

ABANDONED MINE MINI-UNIT

8TH GRADE

Commission on Mineral Resources
Division of Minerals



Abandoned Mine Mini-Unit 8th Grade

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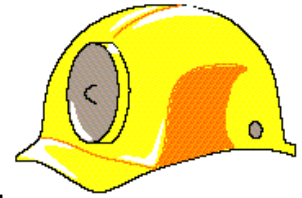
**Developed by:
Nevada Commission on Mineral Resources,
Division of Minerals**

**in conjunction with:
Nevada Department of Education**

For information and reporting of abandoned mine hazards, contact the Nevada Division of Minerals at the following locations:

Carson City Office:	Las Vegas Branch:
400 W. King St., Ste. 106 Carson City, NV 89703	2030 E. Flamingo Rd., Ste. 220 Las Vegas, NV 89119
phone:..... 775-684-7040	phone:..... 702-486-4343
fax: 775-684-7052	fax: 702-486-4345
cellular: 775-721-7625	cellular: 702-596-6076
e-mail: ndom@govmail.state.nv.us	e-mail: ndomlv@govmail.state.nv.us
website: http://minerals.state.nv.us	

ABANDONED MINE MINI-UNIT



The purpose of this mini-unit is to encourage students to stay away from abandoned mines and not to vandalize fences or other barricades around abandoned mines. The mini-unit incorporates material on Nevada history, mining in Nevada, safety, responsibility, and respect. It can be used in conjunction with your Nevada history curriculum. This mini-unit includes the following materials:

- ◆ A fact sheet on Nevada history and hazards which are related to abandoned mines;
- ◆ A glossary of mining terms and a drawing illustrating hardrock mining terms;
- ◆ "Jason's Close Calls" - A scenario that the students read with a list of questions to answer while reading and discuss after completing the reading assignment;
- ◆ Answer sheets for the teachers;
- ◆ Abandoned Mine Jumble with answer sheet for the teacher;
- ◆ The Coconut Activity - An excellent classroom demonstration; and
- ◆ **Dangers in and Around Abandoned Mines** pamphlets for each student

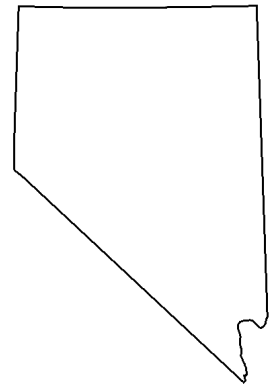
In addition, an 11 minute video, "Stay Out and Stay Alive" is available in your school library or from the Commission on Mineral Resources, Division of Minerals.

It is expected that completion of this mini-unit would take 3 or 4 sessions of 20 to 45 minutes each. One possible schedule is as follows:

- Day 1:** Introduction. Using material from the fact sheet, the teacher tells the students about Nevada's heritage of mining and our responsibility to stay away from abandoned mines and to leave existing fences and barricades alone. (approx. 20 minutes)
- Day 2:** "Jason's Close Calls." Students read the story and answer questions about abandoned mine hazards. (approx. 45 minutes)
- Day 3:** Coconut activity and distribution of the "[Dangers In and Around Abandoned Mines](#)" pamphlets. (approx. 20 minutes)
- Day 4:** Optional showing of the video "Stay Out and Stay Alive." (approx. 20-25 minutes)

FACT SHEET

Nevada has had a rich mining heritage for over 100 years. Practically all historic mining activity was underground. Mineral production from Nevada's mines helped attract people to the west, stimulate development of new communities, and bring statehood to Nevada. Many of Nevada's communities such as Pioche, Tonopah, Austin and Eureka came into being as a result of early mining pioneers.



Minerals play a very important role in our lives. The wiring in a TV, the car in our driveway, and the wallboard in our homes are all made from mineral products. Mining occurs to provide society with its minerals.

