

ABANDONED MINE MINI-UNIT

4TH GRADE

Commission on Mineral Resources
Division of Minerals



Abandoned Mine Mini-Unit 4th Grade

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Division of Minerals**

**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: 775-291-7825	cellular: 702-596-6076
e-mail: ndom@minerals.nv.gov	e-mail: ndomlv@minerals.nv.gov
website: http://minerals.nv.gov	

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.

Material included with this mini-unit includes:

- Fact sheet on Nevada history, and hazards related to abandoned mines
- Glossary of mining terms
- "Sparkle's Close Call", a story the students write using terms from the glossary.
- Answer sheets for the teachers
- The Coconut Activity - an excellent classroom demonstration
- Pamphlets on dangers in and around abandoned mines for each student.

In addition, an 11 minute video, "Stay Out and Stay Alive" should be available in your school library. If not, contact the **Commission on Mineral Resources, Division of Minerals, Abandoned Mine Lands Program** for a copy of the video.

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:** "Sparkle's Close Call." Students practice their alphabetizing skills as they complete the story and learn about abandoned mines. (approx. 45 minutes)
- Day 3:** Coconut activity and handing out pamphlets. (approx. 20 minutes)
- Day 4:** Optional showing of the video "Stay Out and Stay Alive." (approx. 15 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, 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

adit	a nearly flat passage from the surface into a mine.
bad air	air that does not have enough oxygen to breathe.
cave-in	collapse of ground in a mine resulting in complete or partial blockage of a mine opening.
decomposed	separated, broken down, or decayed.
drift	an underground mine opening used by miners to follow veins of ore.
dump	a pile of rocks taken from a mine usually located near the mine entrance.
explosives	substances that release energy suddenly and violently.
hazards	sources of danger commonly found in abandoned mines.
levels	underground mine opening used by miners to gain access to ore bearing zones.
ore	rock and minerals that can be mined at a profit.
portal	the entrance into an underground mine.
respect	showing concern or care for something.
safety	the condition of being free from risk or harm.
shaft	a vertical access into a mine.
stope	the area in a mine where the ore is actually mined.
timber	a wooden support used to prevent mines from caving in.
trespassing	entering another person's property without their permission.
underground	beneath the surface of the earth.
vein	a mineralized filling of a fault or fracture in a rock.
winze	a vertical mine opening driven downward inside of a mine.

SPARKLE'S CLOSE CALL

OBJECTIVES: Students will practice alphabetizing skills, become familiar with certain mining words and gain an understanding for mine safety.

HERE'S HOW: Students will alphabetize the words from the word list, writing the first word in the first ore car, the second word in the second ore car, and so on. This could be done in groups of two or four, each student taking a turn to fill in the ore cars. Then the students will complete the story by writing the word from the numbered ore car that corresponds to the number of the blank space in the story. Ask the students what Jason, Tina, and Sparkle learned.

