# Welcome to Local Literacy Experiences!

Sponsored by Michigan Tech's IDEA Hub, Great Lakes Research Center, and the NSF MICARES project, this series was created in partnership by Valoree Gagnon, Sarah Green, Kathy Halvorsen, Sarah Scarlett, Chelsea Schelly, and Erika Vye.

## You are visiting Local Literacy Module 3 - Relationships with Natural Resources as part of a three module series.

### Motivation and Intentions for Local Literacy

This series of modules focuses on characteristics that make our Michigan Tech home unique, the Lake Superior Basin and geology, and Indigenous histories and contemporaries that are foundational to the landscape. This includes what it means to live within the 1842 Treaty territory that we are a part of.  Residing within the Michigan Tech landscape is frequently associated with the mining industry and is presented as a time when history began in the “Copper Country.” The unique geology that contributes to the wealth of copper in the region simultaneously influenced many millennia of cultural and political sociology of place, well before Europeans, as copper mined by the Ojibwa was already distributed across continents globally. Centering on local literacy is a lens that can be used to see and know global and cultural issues more broadly, recognizing the interconnectedness of time, people, and place.

### For each of the three modules, you can expect:

1. to invest **~30 minutes** preparation for each Module **plus ~50 minutes** for each experience and reflection.
2. to use **materials and devices** such as your phone (or other voice, photo, video device) and paper and writing / drawing materials
3. **to learn more** about the Michigan Tech landscape, different ways to think about and see landscapes anywhere you go, and learn more about yourself
4. **to have fun!**

### Table of Contents

1. Introduction (10 minutes)

2. Very, Very Important History (10 minutes)

3. Mapping Fun! (10 minutes)

4. Experience THIS (45 minutes)

5. Now I Wonder

6. Resources for More Learning

# 1. Introduction (10 minutes)

*Created by Sarah Scarlett and Erika Vye*

Participants will explore the connection among natural resources and human activity; that human societies and cultures throughout time interact with each other and affect the natural systems upon which they depend. ***Please take a few minutes to watch the following two videos!***

***Intro by Sarah***

***Intro by Erika***

# 2. Very, Very Important History (10 minutes)

This module explores the connection among natural resources and human activity; that human societies and cultures throughout time interact with each other and affect the natural systems upon which they depend. While participating in this module you are encouraged to wonder - has this place always looked the way it does? Why does this place look the way it does?

***The Big Ideas of this module:***

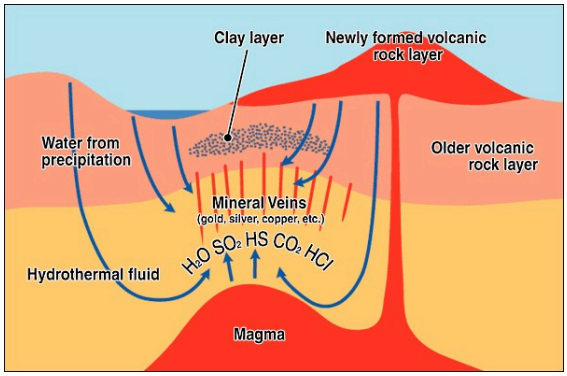
- The landscape and human activity are directly linked to the underpinning geology.
- People have a relationship with Earth and its resources.
- Places are shaped, visited, and settled on account of natural resources.
- People significantly alter the Earth.

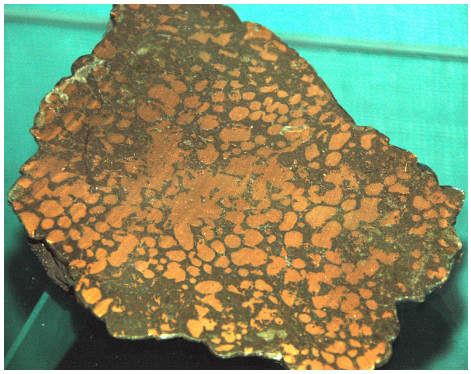
***Overview:***

When first arriving in the Keweenaw it is evident that copper (or mining) has played a significant role in the region's recent history as many business names and local signage make reference to copper. The region also hosts many poor rock piles and decaying mining infrastructure associated with the recent mining boom. However, closer exploration enables one to learn that this area has been the “Copper Country” for thousands of years and the origins of copper itself date back one billion years.

