Academic/ELL Earth Science AGENDA

**January 18, Thursday: B Day**

* **Take out your mineral notes review from last class**
* **Take out your GIZMOS mineral identification Vocabulary terms**
* **I will give you a GIZMOs Lab on Mineral Identification**

**WARM-UPS:**

1. Mineral SHORT QUIZ
   1. Write your name on BOTH your quiz copy and ANSWER SHEET
   2. You only have 20 minutes to complete the quiz
   3. Write your name on your answer sheet.
      1. SUBJECT = mineral quiz
   4. You MAY write on your test but place your answers on the answer sheet
   5. AFTER 20 minutes, I will collect BOTH the quiz copy and answer sheet
      1. IF you finish early, and I collect your quiz, you may read through the GIZMOs lab

**OBJECTIVES: Minerals**

1. **GIZMOS MINERAL LAB**
   1. **5th BLOCK: Whole class using Promethean Board**
   2. **7th BLOCK: Student Pairs – work at computer. I have your log-in and password if you do not remember these**
2. **IF you complete the lab, take the 5 question quiz at the end of the GIZMOs activity**

**EXIT TICKET:**

**Complete the 2 questions printed on the Exit ticket hand-out**

**BE SURE YOUR NAME IS ON THIS AND TURN IT IN AT THE END OF CLASS!**

**HOMEWORK:**

1. **Review the MINERAL NOTES for a quiz on the 5 characteristics of minerals and mineral identification properties**
2. **Complete the GIZMOs lab if necessary**
3. **Read the information “How Minerals Form” and answer the questions at the end of the reading**
4. **Complete the CH#5 Minerals Test review**

**CH#5 Test Review: Minerals**

1. List the 5 characteristics of minerals
   1. Be able to identify substances as minerals or non-minerals
2. Compare/contrast the characteristics w/the mineral identification properties
3. The mineral identification properties can be divided into 2 groups
   1. Identify both groups AND list the properties that fall into each group.
4. Describe the **mineral identification properties**, determine WHICH minerals you are looking to identify (type by grouping or specific mineral), and describe HOW to do the test or determine the property.
   1. Know HOW to USE Moh’s scale of hardness AND the 4 field-test tools – including their values on Moh’s scale.
   2. Know the equation to determine specific gravity.
      1. Determine the specific gravities of samples and be able to identify the mineral as metallic or non-metallic
5. Describe the ACID test and identify the minerals it will identify
6. Describe the property of magnetism
   1. Which mineral would you identify with this test?
7. Which mineral is called “Fools Gold”?
8. Which mineral tastes ‘salty’?
9. Differentiate between cleavage and fracture
10. Identify the FIRST and SECOND most abundant elements in Earth’s crust

**How Minerals Form**

**Formation of Minerals: Background**

There are 3 basic ways in which minerals form. Minerals form when molten material cools and hardens, when water containing dissolved minerals evaporates, and when pre-existing minerals are changed by heat, pressure or chemical activity. The majority of Earth’s minerals form when molten material **cools** and **hardens** (or **crystallizes** or **solidifies**). (Molten material is called magma if it is on Earth’s surface, or lava if it is beneath Earth’s surface). As the molten material cools, the ATOMS and IONS (elements) move toward each other until they combine to form mineral compounds. If the molten material cools SLOWLY, there is a lot of time for the atoms and ions to form mineral compounds. Therefore, the crystals that form are LARGE. Molten material **inside** Earth cools **slowly**, as it is **insulated by the surrounding rock.** (Think of coffee or hot chocolate in a thermos – it cools slowly because it is insulated). If the molten material is **on** Earth’s **surface** (lava), it is **not** insulated and cools **quickly** (like coffee or hot chocolate in a cup).

Many minerals form when water containing dissolve minerals evaporates. Only the water evaporates, all other material stays behind. (This is why evaporation is a purifying process). Again, when water evaporates **slowly**, **large** crystals form. When water evaporates **quickly**, **small** crystals form.

When pre-existing minerals are subjected to extreme heat or pressure, but the minerals do not melt, they can be changed into different minerals. This process is called **metamorphism**. Pre-existing minerals can also be changed when they come in contact with the gases and water from the molten material. The **greater** the **pressure**, and **hotter** the **temperature**, the **greater change** occurs in the minerals.

* What factors affect the size of minerals that form when water evaporates?
* What factors affect the size of minerals that form when molten material cools?
  + Describe the location of the molten material that affects crystal size during mineral formation
    - Identify the molten material for both locations
* What is the common factor in BOTH situations?