Modern mining companies are required to reclaim the land and secure any hazardous conditions that may exist around their mines. However, several thousand historic abandoned mine sites still exist, scattered throughout the state. Many of these abandoned mines contain serious hazards. Falling down an open shaft is an obvious danger, but there may be other hazards as well. Some mines may contain old explosives, some may have bad air, while others may have rotten timbers which could cave in at the slightest touch. The best way to avoid these hazards is to stay out of abandoned mines. Warning signs, fences, and barricades around abandoned mines are there for everyone's protection. Tampering with fences can be extremely dangerous. It is our responsibility to **stay out and stay alive** and to respect warning signs and fences. **Don't Vandalize!**

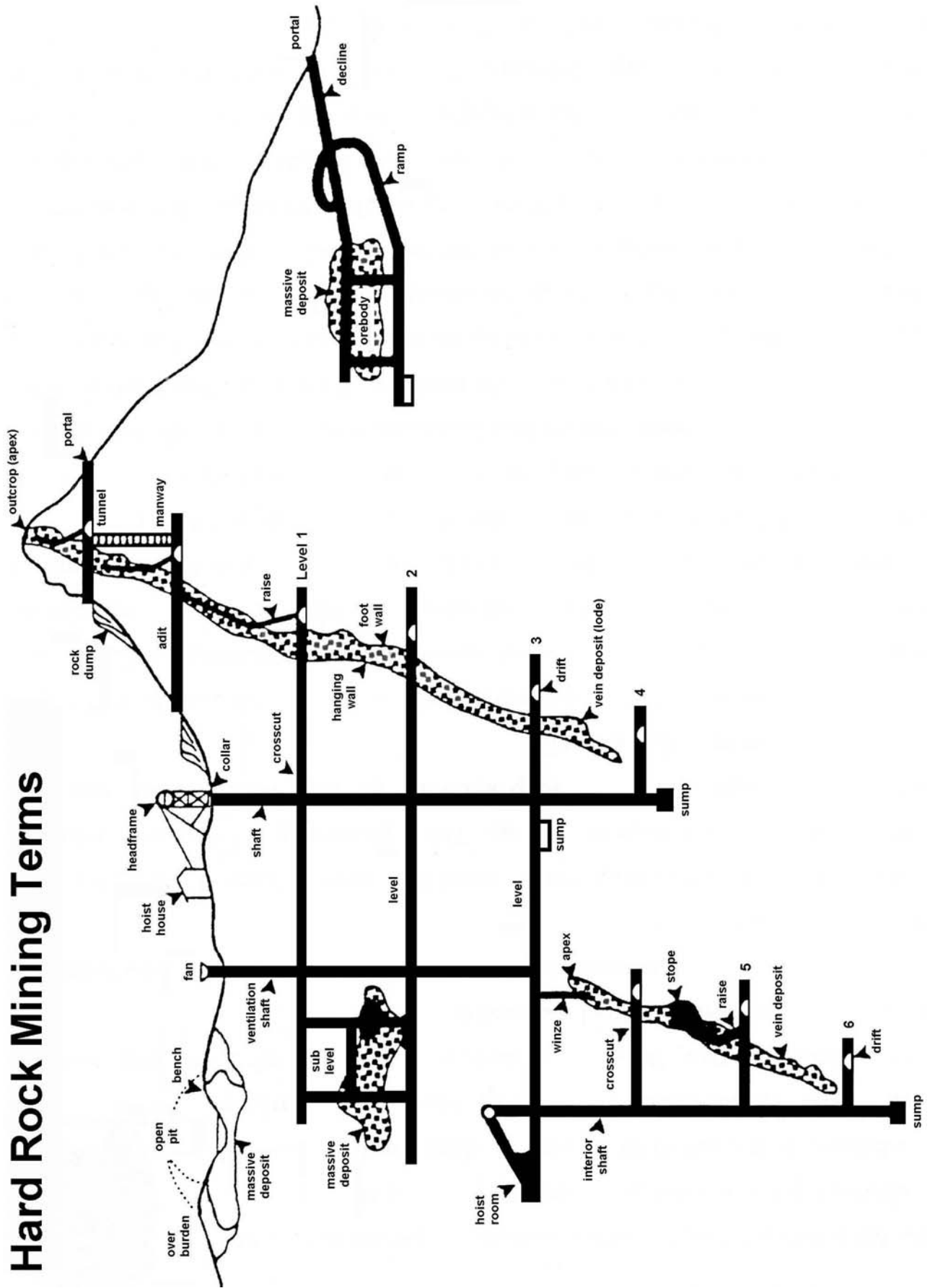


GLOSSARY OF TERMS

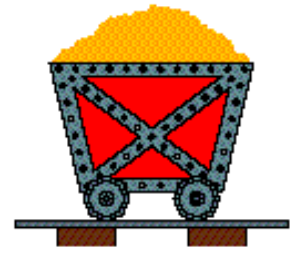
ADIT	a nearly flat passage from the surface into a mine	ORE	a body of valuable rock or mineral material that can be mined at a profit.
BAD AIR	air that does not contain enough oxygen to sustain life	PORTAL	the entrance into an underground mine
CAVE-IN	collapse of ground in a mine resulting in partial or complete blockage of a mine opening	RAISE	a vertical or inclined mine opening driven upward from a drift, adit, or crosscut in a mine
CROSSCUT	an underground mine opening that intersects an adit or drift	RESPECT	showing care and concern for something
DECOMPOSED	separated, broken down, or decayed	SAFETY	the condition of being free from risk or harm
DRIFT	an underground mine opening used by miners to follow veins of ore	SHAFT	a vertical access into a mine driven from the surface of the ground
DUMP	a pile of rock taken out of a mine and usually located near the mine entrance	STOPE	an area in an underground mine where the ore is actually mined
EXPLOSIVES	substances that release energy suddenly and violently when activated	TIMBER	wooden supports used to prevent mine workings from caving in
