**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 million  b) 10 million  c) 98 million  d) 1.1 billion  e) 5.2 billion |
| **KEY VOCABULARY**: | Hydrologic, volume, velocity, consumption. |
| **RESOURCES:** | Teacher slide show, demonstration, and lecture. |
| **TEACHING STRATEGIES**: | Complete Quiz  Bell 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)2SiO4  Answer:  Silicate  It has Si and O.  Silt |