



Minerals Connected Career Quest



Grades
6,7, &
10 -12



Subjects
Career Education
and Science



Activity
WebQuest



Lesson Snapshot

Duration: 45 - 90 Min

Welcome to the Saskatchewan Mining Association's Minerals Connected program! We are on a mission to build awareness about Saskatchewan's minerals. Students will discover mining industry careers by developing their virtual mine in a mini-game-filled career quiz. Once matched with a personality trait from Holland's Code, students can explore our career profiles and OaSIS to dig deeper into their potential in the world of mining!

Big Picture Questions

- What careers are there in the mining industry?
- How do your personality and interests influence your career path?
- What does a certain career involve?

Materials for Lesson

- Internet Access
- Laptops
- Headphones
- Worksheets



Demonstrated Learning

Engage: Spark curiosity by watching the video - [Mining: It's More Than You Think!](#)

Ask students what they think about a career in mining and what types of jobs exist.

Explore: Play the [Minerals Connected Career Quest](#) to learn more about the mining industry and be matched with a personality type.

Expand: Using your personality type, pick a career to research by using career profiles and the OaSIS website.

Acknowledgements

- Funding for the career quest game was provided by SaskJobs.
- The development of the career quest game was provided by Melcher Studios.
- Expertise was provided by volunteers on the Minerals Connected Committee
- This personality and interest-based career quest uses John Holland's work on the Holland Code, originally published in 1959 in the Journal of Counseling Psychology. The article was called, *A Theory of Vocational Choice*.

Learning Outcomes and Indicators:

Grade 6: Life Science: Diversity of Living Things

DL6.1 Recognize, describe, and appreciate the diversity of living things in the local and other ecosystems, and explore related careers.

(f) Identify examples of science and technology-related careers and workplaces which require an understanding of the diversity of living things (e.g., naturalist, zookeeper, palaeontologist, and wildlife biologist).

Grade 6: Physical Science: Understanding Electricity

EL6.2 Assess personal, societal, economic, and environmental impacts of electricity use in Saskatchewan and propose actions to reduce those impacts.

(f) Research employers and careers related to electrical energy generation, distribution, and conservation in Saskatchewan.

Grade 6: Career Education: Connections to Community

CC6.1 Investigate various aspects of careers and their requirements.

(b) Examine at least one occupation through an exploration of work information such as occupational description, working conditions, earnings, and education/training requirements.

(c) Utilize various sources of information such as parents, relatives, community members, newspapers, and digital resources.

CC6.1 Continued...

(h) Describe various work roles (such as labour, entrepreneur, manager) and settings (such as outside, office tower, manufacturing plant) of interest to oneself.

Grade 7: Earth and Space Science: Earth's Crust and Resources

EC7.2 Identify locations and processes used to extract Earth's geological resources and examine the impacts of those locations and processes on society and the environment.

(d) Identify locations of Saskatchewan's primary mineral resources (e.g., potash, gold, diamond, salt, uranium, copper, and graphite) and their primary uses.

(e) Relate processes used to extract primary mineral resources in Saskatchewan (e.g., open-pit mining, underground mining, and solution mining) to the location, type, and depth of the resource.

(f) Provide examples of technologies used to further scientific research related to extracting geological resources (e.g., satellite imaging, magnetometer, and core sample drilling).

(k) Research Saskatchewan careers directly and indirectly related to resource exploration.

Grade 7: Career Education: Connections to Community

CC7.1 Reflect on and express insights about how knowledge and skills learned in school transfer to one's future life and work.

CC7.1 Continued...

(c) Identify how personal learning and interests may impact the selection of high school courses and future work possibilities.

(f) Research and report on some key occupations available in the various economic sectors in Canada as represented by sector councils.

Grade 7: Career Education: Life and Work Plan

LW7.1 Investigate and demonstrate the personal qualities and abilities needed to seek, obtain, or create work.