HAZARDS	sources of danger commonly found in and around abandoned mines	TRESPASS	entering another person's property without their permission
LEVELS	underground mine openings used by miners to gain access to ore bearing zones	UNDERGROUND	beneath the surface of the earth
MANWAY	a shaft or winze with a hoist or ladder used for personnel access in a mine.	VEIN	the mineralized filling in a fault or fracture in a rock
MINE	an excavation driven into the earth for the purpose of recovering mineral resources	WINZE	a vertical or declining opening driven downward from an adit, drift, or crosscut in a mine



Hard Rock Mining Terms



JASON'S CLOSE CALLS



"C'mon, Mike, let's get going!" shouted Jason as he gave one last tug on the tie-down strap that secured the dirt bike in the bed of Mike's pickup. "What a beauty," he thought as he admired the shiny new blue and white motorcycle. He still couldn't believe it was his--a surprise birthday present from Mom and Dad. "Mike will never be able to catch me now," chuckled Jason to himself, looking at the beat up old red bike next to his.

"I'm ready," said Mike as he raced out the door. "Let's head up to Scorpion Ridge. I know a couple of good trails up there."

The drive took twenty minutes but it seemed like forever to Jason. Finally, they arrived, unloaded the bikes and were ready to start out. "This is gonna be great!" said Jason as he threw on his backpack and tightened the chin strap on his helmet. The powerful engine raced to life on the first kick and Jason and Mike were off!

The trail the two rode on had been used in the past by miners who had hauled supplies and equipment to the old mining camp called Scorpion. The camp buildings had crumbled many years before but the miners' diggings still remained, mounds or dumps of tan-colored rock were scattered throughout the area. Scorpion had been a lively place in its heyday during the 1890s and the mines had produced over a million dollars worth of gold and silver.

