house (1898) – charcoal used in the Assay Office was stored here.

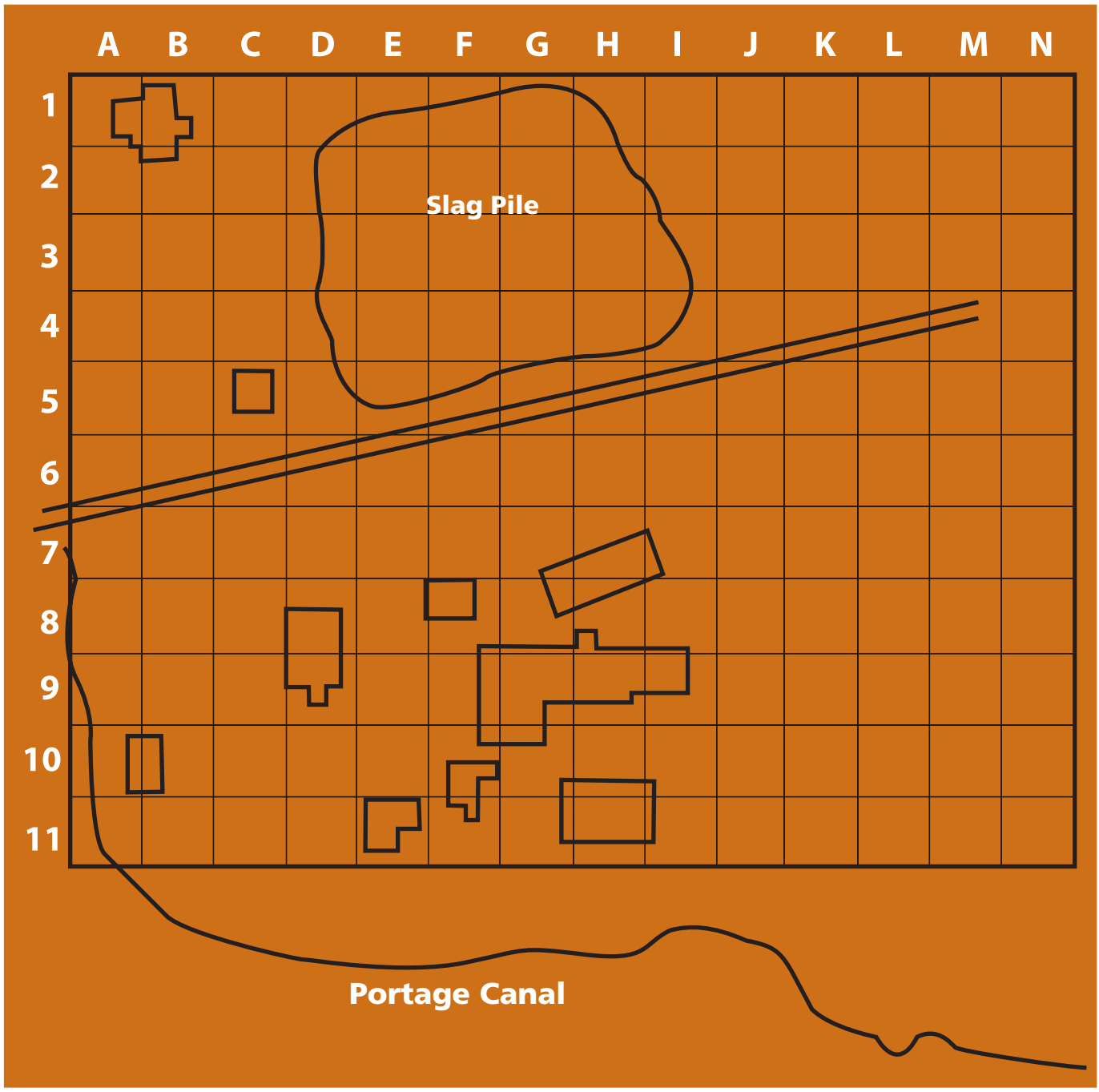
C-5 Barn – the place where horses were boarded.

F-10 Assay office (1898) – the place where the copper was tested for purity before it was poured into molds.

and Pouring

H-7 Mineral house – copper rock from the stamp mill was unloaded in this building before it was melted.

I-9 Casting plant (1920) – where melted copper was poured into molds. The casting plant was in the same building as the Reverberatory furnace building



Thingamajigs & Whatchamacallits

Copper is a valuable metal and people have used it for thousands of years. At one time, Michigan provided over half of the copper used in the United States. Copper was used in telegraph and electrical lines and in cars and planes. Copper entered our homes as plumbing, in refrigerators, and as pots and pans. Though its use has changed over time, Keweenaw copper has been an important part of America.

Can you help Rusty and Digger find the items made out of Copper?

Circle them as you go.

Fishhook	Pan	Spoon
Knife	Light bulb	Coin
Jewelry	Sheathing (ship bottom)	Button
Beads		
Vase	Plumbing	

Journal

Do you own anything made out of copper? If yes, what?

