**LEWISBURG AREA SCHOOL DISTRICT**

**LESSON PLAN**

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

**Topic: \_\_\_mineral families Date of Lesson: \_\_Class #66**

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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) | Which of the following is an example of a nonmetallic mineral?  a) ore  b) chromium  c) zinc  d) nickel  e) silicon  Answer: e silicon (non metal) |
| **KEY VOCABULARY**: | Hydrologic, volume, velocity, consumption. |
| **RESOURCES:** | Teacher slide show, demonstration, and lecture. |
| **TEACHING STRATEGIES**: | 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  1. Name your favorite 15 minerals in your red kit.  2. Look up their chemical formula (page 666 in “Modern Earth Science book” and page 576 in “Earth Science” book).  3. To which mineral family does each of your 15 belong?  4 What is the color of each mineral?  5. What is the luster of each mineral?  6. Which mineral is most like you, why? |
| **EXTENDED THINKING ACTIVITY / ASSIGNMENT:** | Chapter 15 questions |
| **SUMMARIZATION/ CLOSURE:** | Exit Bell Ringer- Which mineral is most like you, why?  Silt |