



# BLAST IT! Learning About AZ Copper Mining

Adapted from: Arizona Mining Association - various resources (with permission)

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**Grade Level** 3  
**Duration** 2 class periods

## National Standards

### GEOGRAPHY

#### Element 1: The World in Spatial Terms

1. How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information

#### Element 3: Physical Systems

7. The physical processes that shape the patterns of Earth's surface

#### Element 5: Environment and Society

14. How human actions modify the physical environment  
 16. The changes that occur in the meaning, use, distribution, and importance of resources

#### Element 6: The Uses of Geography

17. How to apply geography to interpret the past  
 18. How to apply geography to interpret the present and plan for the future

## AZ Standards

### ELA

#### Reading

#### Key Ideas and Details

3.RI.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

#### Writing

#### Production and Distribution of Writing

3.W.4 With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose.

## Arizona Social Science Standards

### GEOGRAPHY

The use of geographic representations and tools helps individuals understand their world.

3.G1.1 Use and construct maps and graphs to represent changes in Arizona over time.

**Human-environment interactions are essential aspects of human life in all societies.**

3.G2.1 Explain how people modify and adapt to the Arizona environment.

**Global interconnections and spatial patterns are a necessary part of geographical reasoning.**

3.G4.1 Describe how Arizona has changed over time.

### HISTORY

The development of civilizations, societies, cultures, and innovations have influenced history and continue to impact the modern world.

3.H1.1 Utilize a variety of sources to construct a historical narrative exploring Arizona's cultures, civilizations, and innovations.

**Economic, political, and religious ideas and institutions have influenced history and continue to shape the modern world.**

3.H3.2 Use primary and secondary sources to analyze the changes that have taken place in Arizona which could include the use of current events.

## SIOP Elements

### Preparation

Adapting content

### Scaffolding

Modeling

### Grouping Option

Whole class

## Blast It! Learning About AZ Copper Mining

<b>Linking to background</b> <b>Linking to past learning</b> Strategies used	<b>Guided practice</b> <b>Independent practice</b> <b>Comprehensible input</b>	Small groups <b>Partners</b> <b>Independent</b>
<b>Integrating Processes</b> <b>Reading</b> <b>Writing</b> Speaking <b>Listening</b>	<b>Application</b> <b>Hands on</b> Meaningful <b>Linked to objectives</b> <b>Promotes engagement</b>	<b>Assessment</b> Individual Group <b>Written</b> Oral

### Arizona ELP Standards

#### Stage III

#### Basic

#### Reading

**Standard 4: The student will analyze text for expression, enjoyment, and response to other related content areas. The student will demonstrate knowledge of reading comprehension by:**

B-5: retelling a story or event with a beginning, middle and end.

B-20: identifying content vocabulary within math, science, and social studies texts.

B-22: locating information for a specific purpose. (e.g., atlas, glossary, textbook, indexes, table of contents, etc.)

#### Writing

**Standard 1: The student will express his or her thinking and ideas in a variety of writing genres.**

**The student will express his or her thinking and ideas by using a variety of writing genres, as demonstrated by:**

B-4: writing an expository paragraph or a simple report containing a topic sentence, supporting details, and a concluding statement using a model.

B-6: writing a variety of functional text that address audience, stated purpose and context:

## Overview

Of all the 50 states, Arizona is the leading state in copper production and is known as the "Copper State." The copper industry is important to Arizona's economy, employing thousands of people and bringing in billions of dollars. What has created such vast amounts of this mineral deposit in Arizona and how is it discovered are the topics of this lesson.

## Purpose

This lesson introduces students to the natural resource of copper through a mapping activity, a vocabulary game, a sentence game, and a reading assignment.

## Key Vocabulary/Phrases

**volcano** - opening in the earth's crust in which the magma can pass to the surface

**copper** - a reddish-brown metal that is an excellent conductor of electricity

**terraces** - the various levels in an open pit mine

**shaft** - a vertical opening of an underground mine

**open pit mine** - large hole dug in the ground for the removing copper ore

**underground mine** - digging beneath the earth's surface to remove copper ore

## Materials

- Popular objects for the class to view: cell phone, batteries, battery operated toys and machines, computer, breakfast cereals (check ingredients), Hershey's Milk Chocolate Mix (check ingredients), copper pipe, electric wiring, jewelry, pans, brass and/or tin items