WORD LIST

dump

hazards

respect

stope

underground

levels

cave-in

winze

adit

trespassing

decomposed

safety

bad air

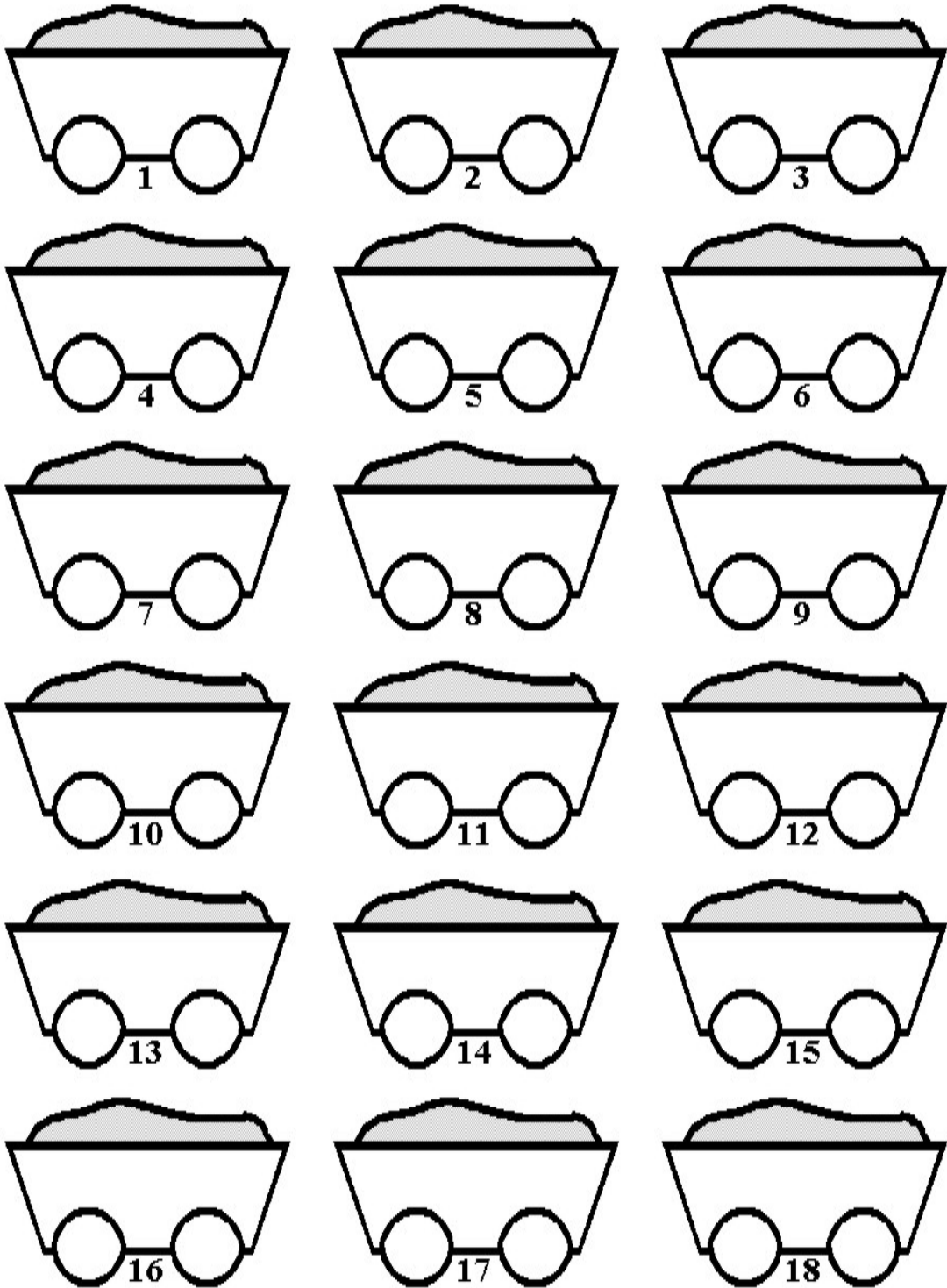
shaft

drift

timber

portal

explosives



SPARKLE'S CLOSE CALL

Jason, Tina, their older brother Mike, and their dog Sparkle were walking in the hills when they came upon an area formerly used for mining. They climbed up on a loose pile of rocks to get a better view. Mike said, "This must be a mine (6)_____. We better be careful because there could be abandoned mine openings nearby such as an (1)_____ or a (13)_____."

Just then a rabbit darted out from behind a bush. Sparkle started to chase it. The rabbit ran into an (17)_____ mine opening through the (10)_____. Jason and Tina went up to the portal and looked inside. It was totally dark. They were about to go in after Sparkle when Mike came. "No," he said. "Don't go in. See that sign? It says Danger - Keep Out - No (16)_____." Jason and Tina began to call "Sparkle! Sparkle!" Mike said, "I hope Sparkle is okay. There are a lot of (8)_____ in old mines. I hope she didn't run into a pocket of (2)_____ or old (7)_____ or fall in a (18)_____."