Jason and Mike rode into the camp site and stopped to rest and look around. There wasn't much to see, except a few broken concrete foundations and some old wood. Mike spotted a large mine dump way up on the side of a ridge on the north side of Scorpion. Pointing to it, he said, "Let's go up and check it out." The two raced up the narrow and rocky half-mile long path and came to a stop on top of the dump. Cut into the side of the ridge was an opening about 5 feet wide and 6 feet high. The opening was a horizontal adit and was lined with timbers on the sides and top to keep the decomposed ground from caving in. Three metal posts had been driven into the ground across the front of the opening and a few broken strands of barbed wire clung to a couple of them. A small square of plywood hung from the center post and on it were the tattered remains of an orange and black sign. Jason and Mike stood at the entrance and looked in. The afternoon sun shone in and illuminated about 20 feet of the adit.

"I want to go in there and look around," said Jason. "There might be some good stuff laying around."

"I don't know, it's pretty dark and it might not be safe," replied Mike.

"Aw come on, don't be a chicken! Besides, I have some matches in my backpack we can use for light."

The two took off their helmets and left them inside the entrance. Jason fished the matches out of his backpack. He struck the first match and he and Mike headed underground.

"Boy, the air sure smells funny in here," noted Mike.

"Yeah, kinda stale, isn't it?" answered Jason. The first match went out. Jason lit the second match and the two went on. After 15 or 20 feet, the second match went out.

At that same moment, Mike let out a loud yell, "What was that--something just hit me in the ear!"

Jason quickly lit a third match and held it up. As he moved it around, he saw a bat flying straight at him. It flew past him, barely missing his ear. He let out a loud cry, turned to run and ran right into Mike, knocking the both of them down. They sat on the ground for a minute or so then started laughing.

"Pretty scary, wasn't it?" chuckled Jason.

"Yeah, I thought Dracula was after us," said Mike.

They stood up and Jason lit another match. They walked another 15 or 20 feet when Jason stepped down on a board laying on the floor of the adit. It cracked and he began to fall forward and down. In the dim light just before the match went out, Mike saw what was happening and grabbed Jason by the belt, pulling him backward. Jason lit another match and the two saw that the board partly concealed a winze, a mine shaft driven from an underground adit. Mike picked up a rock and threw it down the winze. It bounced for 1 second....2...3...4...5 seconds before hitting bottom.

"Oh, man, I've had enough of this," said Jason, still shaking after his narrow escape.

"Yeah, let's get out of here!" said Mike. They turned, with Jason in the lead, and ran for the portal. As Mike reached the timbers at the portal, he tripped and slid into the wood. He got up and ran out into the daylight as dust and fine rocks rained down from between the timbers he had bumped. A split second later, a large chunk of rock fell down and landed on Jason's new helmet. The shiny blue finish had a scratch and two deep cuts on it.

"Dad's gonna be real mad when he sees this," said Jason after he carefully retrieved his and Mike's helmets from the portal.

"Hey, at least it wasn't your head!" exclaimed Mike. "Let's go home, I've had enough of this mine exploring!"

As they rode back toward Mike's truck, Jason saw a motorcycle trail leading up the steep face of a mine dump. He turned off the main road and followed the trail.

Picking up some speed, he climbed the face of the dump and was airborne over the top. When he landed, he saw that he was only 10 feet away from a vertical mine shaft. He jammed on both front and rear brakes and slid to a stop inches away from the fence of steel posts and barbed wire that surrounded the shaft. Staring Jason in the face was a bright orange and black sign attached to the fence with the lettering DANGER--UNSAFE MINE--STAY OUT--STAY ALIVE.

Mike had joined Jason by this time and the two took a good look at the sign and the fence.

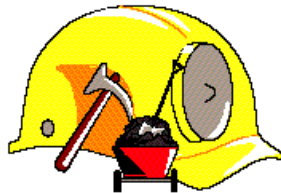
"Boy, am I glad that fence was here!" said Jason, still trying to catch his breath.

"That's for sure! I wonder what happened to that fence and sign up at that other place?" asked Mike.

"Somebody must have vandalized them. I sure wouldn't have gone inside if there had been a sign....I guess we shouldn't have gone in there anyway," said Jason.

"This sign really says it all, doesn't it? Stay Out and Stay Alive. That's the best thing to do around abandoned mines", mused Mike

"Yeah, STAY OUT AND STAY ALIVE! -- RIGHT ON!!!" said Jason.