(c) Compare advantages and disadvantages of secondary and post-secondary programs for the attainment of career goals including university, college, apprenticeship, and entrepreneurship.

Science 10: Career Investigation

SCI10-C11 Investigate career paths related to various branches and sub-branches of science.

Environmental Science 20: Career Exploration

ES20-CE1 Analyze and explore environmental science related career paths in Saskatchewan, Canada and the World.

Physical Science 20: Career Exploration

PS20-CE1 Analyze and explore physical science related occupations in Saskatchewan, Canada and the world.

Earth Science 30: Career Exploration

ES30-CE1 Analyze and explore earth-science related career paths in Saskatchewan, Canada and the world.

Practical and Applied Arts

Energy and Mines 10, 20, 30:

Module 50: Career Opportunities (Core)

ENMI50 Explore occupations related to the energy and mining sectors.

(b) Investigate occupations in energy and mining sectors (e.g., geologist, machinist, and power engineer).

(f) Reflect upon personal suitability or non-suitability for an energy and mining-related occupation considering criteria such as: education requirements, skills, work environment, wages, safety, and future trends.

Career and Work Exploration: 10, 20, A30, B30

CWEX2 Explore Transferable Skills

CWEX6 Sources of Career Information

CWEX7 Explore Industry Sectors

CWEX9 Analyze how a variety of factors influence career decisions and planning

CWEX10 Analyze one's compatibility for a variety of occupations.

CWEX11 Outline potential career plans

CWEX12 Interpret Labour Market Info

Life Transitions 20,30: Career Exploration

Life02 Examine how self-awareness informs career planning and goal setting

Background Information:

A high school diploma or equivalent is required to work in the Saskatchewan mining industry.

From exploration through operations and export, Saskatchewan companies support jobs in every part of the province. Saskatchewan mining operations paid more than \$1.5 billion to employees in 2023. Saskatchewan’s mining industry creates over 11,000 direct jobs. For every direct job in the Saskatchewan mining industry, there are at least two jobs in the mining supply and service sector (indirect jobs). The average annual salary of employees in the Saskatchewan mining industry is 1.9 times higher than that of Saskatchewan workers at \$113,516. The mining industry is one of the safest industries in Saskatchewan, with an average Lost Time Injuries per 1 million hours worked of 2.4 in 2023.

In the next 10 years the Saskatchewan mining industry’s employment is expected to grow by 35%, requiring more than 3,500 additional workers.

The Saskatchewan Mining Labour Market Analysis 2024 identified prevalent and critical mining occupations needed to sustain the industry's growth.

Prevalent occupations are careers with the biggest predicted labour shortages, meaning many workers are needed to fill the gap by 2034.

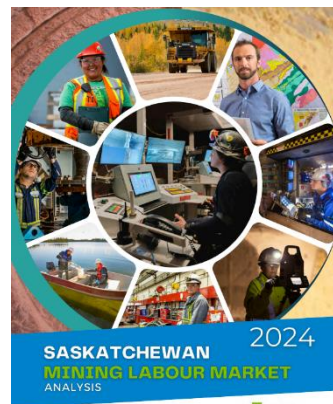
Critical occupations also have shortages but may not have as large of a gap. However, they are essential careers that often require specialized training.

Most Prevalent Mining Occupations

- 1.) Underground Miners
- 2.) Construction Millwrights and Mechanics
- 3.) Heavy Equipment Operators
- 4.) Industrial Electricians
- 5.) Heavy-duty Equipment Mechanics
- 6.) Welders and related Machine Operators
- 7.) Mine Labourers
- 8.) Underground Mine Support Workers

Other Critical Mining Occupations

- 1.) Geological Technologists, Technicians, and Geoscientists
- 2.) Engineers – Mechanical, Mining, and Civil
- 3.) Central Control and Process Operators
- 4.) Industrial Instrumentation Technicians and Mechanics
- 5.) Machine Operators, Mineral and Metal Processing
- 6.) Power Engineers and Power Systems Operators



Read the complete [Saskatchewan Mining Labour Market Analysis 2024](#) for more information.