The landscape of the Keweenaw expresses a billion year geologic history that resulted in the discovery of one of the largest native copper deposits on Earth. This originated one of the oldest metal workings in the Western Hemisphere, and the famed mining boom of the Keweenaw in the late 1800s. As such, the region is a compelling intersection of cultural, mining, and industrial heritage.

A billion years ago volcanic activity resulted in massive magma oceans, voids were formed at the top of the lava flows by bubbles of escaping gas that were trapped as the flows were cooling. These voids were later filled with mineral riches carried by water and steam from the deep Earth that transported copper and many other minerals to the surface. People found these minerals in the basalt and conglomerate rocks.



10,000 years ago this region was covered by nearly 2 miles of ice. As the glaciers retreated a landscape bare of vegetation was revealed. The billion year old black basalt lava flows filled with copper and other mineral deposits were exposed for people to find them, along with pieces of float copper dropped in place by the melting ice. The melting ice also resulted in the formation of Lake Superior and surrounding waterways.

7,000 years ago humans came on these waterways, integrated copper into their value systems, and traded copper items along North American waterborne trade routes. The Keweenaw region is the site of the oldest known metal workings in the Western Hemisphere.

150 years ago humans used water and steam to power new industrial machines that extracted and refined vastly larger quantities of copper, and transported it around the globe. Copper and water enabled the Copper Boom, all the towns in the Keweenaw, and the related campus infrastructure. Michigan Technological University began as the Michigan Mining School in Houghton in 1885 in order to train mining engineers to operate the local mines. Around campus we live in houses with basements made from basalt and conglomerate rocks pulled up from thousands of feet below the surface. We live on streets whose names - agate, diamond, garnet, ruby, emerald - reflect gifts from the deep Earth.

Copper and water are the common elements that have connected people to the landscape throughout time. Water facilitated the movement of copper from the deep Earth to the surface where people could find it. Water enabled movement of people to the copper traveling by boat, water was used to process the copper in varied ways, and to move copper to other places away from the Keweenaw. In this module you will think more about how water and copper continue to shape life here.

The Calumet & Hecla Mining Company, the region's largest and most profitable operation, boasted two of the world's largest steam engines. The whole region supplied the United States with 75% of its copper in the nineteenth century. MTU Archives Neg 00653 available on the Copper Country Historical Images online database.

Michigan Tech Campus in the early 1900s with the Gymnasium (now the ROTC building), Hubbell Hall, and a carriage on College Avenue, which extended East through campus. MTU Archives, Book LD3328H3-52-1 available on the Copper Country Historical Images online database.

Many houses in the Copper Country have foundations made of “poor rock,” waste pieces of basalt and conglomerate extracted from the mines.

# 3. Mapping Fun! (10 minutes)

Keweenaw TIME TRAVELER

*map your history!*

**Using the Keweenaw Time Traveler (note, you are not requested to record responses to the following questions and prompts):**

1. Navigate to the Keweenaw Time Traveler's Explore App. Go to https://www.keweenawhistory.com and hit "Start Exploring Now!"
2. Use the drop down menus to choose Houghton in 1908 (see Location and Year at the top of the page) and keep the background imagery at Modern Satellite.
3. Click-and-Drag the map three blocks to the East (right) to the intersection of Montezuma, Franklin, Shelden Streets, and College Ave. Click on the contributed story in the middle of that intersection (this is indicated by a purple dot). The following story will pop open:

**The View Toward Campus in the 1860s**

- The rocky bluff on the eastern edge of Houghton attracted copper mining investment in the 1860s. The Shelden-Columbian company used water from Portage Lake and the steep hill to operate its stamp mill (seen here), which stood where the College Avenue Vision Clinic is today. Watch out for wandering bulls!
- Direct link to the this story

Photo: MTU Archives Book LD3328H3-xxi-1 available in the Copper Country Historical Images online database.

4. The maps changed to 1888 to match the photo. Use the drop down menu to pick 1908 again.

5. Now keep “walking” down College Ave towards campus. You can zoom in and out, and use the transparency slider to compare the 1908 landscape to today’s aerial imagery (found on the left hand side of the window).

