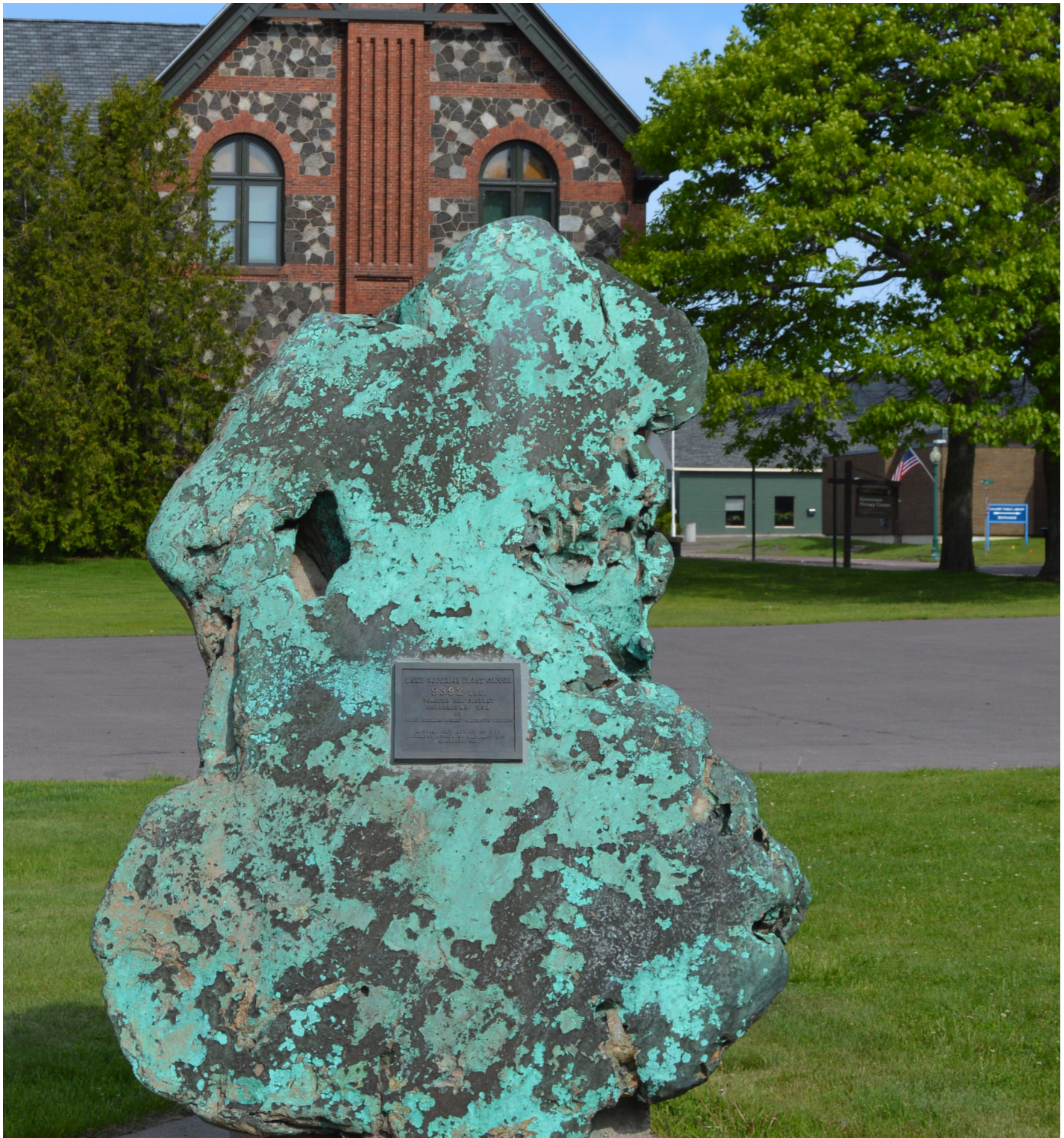


National Park Service
U.S. Department of the Interior

Keweenaw National Historical Park
Michigan



A World of Copper



A World of Copper

Fourth Grade Pre- and Post- Visit Activity Guide

Keweenaw National Historical Park
Calumet, MI 49913

Contents

Introduction	1
Core Connections	1
Background	1
Pre-Visit Activities	2
Post-Visit Activities	5
Glossary	8
References	8

