

## Title: Science in Mining: Career Exploration

Summary: The purpose of my lesson is to introduce students to science-related jobs in the mining industry. A plethora of job opportunities exist in a wide-range of departments within the mining field. Some of the jobs I will showcase center on environmental data collection, core sampling, and mineral extraction. In addition, I will have students conduct research pertaining to the training required to qualify for such positions. As a high school science teacher, I encourage students to view topics covered in class through the lens of future employment opportunities. The value of this lesson to my host corporation is broadening student understanding of mining occupations.

Timeframe: 3 lessons, 45-mins in length

Kuspuk School District Standards Addressed:

- Technology Standards: 5.2, 6.2, 6.9, 7.3
- Career and Technology: 4.1, 4.5, 5.1, 5.5, 6.1, 6.9, 7.1, 7.4, 7.5, 8.2, 8.5

Lesson Objectives:

- Students will be able to research prospective careers utilizing the Occupational Outlook Handbook.
- Students will be able to research potential training programs and create a plan to achieve their goal.
- Students will be able to utilize technology to appropriately display their research.
- Students will understand basic job readiness skills and some occupations that exist in the mining field that readily utilize science.

Assessments:

Project based on student's individual levels. It will include any combination of the following assessments.

- Brochure, Newsletter, Poster about their job interest
- Post-Secondary job applications following research
- Resume, Reference List, and Cover Letter
- iWeb Electronic Portfolio

Lesson Description: This lesson is designed to be taught in 3 parts.

1<sup>st</sup> Lesson –

The goal of the first lesson is to build background knowledge centered on careers in the field of mining utilizing science. Of course, it is important to mention that these

are not the only careers available in the field and students will be able to explore other opportunities for their assignment.

**Lesson Hook:** Your goal here is to make sure students connect what they are learning in the science classroom to possible career opportunities. You can select an obvious example, such as a wildlife biologist who collects baseline environmental data, or a less obvious example such as a mechanical engineer who uses physics to select materials that can withstand the heat produced by machine friction. You may choose to focus on one picture on the title slide to highlight your example.

**Job Readiness Skills Slide:** The objective of this slide is to get students thinking about what basic skills are necessary to secure and keep employment. These are skills they are working on everyday at school, home, and in their community. It is important to get students to generate their ideas and see that employers are looking for more than good grades.

**Activity Suggestion:** Have students work in table groups to answer the following questions. Have students bring their answers back to the whole group to generate a short discussion. 1. What are important job skills? 2. Where do you learn important job skills? 3. What qualities do you want in a good supervisor?

Appropriate answers for question 1 should speak to soft skills centered on punctuality, willingness to try new things, good communication skills, cooperation, following directions, and task completion. Appropriate answers for question 2 should be school, home, community, school/community activities, and internships. Some students, depending on age, may have after-school jobs. Appropriate answers for question 3 should center on ability to answer questions, teach new tasks, helpfulness, and communication skills. It is important that students understand that there is a distinct difference between a personal and professional relationship.

**Where Do I Learn These Skills Slide:** Depending on how the classroom discussion for the previous slide concluded, you may or may not need to use this slide. This slide just reiterates the point for question 2 in the aforementioned activity. Students are learning job readiness skills in a variety of places! It is important to take these activities seriously so they have references for getting into trades programs, college, after-school jobs, or scholarships.

**Environmental Jobs Slide:** Discuss the jobs listed on this slide and encourage students to think of other jobs appropriate to this category in or outside of the mining field.

**Engineering Jobs Slide:** Discuss the jobs listed on this slide and encourage students to think of other jobs appropriate to this category in or outside of the mining field.

**Laboratory Jobs Slide:** Discuss the jobs listed on this slide and encourage students to think of other jobs appropriate to this category in or outside of the mining field.

Medical Jobs Slide: Discuss the jobs listed on this slide and encourage students to think of other jobs appropriate to this category in or outside of the mining field.

#### 2<sup>nd</sup> Lesson –

To start this lesson, recap the information covered yesterday. Be sure to reiterate job readiness skills, and some of the careers discussed the day before.

How Do I Know Which Training I Need? Slide: For this slide, prior to the lesson, select a job on the Occupational Outlook website. Show students how to locate the website and the information they will find. Have students brainstorm careers they will be interested in looking at. Have them choose at least 2-3 careers to look up on their own.

#### Assignment Slide:

- Brochure, Newsletter, Poster about their job interest
- Post-Secondary job applications following research
- Resume, Reference List, and Cover Letter
- iWeb Electronic Portfolio

Pass out the assignment sheet. Speak with students, regarding which level the class is working on, for assignments they might choose to do. Direct students to start brainstorming which project they'd like and to individually conference with you to have their project approved. Or, you may just choose an assignment and have the whole class complete a poster or brochure.

#### 3<sup>rd</sup> Lesson –

In this lesson, you are finishing up student conferences and giving students time to work on their projects. At the start of the lesson, you might want to recap the previous lesson and have the "Assignment" slide up for view. Also, you want to make sure the students remember the websites they should be working with. I usually e-mail students the web addresses so they just need to click on each to readily find the pages.

#### Materials:

SmartBoard (other such projector)

Science in Mining: Career Exploration Keynote Slide Presentation

Notebook Paper and Pencils – for notes/outlining assignment  
Computers with Internet Access  
Assignment Sheets – 1) Assignment Description and 2) Poster Graphic Organizer

Websites:

Occupational Outlook Handbook

<http://www.bls.gov/ooh/>

Career Surveys:

<http://tcids.tbr.edu/questionnaire.php/>

<http://www.losrios.edu/lrc/ois/index.php>

<http://vcc.asu.edu/ccis/index.php>

## Appendix

Name \_\_\_\_\_ Class \_\_\_\_\_

**DUE DATE:** \_\_\_\_\_

### Career Exploration Assignment Sheet

Directions: You will be completing a project that will satisfy at least one Career and Technical Standard and one Technology Standard. You'll be required to have your individual project approved by the teacher prior to starting your project. Below is a list of MINIMUM requirements for each level.

#### Career and Technical Levels 4-7

- Complete 2 career interest surveys – see district website for suggestions.
- Research at least 3 careers using the Occupational Outlook Website

#### Technology Levels 5-7

- Using the information gathered from the Career and Technical activities, create a poster, brochure, or newsletter outlining important information about your careers. Be sure to include the following:
  - Training needed for your career
  - General job description
  - Salary Range
  - Neat graphics

#### Career and Technical Level 8

- Complete 2 career interest surveys – see district website for suggestions
- Research at least 4 careers using the Occupational Outlook Website
- Create a plan for how you could obtain one of your careers
- Create a current resume, reference list, and cover letter for an entry level position within the field of your dream job

#### Parts of Approved Project

Career and Technical Standard Addressed \_\_\_\_\_

Technology Standard Addressed \_\_\_\_\_

**TRAINING**

**GENERAL JOB  
DESCRIPTION**

***CAREER  
EXPLORATION  
POSTER***

BY -----

**SALARY  
RANGE**

**INTERESTING  
GRAPHICS**