QUESTIONS -- JASON'S CLOSE CALLS

1. Name the mining camp Jason and Mike rode into: _____
2. What minerals did the mines produce? _____
3. What was the dollar value of the minerals produced? _____
4. When did the mines produce? _____
5. What kind of mine opening did Jason and Mike enter? _____
6. How large was the opening? _____ feet wide and _____ feet high.
7. What material was used to line the entrance to prevent cave-ins? _____

8. Name two possible reasons that Jason's matches kept going out while he and Mike were in the mine.

9. List 4 hazards Jason and Mike encountered while in the mine:

10. What do you think happened to the broken down fence at the mine opening?

11. Why should fences, barricades, and warning signs be left alone when they are found around abandoned mines?

12. What is the best thing to do around abandoned mines?

QUESTIONS -- JASON'S CLOSE CALLS - KEY

1. Name the mining camp Jason and Mike rode into: **Scorpion**
2. What minerals did the mines produce? **Gold and Silver**
3. What was the dollar value of the minerals produced? **Over 1 million dollars**
4. When did the mines produce? **1890's**
5. What kind of mine opening did Jason and Mike enter? **Adit**
6. How large was the opening? **5** feet wide and **6** feet high.
7. What material was used to line the entrance to prevent cave-ins? **Timber**

8. Name two possible reasons that Jason's matches kept going out while he and Mike were in the mine.

Bad air

His movement while walking

9. List 4 hazards Jason and Mike encountered while in the mine:

Any 4 of the following 5 answers are correct:

1. Bad air

2. Winze (falling down)

3. Falling rock

4. Rotten timber

5. Bat

10. What do you think happened to the broken down fence at the mine opening?

Vandalism

11. Why should fences, barricades, and warning signs be left alone when they are found around abandoned mines?

They warn people that there is a dangerous condition present that should be avoided.

12. What is the best thing to do around abandoned mines?

Stay Out and Stay Alive!

ABANDONED MINE JUMBLE - KEY

Unscramble the eight jumbles, one letter to each space to form 8 words or phrases related to abandoned mines.

FHATS = (S) H A F (T)

ZEWNI = W I (N) Z (E)

ABDRIA = B (A) (D) (A) I R

VIXESPOLES = E X P (L) (O) (S) I (V) E S

EVAC-NI = C (A) V E - (I) N

SOCCRUTS = C R O S S C (U) (T)

ANYMAW = M (A) N W A (Y)

FATYES = S A F E (T) (Y)

Now arrange the circled letters to form the answer to this question: What is the best thing to do around old abandoned mines?

“ S T A Y O U T A N D
S T A Y A L I V E ”



THE COCONUT ACTIVITY

MATERIALS REQUIRED:

- One fresh coconut
- Solid rock weighing about 5 pounds
- 4' x 4' piece of carpet or large garbage bag (Used to contain the coconut milk when the coconut is broken.)

OBJECTIVE:

Explain that a rock falling on a person or a person falling on a rock can result in severe injury.

NOTE:

This activity has been performed many times in front of all age groups. It is very effective. Fresh coconuts can be found in the produce section of most grocery stores and only cost about a dollar.

HERE'S HOW:

Explain to the students that a coconut is about as hard as a human skull. Have the students knock on their heads while you knock on the coconut. Explain to the students that it really doesn't matter if a person's head falls on a rock or if a rock falls on a person's head. The impact is about the same. A rock falling only five feet can crush a coconut. The higher the fall or the bigger the rock, the greater the damage.

Put the coconut on the 4' x 4' piece of carpet or large garbage bag and have the students sit in a circle about 10 feet back. (This is a good activity to do outdoors if you have a carpeted classroom.) Stand over the coconut and, taking careful aim, drop the rock from about chin high. The coconut should break. Remind the students that this is what could happen to their head if they fell in a mine shaft. Then give all the students a piece of coconut.