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- Copper: Investing in Our Planet's Future  
<https://resolutioncopper.com/resolution-copper-mine/why-copper-matters/>
- 2015 Arizona Major Mines  
[http://repository.azgs.az.gov/uri\\_gin/azgs/dlio/1670](http://repository.azgs.az.gov/uri_gin/azgs/dlio/1670)
- Map Activity Worksheet and Answer Key
- Vocabulary Cards
- Mural Narrative--Learning About Copper reading
- Arizona Copper Mural
- Crayons or colored pencils
- Chat Talk and Scoring Guide
- Word Search and Answer Key

### Objectives

The student will be able to:

- locate major copper mines on a map.
- use vocabulary words that pertain to copper.
- summarize important facts about copper mining in Arizona.
- identify objects that contain copper

### Procedures

#### SESSION ONE and TWO

1. Begin the lesson by exhibiting a variety of items in front of the classroom. (See Materials) Ask students if they know what *these items have in common*. After a brief discussion, explain that the items all contain copper. Without copper, we would not be able to use these items. How would they feel if they did not have these items? **(Grouping: Whole Class)**

2. Ask the students if they know anything about copper. Record their responses on the board. Explain that they will learn more about exploration and discovery of copper in this lesson.

**(Preparation: Linking to background, Grouping: Whole Class)**

3. Show the Video, Copper: Investing in Our Planet's Future (2.04 min)

<https://resolutioncopper.com/resolution-copper-mine/why-copper-matters/> Have students add to their responses on the board.

4. Distribute and project the 2015 Arizona Major Mines map.

[http://repository.azgs.az.gov/uri\\_gin/azgs/dlio/1670](http://repository.azgs.az.gov/uri_gin/azgs/dlio/1670)

5. Have students circle the copper mines on the map. Distribute the Map Activity Worksheet and explain the directions. Allow students to partner if they want and complete the worksheet.

**(Application: Hands-on, Linked to Objectives, Promotes Engagement; Grouping: Partners, Individual)**

6. Explain that these are words we will be using to learn about copper mining. Distribute the Vocabulary Cards that have the definitions separated from the pictures. Have students match the 7 definitions to the correct pictures. Project the Vocabulary Cards with their definitions attached so students can check their answers. **(Grouping: Partners, Independent; Scaffolding: Comprehensible Input; Application: Hands-on, Promotes Engagement, Links to objectives)**

7. Students can work individually or together in teams and develop creative sentences using as many vocabulary words as possible. For example: Copper is found in the crust of the earth.

**(Preparation: Linking to Past Learning)**

**(Grouping Option: Independent or Partners;**

**Application: Promotes engagement, Hands on, linked to objectives)**

8. Project the Arizona Copper Mural. Distribute the Mural Narrative to the students. Read the Mural Narrative--Learning about Copper" as you point out the process of getting copper from the earth to its use in our final products. Begin in the left-hand corner where the CD, battery, etc. are and continue clockwise around the mural. **(Grouping: Whole Class; Scaffolding: Guided Practice; Application: Promotes engagement)**

9. Distribute a copy of the Arizona Copper Mural to the students and have them read with a partner the narrative. Instruct them to stop at each image as it is mentioned in the reading and color it. **(Integrated Processes: Reading, Writing, Listening; Scaffolding: Comprehensible input)**

Note: A variation on this step would be to give students blank paper and have them draw their own murals. One image for each paragraph.

10. Collect the narratives. Explain the Chat Talk and how the written "chat" will be graded (Scoring Guide). Allow students to use their AZ Major Mines map if desired.

11. As students finish, distribute the Word Search.

### Assessment

#### ELA and Social Science

Chats can be graded using the Scoring Guide.

Mastery will be considered a score of 24 points or higher.

A test over the vocabulary used in the lesson could be given. Teacher could prepare a test or have students match the word to its definition using the Vocabulary Cards. Mastery would be a score of 100%.

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Murals could be graded for correctness and completeness. Assign points for each of the 7 paragraphs with an appropriate image.

Extra credit points could be given to students who complete the Word Search Puzzle. The Word Search contains 25 vocabulary words.

### Geography

The Map Activity Worksheet can be graded for correctness. Mastery will be considered of 8 or more questions correctly answered

## Extensions

Students can access the AZ Mining Association website <https://azmining.com/> and check out careers in the mining industry.

## Sources

Arizona Mining Association (AMA)

<https://azmining.com/>

A History of Mining in AZ by Larry McBiles

<https://resolutioncopper.com/wp-content/uploads/2018/07/AZ-Mining-History.pdf>