Lesson Plan

Engage: (5 Minutes)

Spark curiosity by watching the video

[Mining: It's More Than You Think!](#)

Ask some of the following questions and discuss them as a class.

- What minerals do we mine in the province?
- What products are made from the minerals that are mined in Saskatchewan?
- What do you think a career in mining is about?
- How would you describe a career in mining using the five senses?
- What types of careers exist?
- Why would someone want to work in the mining industry?

Explore: (5 - 20 Minutes)

Hand out the worksheets. Students use the included worksheets to guide themselves through the entire WebQuest.

Minerals Connected Career Quest

- (a) Full Experience (20 Minutes):
Play 4 mini-games related to the mining cycle while answering questions to be matched with a personality type.
- (b) Quiz Only (5 Minutes): answer questions to be matched with a personality type.

Expand: (30 Minutes)

Using the matched personality type, pick one career to research by using career profiles and the OaSIS website.

Extensions:

Students could search the mining company websites to see what jobs are currently available. Students will find links to the company websites on the Saskatchewan Mining Association: <https://saskmining.ca/careers/career-board/>

Resources in WebQuest:

Minerals Connected Career Quest: [Minerals Connected Career Quest](#)

Saskatchewan Mining Association: [Career Profile Spotlights](#)

Occupational and Skills Information System: [OaSIS by Interest](#)

Minerals Connected YouTube: (videos related to the mini-games) [Minerals Connected Career Quest Playlist](#)

Additional Resources

Mining Industry Human Resources Council: [The Interactive World of Mining Careers](#)

Mining Industry Human Resources Council - Mining Needs You: [Career Profiles & Career Book](#)

Educational Career Planning Tool: <https://myblueprint.ca/>

Saskatchewan Geological Society: [GeoExplore Saskatchewan](#)

Discover Your Path to a Career in the Mining Industry

Realize your potential! Help solve some of the world's biggest challenges by working in Saskatchewan's mining industry! Develop skills and grow a career while helping feed and fuel the world. Today's mining industry is innovative, with **over 120 different positions**, from science and engineering to skilled trades to operators and business professionals. Over the next ten years, mining employment is expected to grow by 35%.

Step 1: What personality type are you?

Play the [Minerals Connected Career Quest](#) to discover your personality type.

What were your top three personality types, if applicable?

Personality Type	Percentage	Definition

John Holland, a psychology professor at John Hopkins University, devoted his professional life to research issues related to career choice and satisfaction. He found that most people fit in one of six personality types:

Realistic (**R**) = Doers Investigative (**I**) = Thinkers Artistic (**A**) = Creators
 Social (**S**) = Helpers Enterprising (**E**) = Persuaders Conventional (**C**) = Organizers

After playing the Minerals Connected Career Quest, **why do you agree or disagree with the personality type you were matched with?**

Step 2: What career suits my personality?

Use the Mining Career Chart on the following page to explore careers in the mining industry that match at least one of your personality types. Use the related links in the chart to dig a little deeper and find out more about one career.

If I worked in the mining industry, I could be a... _____

The three main responsibilities are:

- 1.)
- 2.)
- 3.)

The workplaces or employers could be...

Skills & Abilities:

5 – Highest

5 – Highest

Work Environment:

