**LEWISBURG AREA SCHOOL DISTRICT**

**LESSON PLAN**

**Teacher Name: \_\_\_\_\_Van Wagner\_\_\_\_\_\_ Class: \_\_\_\_\_\_\_\_\_AP Enviro**

**Topic: \_\_\_quiz and start minerals Date of Lesson: \_\_Class #64**

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| **LESSON ESSENTIAL QUESTION**: | **Big Idea:**Minerals are essential to human and natural processes. **Essential Question:**What are the most important minerals and how do we harvest them? |
| **STANDARD / LEARNING TARGET:** | **Core standards addressed with this lesson:****7.4.9.A:** Compare and contrast the effect of the physical systems on people across **regions** of the United States.**7.4.9.B:** Compare and contrast the effect of people on the physical region across **regions** of the United States.**7.4.12.A:** Analyze the global effects of changes in the physical systems.**7.4.12.B:** Analyze the global effects of human activity on the physical systems.**S11.D.1.3.3:** Explain factors (e.g., nutrient loading, turbidity, rate of flow, rate of deposition, biological diversity) that affect water quality and flow through a water system.**4.8.10.C.** Analyze how human activities may cause changes in an ecosystem. \* Analyze and evaluate changes in the environment that are the result of human activities. \* Compare and contrast the environmental effects of different industrial strategies (e.g., energy generation, transportation, logging, mining, agriculture). |
|  **ACTIVATING STRATEGIES**:(Anticipatory Set) | Bell Ringer: Around the world, about \_\_\_\_ people live without adequate access to water.a) 1.5 millionb) 10 millionc) 98 milliond) 1.1 billione) 5.2 billion |
| **KEY VOCABULARY**: | Hydrologic, volume, velocity, consumption.  |
| **RESOURCES:** | Teacher slide show, demonstration, and lecture.  |
| **TEACHING STRATEGIES**: | Complete QuizBell Ringer: What does “organic” mean? List 3 things that would be considered organic. What does “inorganic” mean?  List 3 things that would be “inorganic.”Answer: Organic- comes from something that is or was living. In-organic – was never living.A. In order for a substance to be considered a mineral, it must meet the following 4 criteria: 1. Must be inorganic. 2. Must occur naturally. 3. Must be a solid 4. Must have a definite chemical composition / formula. Lab: “Is It A Mineral?” 1. Students are given a bag of materials. They must list or describe the material and determine if it is a mineral. If they do not think it is a mineral, they must explain why. Discuss results Bell Ringer: what are the 2 most common elements in the Earths Atmosphere? Answer: Nitrogen and Oxygen.* 1. The most abundant elements in the Earths Crust are **Oxygen** and **silicon**.
	2. Mineral Families:

**Silicates** – any containing Si (90% of all minerals on earth)**Carbonates** – CO3 ion**Halides** – F or Cl**Native Minerals** – composed of just 1 element **Oxides** – a metal ion combined with oxygen.**Sulfides** – a metal ion combined with Sulfur**Sulfates** – SO4 |
| **EXTENDED THINKING ACTIVITY / ASSIGNMENT:** | Chapter 15 questions |
| **SUMMARIZATION/ CLOSURE:** | Exit bellringer- What mineral family is Olivine?(Mg,Fe)2SiO4Answer:SilicateIt has Si and O.Silt |