What did Thomas Edison use copper for?

What do you see?

What clues from the past help us understand our history? What is left when a mine closes? How does the landscape change over time? The answers to these questions can be found by exploring the park. A good place to visit is the former Calumet & Hecla industrial area near park headquarters.

Activity

1. Find something that grows out of the ground.

2. Find and draw (in the space below) something you could travel on.

Journal

During your walk, stop and stand still for a minute and answer the following questions:

What do you see?

What do you hear?

What do you feel?

What would happen if each park visitor collected a piece of copper?

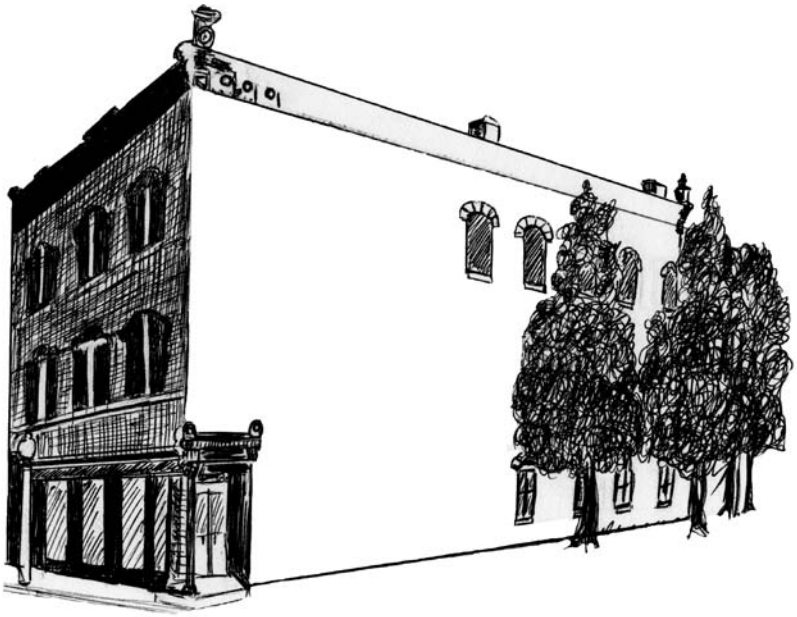
Special Note:

Junior Ranger programs are offered by park rangers during the summer months. Check the park newspaper for times and locations.

Historic B

Every building has a story to tell. When it was built, how it was built, and how it was used. Keweenaw National Historical Park owns five buildings. Each had a different purpose and each has a different look.

Visit at least two of the five park buildings. While looking at the buildings, draw the missing pieces and answer the following questions.



Union Building

Year built: 1889

Historic purpose: Meeting space on the 2nd and 3rd floors and stores on the 1st floor.

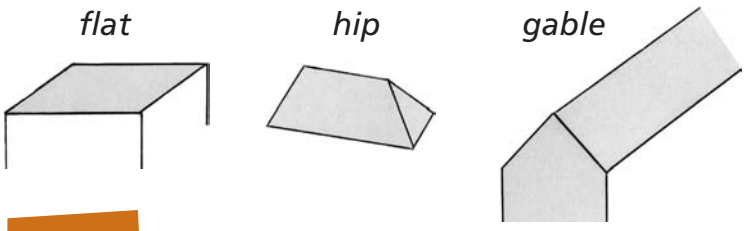
The cornice is the decorative piece (molding) along the top of the building. Draw a piece of the cornice and any other missing parts.

Administrative Offices (former Quincy Mine Office)

Year built: 1897

Historic purpose: Quincy Mine managers worked in this building.

What type of roof does the former manager's office have?



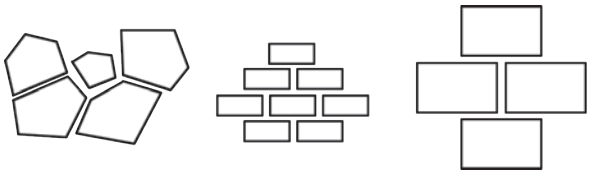
UILDINGS

Park Headquarters (former C&H General Office)

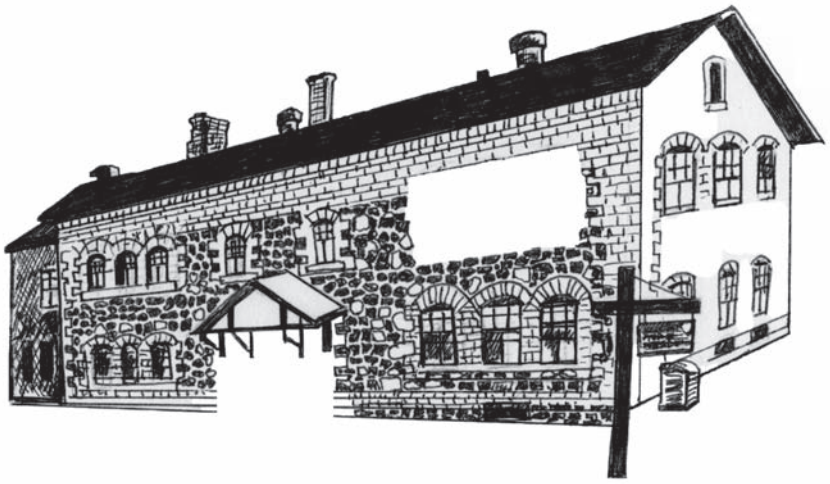
Year built: 1887 - expanded in 1900 and 1909

Historic purpose: Engineers, draftsmen, accountants, and managers for Calumet & Hecla Mining Company worked here.

