**LEWISBURG AREA SCHOOL DISTRICT**

**LESSON PLAN**

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

**Topic: \_\_\_copper ore Date of Lesson: \_\_Class #67**

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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: When a mineral shows some green color, what metal would you expect it to contain? Example:MalachiteCuCO3 \* Cu(OH)2Copper |
| **KEY VOCABULARY**: | Hydrologic, volume, velocity, consumption.  |
| **RESOURCES:** | Teacher slide show, demonstration, and lecture.  |
| **TEACHING STRATEGIES**: | Notes:Ore- a material used as a source of metal.Show malachite sample from Shikellamy State Park mine. Discuss lab.Safety Goggles is a must today.\*\*\*Lab safetyHave Mr. Wagner bring the Sulfuric Acid to your lab station, don’t walk with acid!Students complete lab. |
| **EXTENDED THINKING ACTIVITY / ASSIGNMENT:** | Chapter 15 questions |
| **SUMMARIZATION/ CLOSURE:** | Exit Bell Ringer: What metals are the following rocks ores for? Malachite Cu2(CO3)Galena- PbSBauxite Al2O3Obsidian SiO2Silt |