7. Try clicking on houses to learn more about who lived there in 1908.

8. Notice: How had humans altered the waterfront by 1908? How have their alterations influenced the location of buildings and roads today? How many of the houses present in 1908 still stand today? Which kinds of buildings from 1908 have been lost? Why? What traces of the long-standing human relationships with copper and water do you see in the 1908 map and today’s landscape along College Avenue ?

9. When you get to the edge of campus, switch the map year to 1949 using the drop down menu.

10. Now keep “walking” through campus on what used to be College Avenue. Go to the Mechanical Building and click on the contributed story in front of it (indicated by a purple dot). The following story will pop up:

**The View of Campus in 1961**

- The Michigan Mining School trained several generations of mining engineers, and when the mines wound down in the Keweenaw, it transformed into the Michigan College of Mining and Technology (seen here in 1961), and eventually into Michigan Tech. The early twentieth-century campus buildings seen here, built of local Jacobsville Sandstone, were replaced in the 1970s with the ME-EM, Chemical Sciences, and the EERC. College Avenue ran through campus until the Michigan Department of Transportation re-routed US-41 around the heart of campus in the late 1970s.
- Direct Link to this story


Photo: MTU Archives MTU-014-08-01-02 available on the Copper Country Historical Images online database.

11. Now keep exploring the campus maps. Use the transparency slider and click on the buildings and contributed stories for more information.

12. Notice: How have the traffic patterns changed? How has Michigan Tech changed? Does the transformation of Michigan Tech’s campus since 1949 reflect changes or continuity in the long human history between copper and water? What parts of that relationship have been commemorated or erased by transformations on campus?

# 4. Experience THIS (45 minutes)

The following two activities will require paper and pencil/pen and your phone (or another device that can take images and record sound). Note, that this experience can be done anywhere you are physically located.

## *Part I: First Look activity (modified from Margaret Holtschlag's Big Lesson)* (5-10 min)

For this exercise, find a physical outdoor surrounding that you are able to see and touch.

- *Point to the north, south, east, west.*
- Point to location of the sun. Estimate its angle in the sky.
- What is the temperature (estimate)?
- Wind direction? Wind speed (estimate)? Evidence of wind (treetops, flag, etc).
- Type of cloud cover: transparent, translucent, opaque?
- Estimate the percentage of cloud cover.
- Where are the clouds? (High clouds, middle clouds, low clouds)
- Estimate the percentage of humidity. Any precipitation?
- Feel the ground. Can you feel moisture? Why?
- Smell the air around us. What do you notice?
- Sounds: silent listening for a minute or so…what do you hear? What do you notice?

Write or draw a summary of your experience with the First Look activity, then take a photo to share. You can also record sound and/or take an image that summarizes your experience.

## *Part II: Exploring place*

In this same outdoor space complete the following exploration. You will record short responses to the questions below and create a map/sketch so make sure you have paper and a pen with you.

1. What is the name of the place you are visiting? Does it have other names you are aware of? What is the origin of this (these) name(s) and what does that suggest about its history?
2. What is the oldest thing you can see/touch in your place? How has it been altered by humans?
3. How do you think this place looked 100 years ago? How did this place look 100,000 years ago?

4. Make a list of the natural parts of Earth systems that are in your place (ex. (biosphere, lithosphere, atmosphere, and hydrosphere)?
5. What are the human generated parts of your place?
6. Draw a map or diagram of your place connecting the natural and human generated parts of your place. Are there places where they are disconnected?
7. Which parts (natural or human generated) of your place are valued? By whom? How can you tell they are valued? Has this changed over time?
8. Include something that you feel represents a dependence on natural resources in your community.
9. Do you think this resource has been neglected (or undervalued)? Or have people valued it differently over time?

Share a photo of your map and responses to the questions .

*Activity modified from Project Learning Tree*

Fall Colors in the Copper Country, from https://www.mtu.edu/tour/copper-country/.

# 5. Now I Wonder

**Let's revisit the guiding questions for Relationships with Natural Resources**

Why does this place look the way it does?

Has this place always looked like this?

# 6. Resources for More Learning

**Local Literacy Module 1: Readling Landscape as Human Stories**

**Local Literacy Module 2: Us in the Landscape and the Landscape in Us**

Keweenaw Geoheritage

Keweenaw Time Traveler

Keweenaw National Historical Park

Isle Royale National Park