

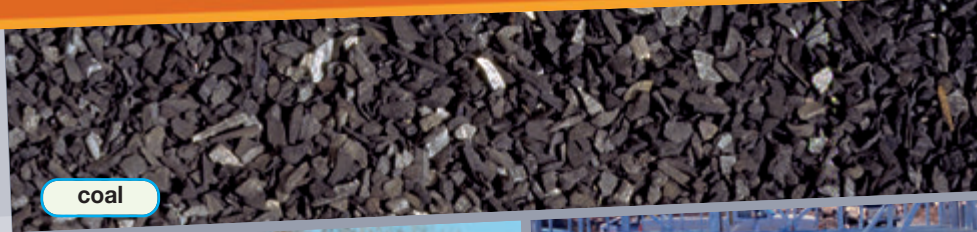
Table of Contents

Unit 1 – The Role of Mining in the World	4
Unit 2 – Non-metallic Ores	6
Unit 3 – Metallic Ores	8
Unit 4 – Ore Deposits	10
Unit 5 – Basic Mining Actions	12
Unit 6 – Types of Surface Mining	14
Unit 7 – Types of Subsurface Mining	16
Unit 8 – The Surface Plant	18
Unit 9 – The Crew	20
Unit 10 – Hand Tools	22
Unit 11 – Basic Gear	24
Unit 12 – Describing Places in a Mine	26
Unit 13 – Numbers 1: Volume/Weights	28
Unit 14 – Numbers 2: Distance/Depth	30
Unit 15 – Numbers 3: Math Symbols	32
Glossary	34

Jackson Mining Co. Employee Manual

Section 1: Introduction

Welcome to Jackson Mining Co! You are part of an important team. Together, we improve lives and industries. For example, we supply **power plants** with **fossil fuels**. We mine **coal** that generates electricity for homes and businesses, and we mine for metals, as well. They become **steel** for **manufacturing** and **construction**. But that's not all. We also improve **agriculture**. Many **minerals** make excellent **fertilizers**. So Jackson Mining even helps farmers. Finally, we improve people's lives. We mine for many **precious stones** and **precious metals**. Those products become valued gifts and important components of electrical circuits. So remember, you're not just mining. You're improving the world.



coal



fertilizer



steel



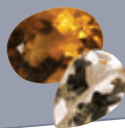
power plant



precious metals



precious stones



Get ready!

1 Before you read the passage, talk about these questions.

- 1 What are some substances that come from mines?
- 2 Why is mining so important?

Reading

2 Read the pamphlet. Then, mark the following statements as true (T) or false (F).

- 1 ___ Jackson Mining Co. also owns a power plant.
- 2 ___ According to the manual, farmers rely on mining for fossil fuels.
- 3 ___ Precious metals are an important component of electrical circuits.

Vocabulary

3 Read the sentence pairs. Choose which word or phrase best fits each blank.

1 precious metal / precious stone

- A A diamond is a type of _____.
- B Gold is a type of _____.

2 minerals / fossil fuels

- A _____ are often burnt to generate energy.
- B The rock contains many types of _____.

3 coal / steel

- A _____ is a black substance which can be burnt.
- B _____ is a very strong metal used in construction.

4 Write a word or phrase that is similar in meaning to the underlined part.

- 1 The company built a factory which generates energy.
_ o _ _ r _ _ p _ _ _ t
- 2 Rita studies the art of raising crops and livestock at college.
a _ _ _ c _ _ t _ _ e
- 3 The farmer put minerals which make healthy soil on his field before planting the seed.
_ e _ _ _ _ _ z _ r
- 4 Mines provide a lot of materials for the industry of making products.
m _ _ _ f _ _ t _ _ _ _ _
- 5 Benny has a lot of experience working in an industry that builds structures.
_ o _ _ t r _ c _ _ o _

5 Listen and read the pamphlet about mining again. What is the most important thing that mining provides?

Listening

6 Listen to a conversation between a miner and an interviewer. Choose the correct answers.

- 1 What is the conversation mainly about?
 - A the man's mining experience
 - B the positions available at the company
 - C the types of metals the company mines
 - D the mines the man will be assigned to
- 2 What is true of the man?
 - A He expects to mine minerals at the new company.
 - B He knows the process of mining steel very well.
 - C His first job was mining precious metals.
 - D He mined coal at a previous job.

