Name Geology 12 - 2023

TA

**LG #7: Resource Deposits & Considerations**

**BIG IDEA**: Minerals, rocks, and earth materials form in response to conditions within and on the Earth’s surface and are the foundation of many resource-based industries.

**Fundamental Knowledge (I know):**

* Resource deposits - resources in the local area:
	+ hydrothermal and volcanogenic ore deposits
	+ placer and surficial deposits
	+ oil, liquid natural gas (LNG), coal, and other fossil fuels
* Economic, environmental, and First Peoples considerations:
	+ role of geochemical or geophysical data in locating geological resources
	+ factors used to determine economic feasibility of extracting a geologic resource (e.g., price, concentration, accessibility, size, environmental impacts)
	+ uses of geologic resources in B.C.
	+ current resource conflicts (e.g., pipelines, oil sands, open-pit mines)

**Curricular Competencies (I can)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Proficiency Scale Teacher and Student self assessment** **(Circle one)** | **Example** | **Evidence** **(How do you know?)** |
| Consider social, ethical, and environmental implications of the findings from their ownand others’ investigations.Analyze cause-and-effect relationships. | **Emerging (C-/C)****Initial Understanding** | Completed Activity #1 – Journal with fundamental knowledge and vocabulary (in your words). |  |
| **Developing (C+/B) Partial/Near Complete Understanding** | Completed Activity #1 – Journal with fundamental knowledge and vocabulary (in your words with details).Activity #2 complete. |  |
| **Proficient (B+/A)** **Complete Understanding** | Completed Activity #1 – Journal with fundamental knowledge and vocabulary (in your words, with examples and diagrams, connecting to the main ideas).Activity #2 is thoroughly completed, provide details, use vocab that is related accurately and good resources.  |  |
| **Extending (A+) Sophisticated Understanding** |  |  |

**Student Signature: Teacher Signature: Date:**

Resources can be found at www.THSSscience.com

User: THSS

Password: science

LG 7 Resource Deposits & Considerations

**Suggested Learning Activities:**

**RESOURCES**

1. Text: **Physical Geology & the Environment**

2. Online Resources:

B.C. map of resources - <https://mineralsed.ca/site/assets/files/3453/minbcmap_me2013.pdf>

Geological resources - <https://www.youtube.com/watch?v=75NEel5rWpI>

Oil & Gas formation - <https://www.youtube.com/watch?v=8YHsxXEVB1M>

**Activity #1: Journal**

1. Refer to your text Physical Geology & the Environment Ch. 12 Geologic Resources. Read pages 298-329.

*Alternatively, you can check out the online resources listed above and/or find your own to help research the definitions below.*

2. In your journal:

• Explain the difference between renewable and non-renewable resources.

• Explain how oil and gas form.

• Describe where we might find oil and gas.

• Describe the different types of coal, how they are formed and where they are found.

• Describe some of the environmental effects of extracting oil, gas, and coal in general.

• Describe the following methods of ore formation: *Hydrothermal fluids, contact metamorphism, hydrothermal veins, disseminated deposits, placer deposits*.

• Describe the differences between strip mines, open-pit mines, and underground mines.

• Identify the uses of and the ores used to produce the following: iron, copper, lead, zinc, gold, construction materials.

**Activity #2: Resource Extraction & Considerations**

Create a poster using the program of your choice (a single page Word or slide in PowerPoint is recommended). You will investigate a resource, how it is used and how it is mined / extracted. You will also discuss the impact this resource use has on society.

1. Choose from the following list of minerals and geologic resources that we currently mine in B.C.

|  |  |
| --- | --- |
| * Copper
* Gold
* Zinc
* Molybdenum
* Silver
* Lead
* Jade
 | * Coal
* Oil
* Liquid natural gas (LNG)
* Gypsum
* Magnetite
* Limestone
* Sulfur
 |

2. On your poster include the following:

* How the resource is currently used
* If the resource is renewable or non-renewable
	+ If non-renewable, state any renewable alternatives
* How the resource is typically mined
	+ Primary location(s) where the resource is found
* The environmental and societal impacts or side effects of the technique(s) used
	+ Consider the impacts (direct & indirect) of resource development on First Peoples communities and traditional territories
* Make sure you cite any resources you may use in the appropriate format, including pictures.
	+ You can use a separate page or slide to list your references on, so you don’t take away space from your poster.
* Make sure your name is on the document before saving.