Grade: 4

Common Core Standards:

- W.4.1
- W.4.2
- SL.4.1
- SL.4.4

Michigan State Standards:

- 4 – H3.0.1
- 4 – E1.0.1

Overview:

Pre-Activities:

1. Scavenger hunt of copper products
2. Examine communication products
3. Examine use of copper in other products

Post-Activities:

1. Review and discuss products created from copper. What is the impact of copper products throughout the world?
2. Examine products made or invented during the copper mining era that used copper. What differences in everyday life did they create?
3. Create a poster on importance of copper from Upper Michigan

Introduction:

Theme:

Copper is found in many different products used throughout the world.

Focus:

Copper products are found throughout the world. Their invention has vastly improved means of communication and construction, and has allowed living in more remote areas to be less challenging (ex. better communication products are available).

Background:

Prior to large scale industrial mining in Upper Michigan, copper was used on a smaller scale in everyday life. Over 7,000 years ago North American Indians were mining, shaping, and trading copper. Small products such as fish hooks, decorations, and jewelry were all crafted, as were spear points and other larger tools and decorative items. As immigration from European countries began, the word about copper in the area traveled and exploratory surveys were conducted. By the mid-1800s industrial- scale operations began. Modes of transportation and communication evolved during this time. Copper was being used in an increasing number of applications and more modern products or new inventions requiring copper to create parts or components.



Photo courtesy of wikimedia

Pre-Visit Activity 1:

Duration: 30 min

Location: classroom, indoors

Key Vocabulary:
product, brass, bronze

Objectives:

Students will be able to recognize at least 3 different products made from copper within the classroom.

Method:

Students will participate in a scavenger hunt.

Materials:

- Paper
- Pencil

Pre-Visit Activity 1: Scavenger Hunt

Background:

Many modern-day products use copper. This may be visibly recognized easily, but it may also be hidden within the product itself. Brass and bronze objects are fairly recognizable, as are pennies. Copper is used in power cords and in most electronics available today. It may also be found in some piping.

Suggested Procedures:

1. Ask students where copper can be found within the classroom. What products do they think use copper? Tell students to keep their ideas to themselves. They will be participating in a scavenger hunt for products in the classroom. Remind students that they may not always be able to see the copper. Encourage them to think about what they use in other classes to expand their lists.
2. Students will walk around the room writing what objects they believe use copper.
3. When finished, students will go back to their desks or gather for a discussion.
4. Ask students what they found. How do they know their objects use copper?
5. Explain what types of objects in the classroom or school use copper. (May include musical instruments that have bronze or brass.) Ask students to raise their hands if they had an object on their list that you described.

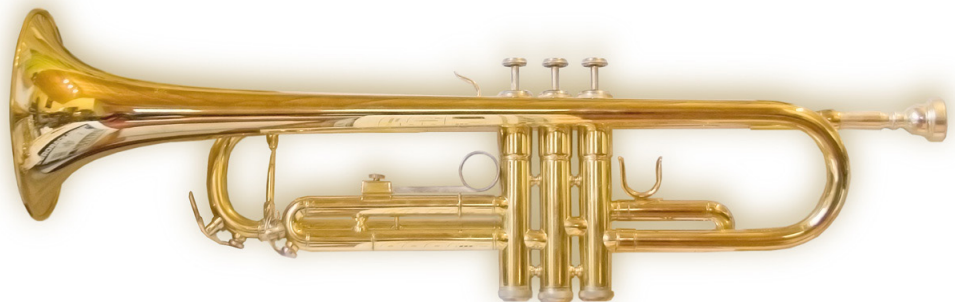


Photo courtesy of wikimedia

Pre-Visit Activity 2:

Duration: 45-60 min

Location: classroom, indoors

Key Vocabulary:
communication, conductor

Objectives:

Students will be able to identify at least two communication devices that use copper in modern times.

Method:

Students will use research and discussion before writing an opinion paper.

Materials:

- Pictures of communication devices: both electrical and non-electrical

Additional Preparation:

Prior to lesson, print off pictures of communication devices

Pre-Visit Activity 2: Communication Products

Background:

Copper is a strong conductor of electricity. It is this property that makes it ideal for use in a variety of modern communication devices, including mobile phones, televisions, and computers. Many of the circuit systems used in these products use copper for efficient transmission of electricity. Even micro-chips use copper. Copper is also a main component of telecommunications. It is used in wiring for area network internet lines and used in modems and routers as well. Historically, it was used in telegraph wires, including the first transatlantic cable.

