**Metal Reactivity Series Lab Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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**Purpose:**

* To arrange metals in order of decreasing reactivity

**Necessary Info:**

* Metals react by losing electrons to form positive ions!!!!!!!!!

**Materials:**

* copper metal
* zinc metal
* magnesium metal
* copper (II) nitrate solution
* silver nitrate solution
* magnesium nitrate solution
* chem plate
* magnifying glass
* toothpicks

**Procedure:**

* Place 10 drops of each solution into the proper well in the chem plate.
* Add a piece of metal into the proper wells.
* Use clean toothpicks to stir the wells—do not cross contaminate!
* Let sit for 10 minutes and record results.
* Mark a NEGATIVE sign for no reaction and mark R for a REACTION.

**Observations:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Cu(NO3)2(aq)** | **Mg(NO3)2(aq)** | **AgNO3­(aq)** |
| **Cu(s)** | **X** |  |  |
| **Zn(s)** |  |  |  |
| **Mg(s)** |  | **X** |  |

**Analysis:**

**1.** Write the net ionic equation wherever a reaction took place.

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**2.** What type of chemical reaction was taking place in each case?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3.** Which metal reacted with the most solutions i.e. which metal lost electrons most easily?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Why? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4.** Could you have predicted from prior knowledge which metal was going to react with the least number of solutions?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Reason? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**5.** Rank the **4** metals in DECREASING order of reactivity:

\_\_\_\_\_\_\_\_\_ → \_\_\_\_\_\_\_\_\_ → \_\_\_\_\_\_\_\_\_ → \_\_\_\_\_\_\_\_\_

**6.** What metal is the Statue of Liberty made with and why?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**7.** Given your extensive knowledge of relative chemical activity, which one metal on your list is least likely to be found in an uncombined or “free” state in nature? Why?

\_\_\_\_\_\_\_\_\_\_\_\_ Why? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_