Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Lesson 1: Copper Reactions**

Copper is a metal that is used in many materials, including pennies and wires. Copper is also a reactive metal that can change colors when oxidized. What solutions can oxidize copper?

**Doing the Science**

1. Start the “Bacteria Miner” simulation by clicking on the “Sim” tab.

2. Click on the “Metal Test” button.

3. Click and drag a small copper nugget above the 0.5 m ferric oxide (Fe2O3) beaker.

4. Click and drag a large copper nugget above the water (H2O) beaker.

5. Click on the “Run” button.

6. Record the color of the solution and the copper nugget in Table 1 below.

7. Repeat steps 5–6 for each of the 7 days.

8. Click on the “Reset” button.

9. Repeat steps 3–4 except with a large copper nugget above the 0.5 m ferric oxide beaker (Fe2O3) and a small copper nugget above the water beaker (H2O).

10. Repeat steps 5–7 and record in Table 2 below.

**Table 1.**

|  |  |  |
| --- | --- | --- |
| **Day** | **Small Copper Nugget: 0.5 m Fe2O3** | **Large Copper Nugget: H2O** |
| **1** |  |  |
| **2** |  |  |
| **3** |  |  |
| **4** |  |  |
| **5** |  |  |
| **6** |  |  |
| **7** |  |  |

**Table 2.**

|  |  |  |
| --- | --- | --- |
| **Day** | **Large Copper Nugget: 0.5 m Fe2O3** | **Small Copper Nugget: H2O** |
| **1** |  |  |
| **2** |  |  |
| **3** |  |  |
| **4** |  |  |
| **5** |  |  |
| **6** |  |  |
| **7** |  |  |

**Do You Understand?**

1. What happened to the ferric oxide beaker and the water beaker by the 7th day?

2. Did the size of the copper nugget affect the color of the solution?