

Name(s) _____ **Map Activity Worksheet**

We will use Cardinal Directions – NORTH, SOUTH, EAST, WEST – to find mines and towns in Arizona. You will need to use your Arizona Major Mines map.

True or False

- _____ 1. Bagdad mine is **NORTH** of Phoenix.
- _____ 2. Silver Bell mine is **SOUTH** of Phoenix.
- _____ 3. Morenci mine is on the **EAST** side of our state.
- _____ 4. The Ray mine is **EAST** of Douglas.
- _____ 5. Miami mine is **SOUTH** of the Rosemont (development) mine.
- _____ 6. Resolution Copper mine is **NORTH** of Clarkdale.
- _____ 7. Safford mine is **SOUTH** of Kayenta.
- _____ 8. Nelson is **NORTH** of Bagdad.
- _____ 9. Most of Arizona's mines are in the **NORTH**.
- _____ 10. Uranium is found in the **NORTHERN** part of Arizona.

Write two True or False questions like the ones above that use cardinal directions and the Arizona Major Mines map. Then make an answer key for your questions.

Answer Key--Map Activity Worksheet

1. True
2. True
3. True
4. False
5. False
6. False
7. True
8. True
9. False

Mural Narrative--Learning about Copper

Introduction

Do you play CDs? Use a computer? Use batteries? Talk on a cell phone? Ride in a car? Then you use copper! All of these items need copper! Arizona produces the most copper in the United States and is called the "Copper State." Copper is found in volcanic rocks located throughout Arizona in a diagonal line. The copper industry is important to Arizona's economy, employing thousands of people and bringing in billions of dollars.

Copper Formation

Copper is found in the **crust** of the earth. It was formed from volcanic rocks. Great heat and pressure within the earth produced molten magma from **volcanoes**. Some of this magma was thrust or intruded into other rocks and created copper ore.

Where is the Copper?

Prospectors came to Arizona in the 1800s to search for such minerals as copper, gold, and silver. They used simple equipment such as picks, shovels, and pans. These prospectors could find minerals sometimes by just looking at rocks on the surface of the earth. As time went on, however, the minerals were harder to find. Picks, shovels and pans were replaced by more modern mining equipment owned by large mining companies. It is now estimated that if you mine 6,000 pounds of rocks, there is only 10 pounds of copper in it. That means there are 5,990 pounds of rock that has no copper.

Types of Copper Mines

There are two types of copper mines. The first type is an **open pit mine** or a surface mine. It is a copper mine that is located at the top of the ground. The ore is removed layer by layer and the land becomes terraced. The **terraces** are sometimes called benches.

The second kind of mine is an **underground mine**. The ore is under the earth and is brought to the surface. This type of mine has a vertical opening called a **shaft**.

Once the ore is found in the mine, the copper is removed from the rocks by different processes. The copper is then made into sheets or rods to be then made into various products.

Conclusion

Copper is an important mineral, and Arizona is a leading producer of copper. Once copper is mined, it is used in many everyday products. Without copper, we would not be able to use many of the items we need.

Name _____

Chat Talk

You are excited about what you just learned about copper mining at school and want to tell your grandparent(s) all about it.

Mom and dad have told you can FaceTime (Skype, etc.) with your grandparent(s), but you need to write out what you will say first.

In your chat, you should:

- Use the 6 copper vocabulary words (*volcano, terraces, copper, open pit mining, shaft, and underground mining*).
- Describe how copper is formed.
- Explain how copper was discovered in Arizona.
- Identify the location of 3 Arizona copper mines.
- Identify at least two products that use copper.

Scoring Guide

Requirement	Points Possible	Points Earned
Used the 6 vocabulary words about copper mining	6	
Described how copper is formed	5	
Explained how copper was discovered in AZ	5	
Identified the location of 3 AZ copper mines	9	
Identified 2 products that use copper	5	
Total Points	30	