7 Listen again and complete the conversation.

Interviewer: Thanks for **1** _____ today.
Miner: My pleasure. I'm very **2** _____ in the position.
Interviewer: Now, you worked at Jackson **3** _____ before?
Miner: I did. My group mined metals and **4** _____ .
Interviewer: I see. But this company mines **5** _____. We need someone with that experience.
Miner: Yes, of course. I mined coal at my first job.
Interviewer: **6** _____ hear it. When was that?
Miner: It was about five years ago. But I remember the process very well.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:

*You worked at ... before?
 My group mined ...
 But this company mines ...*

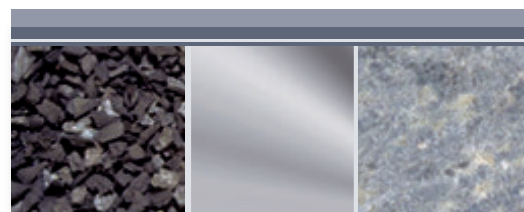
Student A: You are an interviewer at a mining company. Talk to Student B about:

- his or her previous company
- what material your company mines
- his or her work experience

Student B: You are a miner. Answer Student A's questions.

Writing

9 Use the conversation from Task 8 to complete the interview notes.



Interviewee Name: _____
 Previously worked at _____
 Materials mined there: _____
 Has experience mining: _____
 Further comments: _____

Table of Contents

Unit 1 – Places in a Surface Mine	4
Unit 2 – Places in a Subsurface Mine	6
Unit 3 – Drilling	8
Unit 4 – Blasting	10
Unit 5 – Surface Mining	12
Unit 6 – Loading and Excavation: Subsurface	14
Unit 7 – Haulage	16
Unit 8 – Haulage Working Zone	18
Unit 9 – Hoisting	20
Unit 10 – Ground Control	22
Unit 11 – Personnel Transport	24
Unit 12 – Communications	26
Unit 13 – Waste Disposal	28
Unit 14 – Ventilation and Air Conditioning	30
Unit 15 – Auxiliary Operations	32
Glossary	34

track [N-COUNT-U11] A **track** is a road made of rails for carriers such as monorails and chairlifts.

tracker [N-COUNT-U12] A **tracker** is a device that follows and locates tags carried by personnel or equipment.

tractor-trailer [N-COUNT-U7] A **tractor-trailer** is a very large type of truck that transports freight.

transfer point [N-COUNT-U7] A **transfer point** is where two conveyors meet.

transmit [V-T-U12] To **transmit** is to send out a signal from one place to another.

transport [N-UNCOUNT-U7] **Transport** is the movement of material by vehicle, conveyor, or pipe.

traveling empty [V-I-U8] **Traveling empty** is the act of moving without carrying any material.

traveling loaded [V-I-U8] **Traveling loaded** is the act of carrying material while moving.

truck [N-COUNT-U7] A **truck** is a wheeled vehicle that miners use to transport ore, minerals, or earth.

tunnel [N-COUNT-U2] A **tunnel** is a horizontal or inclined passage for transportation, ventilation, or drainage.

tunnel-boring machine (TBM) [N-COUNT-U6] A **tunnel-boring machine (TBM)** is a piece of mining equipment that is typically used to create large tunnels.

two-way radio [N-COUNT-U12] A **two-way radio** is a handheld device that can transmit and receive messages.

valley pond [N-COUNT-U13] A **valley pond** is a type of tailing pond.

ventilation system [N-COUNT-U14] A **ventilation system** is a system that removes dangerous air and provides fresh air in a mine.

video [N-UNCOUNT-U12] **Video** is the visual portion of an event or scene recorded with a video camera.

waiting line [N-COUNT-U8] A **waiting line** is where vehicles wait to receive or deliver material.

walking [ADJ-U5] A **walking** type of machine is able to move by using various systems.

waste [N-UNCOUNT-U13] **Waste** is material that serves no purpose and is discarded.

waste dump [N-COUNT-U1] A **waste dump** is an area in mines for leftover or unwanted material.

waste rock [N-UNCOUNT-U1] **Waste rock** is mined rock that is not of high enough quality to refine and sell.

water control [N-UNCOUNT-U15] **Water control** is the process of pumping and managing water in an underground mine.

wireless [ADJ-U12] If a device is **wireless**, it can send signals without the use of wires.

working zone [N-COUNT-U8] A **working zone** is where different activities related to a specific mining operation, such as haulage, take place.

yieldable steel arch [N-COUNT-U10] A **yieldable steel arch** is a device that provides support for the roof in a tunnel and allows the ground mass to adjust.

Table of Contents

Unit 1 – Mineral Processing: Unit Operations	4
Unit 2 – The Mineral Processing Plant	6
Unit 3 – Crushing	8
Unit 4 – Grinding	10
Unit 5 – Sizing	12
Unit 6 – Equipment Malfunction	14
Unit 7 – Concentration Methods	16
Unit 8 – Dewatering	18
Unit 9 – Extractive Metallurgy	20
Unit 10 – Mining and the Environment	22
Unit 11 – Reclamation	24
Unit 12 – Health Hazards 1	26
Unit 13 – Health Hazards 2	28
Unit 14 – Disaster and Response	30
Unit 15 – The Future of Mining	32
Glossary	34