Sparkle was still chasing the rabbit along one of the (9)_____ of the mine. The rabbit ran down a (5)_____ and into a (14)_____. Luckily there was another way out of the mine. The rabbit saw the daylight and ran for it as fast as it could. Sparkle was close behind, running quickly. As the rabbit ran out of the mine, Sparkle bumped into a (4)_____ (15)_____ that collapsed and caused a (3)_____. Sparkle was running fast enough to get out of the mine before it caved-in. The rabbit got away but Sparkle was lucky just to be alive. Once out of the mine, Sparkle heard Jason, Tina, and

Mike calling. Soon they were together again.

"You shouldn't go in old mines!" Tina told Sparkle. "That's right," Jason said, "You should have more (11)_____ for (12)_____."

Jason, Tina, Mike, and Sparkle headed for home. They had learned an important lesson.

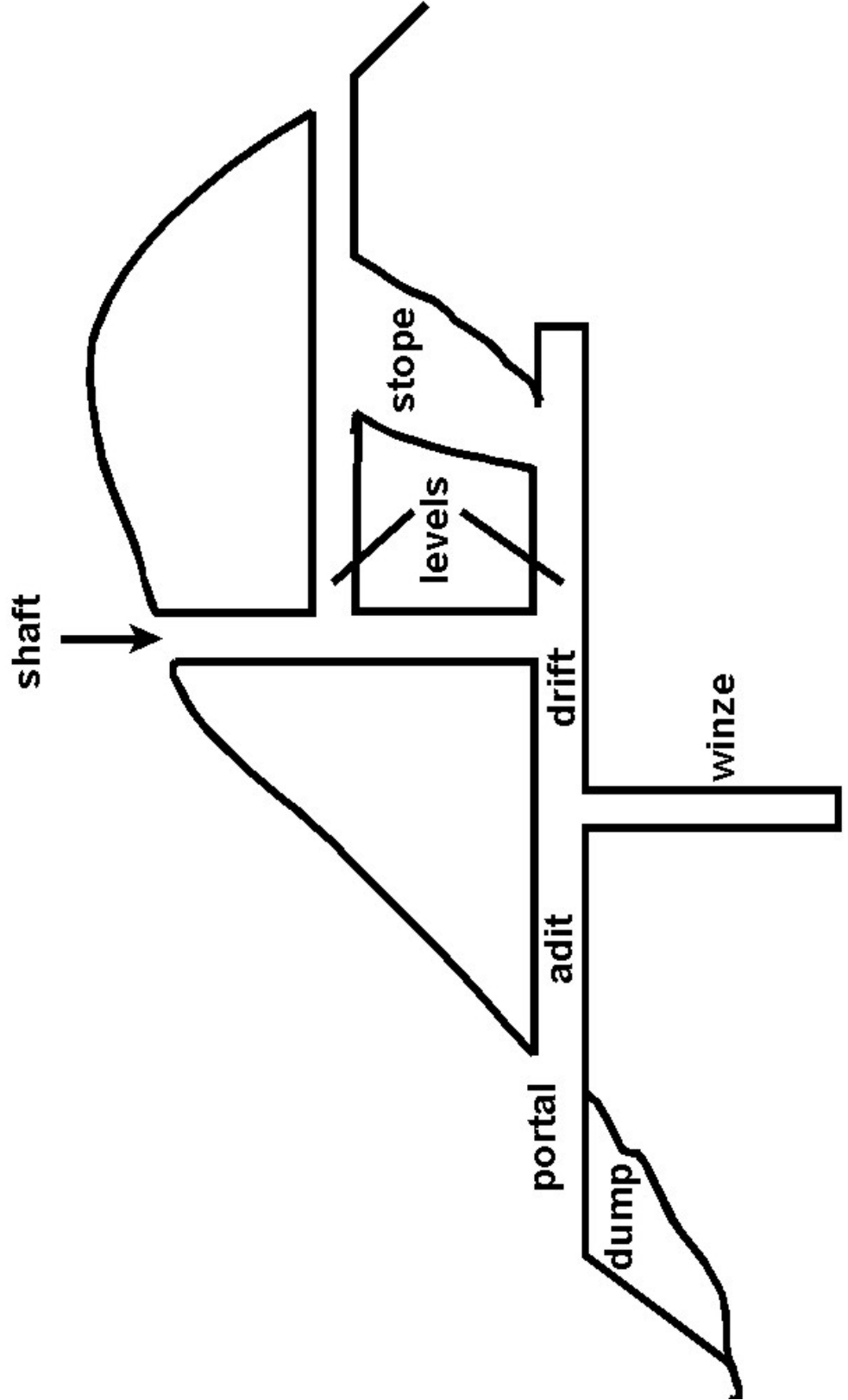
QUESTIONS:

1. What is the important lesson Jason and Tina learned?

2. List four of the possible dangers that may be in old mines.

UNDERGROUND MINING DIAGRAM

Can you follow Sparkle's path?



THE COCONUT ACTIVITY

**MATERIALS
REQUIRED:**

- One fresh coconut
- One solid rock weighing about 5 pounds
- Small piece of carpet or garbage bag

OBJECTIVE:

Illustrate to the students that a rock falling on a person or a person falling on a rock can result in severe injury.

NOTE:

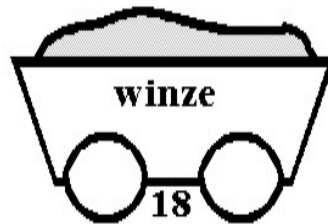
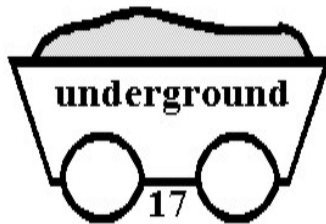
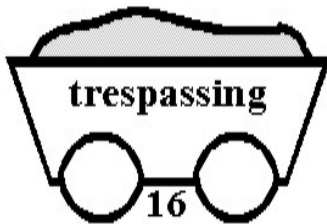
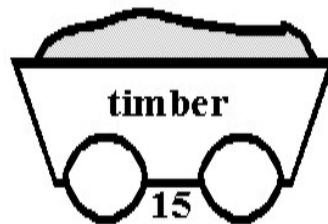
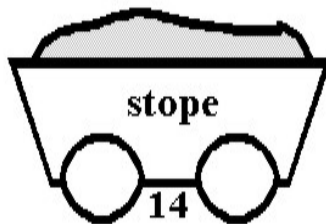
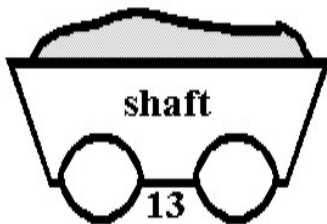
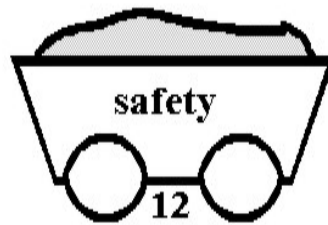
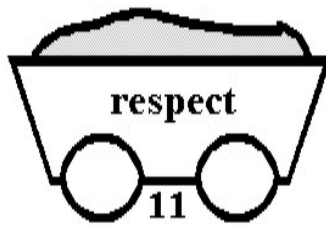
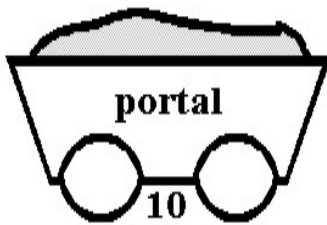
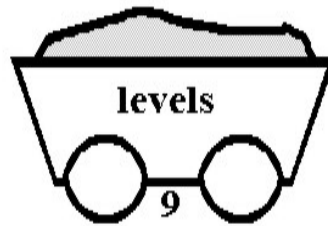
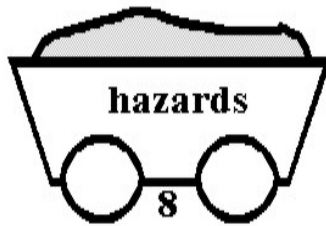
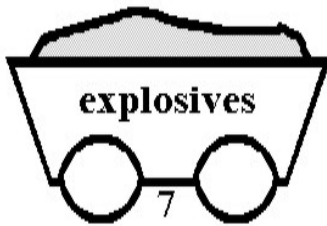
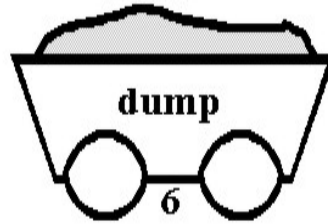
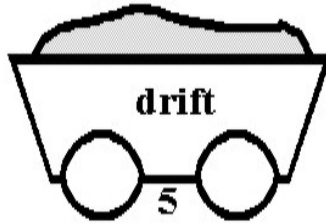
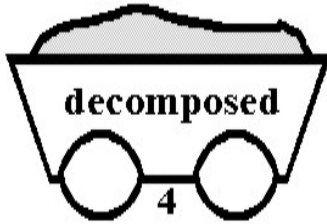
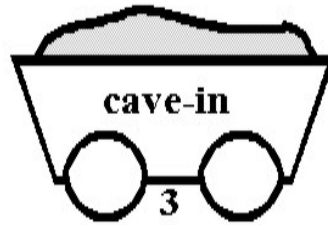
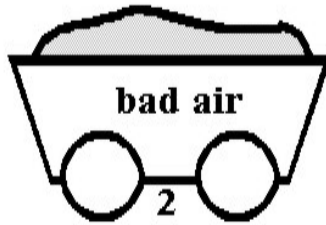
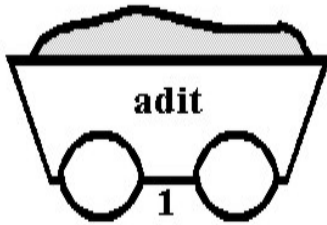
This activity has been performed many times in front of all age groups. It is very effective. Fresh coconuts can be found in the produce section of most grocery stores and only cost about a dollar.