What is the main building material for this building: stone, brick or sandstone?



stone *brick* *sandstone*



Warehouse #1

Year built: 1893

Historic purpose: Mining and building supplies were stored here.

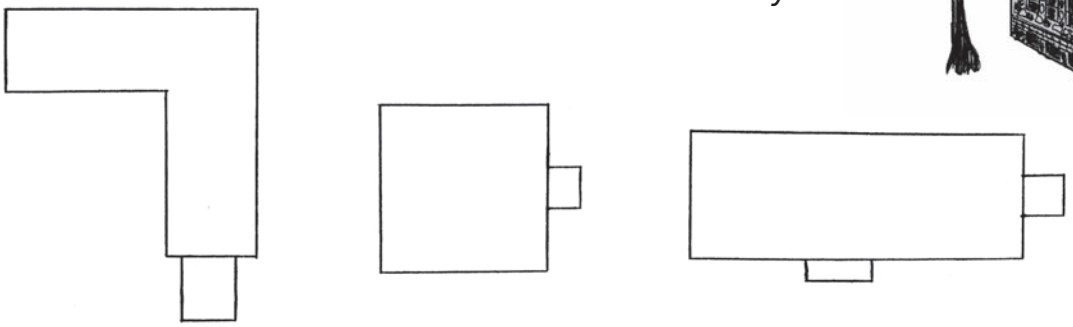
How many windows does the warehouse have? Why do you think the warehouse has so many windows?

Keweenaw History Center (former Calumet & Hecla Library)

Year built: 1898

Historic purpose: Originally a library with a bathhouse in the basement.

Circle the correct building plan for the former library.



Immigrants

For many people, the Keweenaw Peninsula was their first home in a new world. Immigrants came from Europe, Asia, and the Middle East. Many moved here between 1843 and 1914. They came to work in the booming copper industry and they brought their foods and customs with them. Some of those customs and foods still exist here today:

Pasty - Cornish meat pie
Pannukakku - Finnish pancake
Povatica - Croatian sweet bread

Fun Fact

Some schools had over 30 different languages being spoken in them!

Activity!

Fill in the circles with some of your family's traditional foods, songs, customs, clothing, and dances.

Journal

Have you ever moved to someplace new?

If so, what was it like?

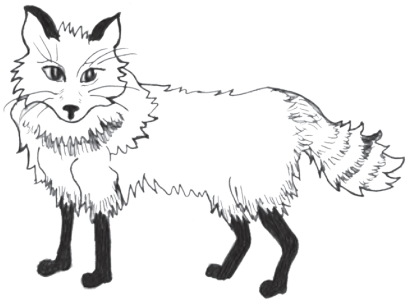
If not, where would you like to move to?

Why?

Congratulations!

Rusty and Digger have worked hard and so have you! Congratulations, you are now a Keweenaw National Historical Park Junior Ranger!

Please have your book reviewed and signed by a National Park Service Ranger. Park rangers are located at the Keweenaw National Historical Park Headquarters building in Calumet and at the Visitor Information Desk at the Quincy Mine Gift Shop (June-August only). If you can't meet a ranger, mail your book to:



Keweenaw National Historical Park
P.O. Box 471
Calumet, MI 49913

A ranger will sign it and send it back to you.

Junior Ranger Certificate

_____
(your name)

has completed all of the requirements to become a Junior Ranger at Keweenaw National Historical Park and pledges to **EXPLORE**, **LEARN**, and **PROTECT** all national parks.

_____
Park Ranger Signature

_____
Date

This Junior Ranger booklet was created through the partnership of the National Park Service (NPS), the National Park Foundation (NPF), and the Student Conservation Association (SCA) and was made possible through the generous support of Ocean Spray Cranberries, Inc., a National Corporate Partner of the National Park Foundation. To learn more about the online Junior Ranger program, visit www.nps.gov/webrangers.

Concept and text by Julie Dlubala

Illustrations by Joann Brusso

Design and layout by Finlandia University's International School of Art & Design Publications II class: Kylee Benson (lead designer), Stephanie Houseman, Victor Harrington, Joe Junttila, Bryan Russell, Kristi Fulfer, and Ray Peters.

Printed in USA on recycled paper with agri-based inks

If you have questions or comments about Keweenaw National Historical Park's Junior Ranger Program, write to

Superintendent
Keweenaw National Historical Park
P.O. Box 471
Calumet, MI 49913