

Let's Start MINING!

**MAKE SURE YOUR
PERMITS ARE IN
PLACE AND LET'S
START MINING!**

The first step in mining is to find the rocks or minerals to be mined. Geologists are people who study the Earth and find the rocks and minerals.

The second step in mining is removing rock from the ground. To begin, **OVERBURDEN** (rocks and soil) usually covers the **DEPOSIT** (the rock to be mined). The overburden first is removed and stockpiled for later use. Depending on the deposit, it may be removed by either dredging, digging or blasting.

DREDGING is the process of removing a loose deposit, like gravel, from underwater (lakes, rivers, oceans, etc.). A dragline "drags" a big bucket to gather materials from the water bottom. A dredge uses either one or more buckets to scoop the deposit. A dredge can also be equipped with a hose. The hose uses suction to vacuum the deposit from the water bottom.

DIGGING is the process of removing a loose or easily broken deposit, like sand and some types of rocks. Bulldozers, front-end wheel loaders, shovels or excavators can be used to dig these deposits.

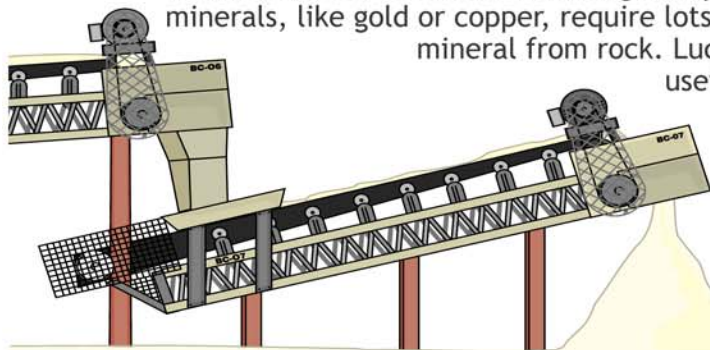
BLASTING is the process of removing and breaking apart solid rock deposits from the earth with explosives. Special permits are required and safety precautions are taken when blasting. Blasted rock pieces are then loaded into trucks or onto conveyors to transport material for processing.

Whew! That was tough. But now the rock is out of the earth and processing begins.

What is **PROCESSING**? Processing is anything that needs to be done to rock before it is useful. Some minerals, like gold or copper, require lots of complex processing to chemically separate the needed mineral from rock. Luckily, aggregate does not require much processing before it is useful. Mainly, it only requires:

CRUSHING to smash or break the rock into different-sized pieces. Some sand and gravel does not require this process.

SCREENING to sort the crushed stone by size. The screens look like window screens with openings that vary in size.



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WASHING is removing clay, and dirt particles from aggregate. When

processing is complete, aggregate is stacked into stockpiles by different sizes.

Haul trucks, trains or barges are loaded with the different sizes of aggregate for different jobs. Depending on the size, shape and kind of aggregate, the aggregate may be used for roads, bridges, buildings, homes, sidewalks...aggregate is used in so many ways!

Removing a rock deposit from the earth and processing it may take many years. Aggregate operations take care to protect their communities. Strict measures are taken to protect the environment from noise, water and air pollution. They may plant areas of trees between the quarry and its neighbors. The trees then become a part of the next step in the mining process called reclamation.

RECLAMATION means "to reclaim" the land. In other words, reclamation means to make the mined area useful to humans or wildlife. When mining is done, some aggregate operations become lakes and wetlands for recreation and wildlife. Others become neighborhoods, office parks or malls. And sometimes they are turned into beautiful golf courses or parks.

CAN YOU THINK OF ANY OTHER RECLAMATION IDEAS FOR AN AGGREGATE OPERATION? DRAW A PICTURE OF YOUR IDEA BELOW.