Suggested Procedures:

1. Brainstorm what types of devices we use to communicate and write on board.
2. Hold up pictures of communication devices. Put each one in a category: electronic and non-electronic.
3. Ask students which products might need copper to work. Why?
4. Ask students if the products we use today were used in the late 1800s and early 1900s. What did they use then? Write down student answers to refer back to after their visit.
5. Students will choose one of the modern products that use copper and write an opinion paper about why that product is the best product to use for communication.



Photo courtesy of wikimedia

Pre-Visit Activity 3:

Duration: Two 30 min. sessions

Location: classroom, home, indoors

Key Vocabulary:
modern-day, cladding

Objectives:

- Students will be able to identify at least three modern products outside of the classroom that use copper.
- Students will be able to predict what products may have been available before the modern day.

Method:

Students will use observation, discussion, and sorting to recognize copper products.

Materials:

Optional: Pictures of various products listed in background information

Pre-Visit Activity 3: Copper in Other Products

Background:

Historically, copper was used as a building material, including roofing and cladding. It was also used to make lightning rods, doorknobs, and lighting fixtures as well as cookware. As an excellent electrical conductor, copper was used in telegraph and electrical wiring. Early automobiles also relied on copper in their motors.

Copper is still used in many of these products, including household items like fixtures, doorknobs, and high-end cookware. It may be found in counters, sinks, and bathtubs. It is also used in decorative arts like sculpture and statuary. Brass instruments like trumpets, trombones, and French horns, are made when copper is combined with other elements to create an alloy. Copper is used in heating and cooling systems, motors, and wiring. Shipbuilders will use copper alloyed with nickel, as cupronickel can resist corrosion. Copper can also be found in generators and transformers, and in trains and cars.

Suggested Procedures:

1. Discuss possible products in everyday life that use copper. Ask students what they see around them. Students should think about what is in their household, what they see in public areas, as well as artwork.
2. Create a list of possible items using copper. Optional: Show pictures of some products as examples
3. Assign students to look for items in their house. They should bring a list back the following day.
4. In pairs, students will discuss what household items they found in their homes that use copper.
5. Create a class list of these products and then discuss what items may have also been used or created previous to modern times. Are there similarities?
6. Mark products that students believe were used in the copper mining era or earlier. Refer to this list upon return from the visit to the Calumet Visitor Center.

Post-Visit Activity 1:

Duration: 30-45 min

Location: classroom, indoors

Key Vocabulary:

Objectives:

Students will be able to compare and contrast products from the past and products from modern-day.

Method:

Use a Venn diagram to compare and contrast copper products.

Materials:

- Venn diagram

Post-Visit Activity 1: Review of Products

Background:

7,000 years ago, North American Indians were mining and using copper from the Keweenaw to make and trade everyday products. They created items such as fish hooks, spear points, decorations, and jewelry. Europeans also sought copper when they arrived. In the late 1800s copper was used in telephones, telegraphs, and electrical equipment. Copper plates etched by hand were used in photography and printing for playbills, pamphlets, magazines, and many other kinds of printed material.

It also helped cool engines in cars such as the Model T and kept refrigerators cool as well.

Copper wiring made a huge impact when the Transatlantic Cable was installed. It connected Europe and North America, and soon the world, through telegraph.

In the 1860s Keweenaw copper could be found monetarily within the penny. Furthermore, Keweenaw copper was used for many military battles. The Civil War used copper for bronze cannon and field artillery. It was also used in Union soldier uniforms for brass insignia, buttons, and belt buckles. World War I also increased copper production: brass artillery shells were manufactured for this war.

The impact of copper mining in the Keweenaw was extended through the manufacturing of auto parts such as radiators, brass fittings, and electrical components in the Model T. Not only was copper useful for mechanical purposes, it was also used artistically.

Perhaps one of the most well-known statues built from copper is the Statue of Liberty. Copper in the statue has been traced to the Keweenaw, where it was mined and sold to French manufacturers.