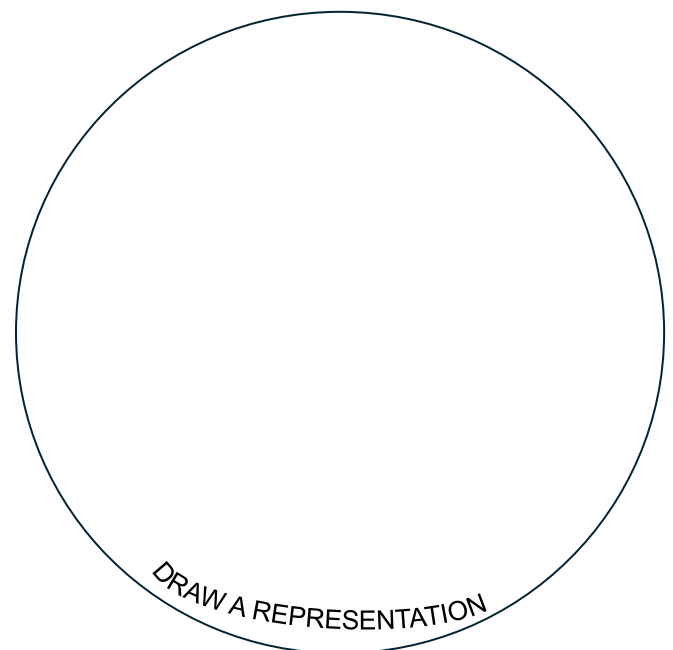
5 – Highest

Salary Range:

Employment Requirements
(Training, Location, and Duration):

Relevant High School Courses:

Why are you interested in this Career?



For the OaSIS codes, use the link below to search the code number.

<https://noc.esdc.gc.ca/OaSIS/OaSISWelcome>

Mining Careers	Holland	SMA Career Profiles	OaSIS
Accountant	CEI	Budgets & Planning Accountant	11100.02
Procurement & Purchasing Agent	CEI	Procurement Specialist	12102.00
Health & Safety Specialists	CRI	Safety Technician	22232.00
Transportation Coordinators	EC	Senior Logistics Assistant	13201.02
Securities Agents & Investment Dealers	ECS	Community Relations & Investment	11103.01
Processing Supervisors	ERC	Mill Supervisor	92010.00
Public Relations	ESA	Indigenous Relations Manager	10022.03
Human Resources Professionals	ESC	Human Resources Professional	11200.00
Chemists	IR	Process Analyst	21101.00
Geoscientists	IR	Geologist	21102.01
Electrical Engineers	IRE	Electrical Engineer	21310.00
Industrial Engineers	IRE	Industrial Engineer	21321.00
Metallurgical & Material Engineer (Chemical/Process)	IRE	Metallurgist Chemical Engineer	21322.00
Mining Engineers	IRE	Coming Soon	21330.00
Software Engineers	IRC	Coming Soon	21231.00
Geological Technologists	IRC	Mining Engineering Technologist	22101.01
Instrument Tech. & Mechanics	IRC	Instrumentation Technologist	22312.00
Mechanical Engineers	IRC	Mechanical Engineer	21301.00
Mine Labourers	RC	Coming Soon	85110.00
Underground Support Workers	RC	Coming Soon	84100.00
CAD Drafting Technologists	RCA	CAD Designer	22212.01
Air Pilots	RCI	Coming Soon	72600.01
Construction Millwrights and Industrial Mechanics	RCI	Industrial Mechanic / Millwright	72400.01
General Maintenance Workers	RCI	Maintenance Electrician	73201.00
Heavy Duty Equip. Mechanics	RCI	Heavy Duty Mechanic	72401.00
Heavy Equipment Operators	RCI	General Maintenance Operator	73400.00
Land Surveyors	RCI	Coming Soon – Drone Pilot	21203.00
Machine Operators	RCI	Coming Soon	94100.00
Welders	RCI	Journeyman Welder	72106.01
Underground Production Miners (Blaster, Driller, & Hoist)	RI	Hoist Operator	83100.00
Biological Technician	RIC	Coming Soon	22110.02
Control & Process Operators	RIC	Coming Soon	93101.00
Civil Engineers	RIC	Environmental Engineer	21300.00
Geological Technicians	RIC	Geological Technician	22101.02
Industrial Electricians	RIC	Maintenance Electrician	72201.00
Laboratory Technicians	RIC	Laboratory Technician	22100.02
Power Engineers	RIC	Power Engineer	92100.01
User Support Technicians	RIS	Technical Support Analyst	22221.00