

# Mining and Reclamation

Name: \_\_\_\_\_

## Phenomenon: It's Mine!

Ask three questions about the phenomenon.	

## Effects of Mining

Name of Mineral	
How do we use this mineral?	
Where is this mineral mined in Utah?	
Briefly explain how this mineral is mined. What kind of mine is it? What processes are used? What equipment is used?	
Identify 3 ways the environment is affected by the mining of this mineral.	

What is mining reclamation?
What has Rio Tinto done to reclaim former mining land and preserve the environment?

What are three other ways people have reclaimed mined land in the past?

**Land Use Design Proposal  
Planning Sheet**

The proposed use for the land:

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What are three ways the land has been affected by mining? Has the groundwater been affected? The soil?	What do you propose to do to mitigate this problem?

What is one animal that lives in this ecosystem?	
How will you encourage this animal to return to the mine site?	
What is one plant that lives in this ecosystem?	
How will you encourage this plant to grow in this area again?	

Create a poster to advertise your proposed use for this land. Include the following:

- A name for your project.

- A slogan that will encourage people to come to your site.
- What has been done to reclaim the land?
- What has been done to help encourage one plant from the surrounding ecosystem to thrive at the site?
- What has been done to help encourage one animal from the surrounding ecosystem to return to the site?
- A drawing of what the site will look like once it has been developed.

As you complete the gallery walk, record how three other groups have proposed to use the land and what will be done to reclaim the land.

The proposed use for the site.	What will this group do to reclaim the land?	Do you feel like this is a good solution? Explain why or why not. How much will the ecosystem be restored with this proposal?

### Utah Minerals

Alunite - A trigonal mineral formed from sulfuric acid acting on potassium feldspar in volcanic regions.

Beryl - One of the thirty recognized minerals of Beryllium. Occurs in a hexagonal crystal. Gem quality crystals are emerald and aquamarine.

Bertrandite - An important source of Beryllium mined in the Topaz Mountain region of western Utah.

Beryllium - A silver-gray metal. 1/3 lighter than aluminum, it is the lightest of all metals and can be alloyed with copper for electrical connectors and tools. The world's largest known beryllium resource is in Juab County.

Bertrandite ore (beryllium silicate) is found in volcanic tuff northwest of Delta. Utah continues to be the leading producer of beryllium metal in the United States. Uses include nuclear reactors, aerospace applications, smartphones, and electrical and electronic equipment alloy.

Building Stone - A general, non-generic term for any rock suitable for construction.

Clay - An extremely fine-grained natural, earthy material composed primarily of hydrous aluminum silicates.

Coal - A black substance used for fuel, composed of mineralized vegetable matter. Copper - A reddish metallic element that takes on a bright metallic luster and is malleable, ductile, and a good conductor of heat and electricity. The world's largest open-pit copper mine is at Bingham Canyon, just southwest of Salt Lake City. The copper occurs in copper sulfide grains scattered through volcanic and intrusive rock and in high-grade veins and replacement bodies in the limestones around the intrusive rock. About 50 mining districts in Utah, most in the western part of the state, produce copper. Some copper is associated with uranium and vanadium in sandstones in the Colorado Plateau. Uses include building construction, electrical and electronic products, and industrial machinery.

Gold - A malleable, ductile yellow metallic element. Much of Utah's gold production is a by-product of copper-lead-zinc ore, especially from Bingham Canyon. North of Bingham Canyon, Barney's Canyon mine is currently the state's largest gold producer. Some of Utah's gold has been recovered from weathered near-surface veins. One large placer gold deposit was found in Bingham Canyon in 1864, and other smaller placers were found along the Colorado River and its tributaries. Utah usually ranks second or third in the production of gold in the United States. Uses include jewelry, art, electronics, dental, and coinage.

Gypsum - A hydrous calcium sulfate, colorless to white in crystals. Iron - A heavy malleable, ductile magnetic silver-white metallic element. High-grade iron ore is found in many small deposits in the Wasatch and Uinta Mountains, but large deposits are found only in southwestern Utah. For many years iron ore has been mined at the Iron Springs district in Iron County. It occurs as magnetite and hematite replacements of limestone around a granitic intrusion. Uses include pig-iron, steel making, and cement. Salt - A crystalline compound that consists of sodium chloride.

Silver - A white metallic element that is ductile and malleable. Many of the metalliferous or lode deposits in western Utah contain a mixture of silver, lead, and zinc, with lesser amounts of copper, gold, and other minor metals. These deposits are found where the fluids from igneous intrusions have reacted with the surrounding rock, especially carbonates, to precipitate metallic sulfides in fractures and voids. Utah's most crucial lode production has come from mining districts within 50 miles of Salt Lake City. Uses include photography, electrical and electronic products, silverware, and jewelry.

Potash - Potassium carbonate, primarily from wood ashes.

Uranium - A radioactive, silvery-white, metallic element. Uranium is produced first for its radium content and then for its vanadium. Thousands of occurrences have been found in southeastern Utah in the sandstones of the Colorado Plateau. Some occurrences have also been found with lode deposits related to volcanic activity and granitic intrusions. Uses include munitions and power plants.

Vanadium - A gray or white, malleable, ductile, metallic element. Vanadium occurs with uranium in the Colorado Plateau (see Uranium). Uses include hardened steel utilized in construction, machinery, and transportation.

Zinc - A bluish-white, lustrous metal. Zinc occurs with lode ores usually mined primarily for their silver and lead content (see Silver). Uses include chemical, agricultural, rubber, and paint industries.