**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 carpet and have the students sit in a circle about 10 feet back. Stand over the coconut and, taking careful aim. Drop the rock from about chin high. The coconut should break. Remind the students that is what could happen to their head if they fell in a mine shaft. Then give all the students a piece of coconut.

TEACHER'S KEY



TEACHER'S KEY SPARKLE'S CLOSE CALL

Jason, Tina, their older brother Mike, and their dog Sparkle were walking in the hills when they came upon an area formerly used for mining. They climbed up on a loose pile of rocks to get a better view. Mike said, "This must be a mine (6) dump. We better be careful because there could be abandoned mine openings nearby such as an (1) adit or a (13) shaft."

Just then a rabbit darted out from behind a bush. Sparkle started to chase it. The rabbit ran into an (17) underground mine opening through the (10) portal. Jason and Tina went up to the portal and looked inside. It was totally dark. They were about to go in after Sparkle when Mike came. "No," he said. "Don't go in. See that sign? It says Danger - Keep Out - No (16) trespassing." Jason and Tina began to call "Sparkle! Sparkle!" Mike said, "I hope Sparkle is okay. There are a lot of (8) hazards in old mines. I hope she didn't run into a pocket of (2) bad air or old (7) explosives or fall in a (18) winze."

Sparkle was still chasing the rabbit along one of the (9) levels of the mine. The rabbit ran down a (5) drift and into a (14) stope. Luckily there was another way out of the mine. The rabbit saw the daylight and ran for it as fast as it could. Sparkle was close behind, running quickly. As the rabbit ran out of the mine, Sparkle bumped into a (4) decomposed (15) timber that collapsed and caused a (3) cave-in. Sparkle was running fast enough to get out of the mine before it caved-in. The rabbit got away but Sparkle was lucky just to be alive. Once out of the mine, Sparkle heard Jason, Tina, and

Mike calling. Soon they were together again.

"You shouldn't go in old mines!" Tina told Sparkle. "That's right," Jason said, "You should have more (11) respect for (12) safety."

Jason, Tina, Mike, and Sparkle headed for home. They had learned an important lesson.

QUESTIONS:

1. What is the important lesson Jason and Tina learned?

It is best to stay out of old mines because they can be very dangerous.
(answers may vary)

2. List four of the possible dangers that may be in old mines.

bad air
old explosives
winzes to fall in
cave-in