Suggested Procedures:

1. Review products covered in the pre-activities. Was there evidence of these products in the Calumet Visitor Center? Do you think that these products are available throughout the world?
2. Discuss the uses of copper depicted on various displays throughout the Calumet Visitor Center. What did people use copper to create? Were these products only found in Upper Michigan or were they distributed throughout different locations?
3. Discuss importance and impact of copper throughout the world. What made it so valuable? Why did and do people still seek out copper?
4. Create a Venn diagram comparing modern products to products created in the past. What is still made today? Are any products not made today?

Post-Visit Activity 2:

Duration: 30 min

Location: classroom, indoors

Key Vocabulary:
playbill, insignia

Objectives:

Students will be able to list three products that were created in the 1880s and 1900s and name one important aspect for each one.

Method:

Students will participate in discussion.

Materials:

- whiteboard
- responses and lists from pre-activity #2 and #3
- paper and writing utensil

Post-Visit Activity 2: Impact of copper products in the 1800s and 1900s

Background:

Copper plates etched by hand were used in photography and printing. The results of printing using the copper plates could be seen on playbills, pamphlets, and magazines.

In the late 1800s copper was used in telephones, telegraphs, and electrical equipment. It helped cool engines in cars such as the Model T and kept refrigerators cool as well.

Copper wiring made a huge impact when the Transatlantic Cable was installed. It was able to help connect the world through the telegraph. In the 1860s copper could be found monetarily within the penny. Furthermore, copper was used for many military battles. The Civil War used Keweenaw copper for bronze cannon and field artillery. It was also used in Union soldier uniforms for brass insignia, buttons, and belt buckles. World War I also increased copper production. Brass artillery shells were manufactured for this war.

Keweenaw copper mines supplied copper for the manufacturing of auto parts such as radiators, brass fittings, and electrical components in the Model T.

Suggested Procedures:

1. Ask students what products were created from copper between 1800 and 1975. Create a list on the board of these items.
2. Focus on communication devices and circle them.
3. Refer to the answers about communication from pre-activity #2. How did their predictions align with their observations? What devices were used for communications that are still found today? Did students observe communication tools that they did not predict?
4. Now refer to the list created in pre-activity #3. Read off the products marked as being present in the 1800s and 1900s. Did the students observe evidence within the displays that these items were used then? If not, how could they find out if the items were available? Optional: Students can look up products that were marked on the list from pre-activity #3 to determine when they were first used.
5. Review all items discussed that were made using copper in the 1800s and 1900s. Discuss what differences the products made in everyday life.
6. In pairs, students will list three items from the group discussion and write a sentence for each item as to why it is important. How did it impact everyday life?

Post-Visit Activity 3:

Duration: 20 min

Location: classroom, indoors

Key Vocabulary:

Objectives:

Students will be able to demonstrate why a copper product from Upper Michigan created in the 1800s and 1900s was important through an illustration and short description of the product.

Method:

Students will create a poster and present it.

Materials:

- Large paper for poster
- Markers or crayons
- Pencil
- List of products created during the copper mining era

Post-Visit Activity 3: Create a Poster

Background:

Use previous background information.

Suggested Procedures:

1. Using a class-generated list of products created during the copper mining era, students will choose one product.
2. Students will illustrate the product, creating it large enough to cover most of the paper.
3. Using observations, discussion, and if possible research, students will write a rough draft about the importance of their product to the Keweenaw Peninsula. (include what it was used for and where it may have been used such as within the U.S. or in a different country)
4. Students will edit the rough draft and get it approved before adding the writing to the poster.
5. Students will write their final draft on the poster in pencil and then trace with a marker.
6. Final products will be presented to the class.



Photo Courtesy of NPS Keweenaw NHP Museum Collection

Glossary:

Brass- an alloy created by the combination of copper and zinc

Bronze- an alloy created by the combination of copper and tin but may have other elements as well

Cladding- a metal coating on a structure

Communication- an act of using words, sounds, signs, or behaviors to relay information to someone else

Conductor- a material or object that allows electricity or heat to move through it

Insignia- a badge showing that a person is a member of a group or has a particular rank

Modern-day- existing today

Playbill- a poster announcing a play or theatrical performance

Product- something grown or created to be used or sold

References:

<http://naturalresources.house.gov/newsroom/documentsingle.aspx?DocumentID=266091>

<http://geology.com/usgs/uses-of-copper/>

<http://www.usosof.net/uses-of-copper.html>