

Lab: Single-Replacement Reactions

Rxn	Evidence of Reaction
1	
2	
3	
4	
5	
6	

Rxn	Balanced Chemical Equations (Include Phases)
1	$\text{Cu(s)} + \text{AgNO}_3(\text{aq}) \rightarrow$
2	$\text{Fe(s)} + \text{CuSO}_4(\text{aq}) \rightarrow$
3	$\text{Zn(s)} + \text{Fe(NO}_3)_3(\text{aq}) \rightarrow$
4	$\text{Zn(s)} + \text{MgSO}_4(\text{aq}) \rightarrow$
5	$\text{Cu(s)} + \text{HCl(aq)} \rightarrow$
6	$\text{Zn(s)} + \text{HCl(aq)} \rightarrow$

Questions:

1.) Complete the following table by writing the symbols of the two elements whose reactivities were tested in each of the above reactions (1-6).

	1	2	3	4	5	6
More active						
Less active						

(over)

2.) Arrange Fe, Mg, and Zn in order of their activities, listing the most active first: (1) _____

(2) _____

(3) _____

3.) Arrange Cu, Ag, and Zn in order of their activities, listing the most active first: (1) _____

(2) _____

(3) _____

4.) Arrange Mg, H, and Ag in order of their activities, listing the most active first: (1) _____

(2) _____

(3) _____

5.) Arrange all five of the metals in an activity series, listing the most active first: (1) _____

(2) _____

(3) _____

(4) _____

(5) _____

6.) On the basis of the reactions observed, explain why the position of hydrogen cannot be fixed exactly with respect to all of the other elements listed in the activity series in question 5.

7.) What one additional test would be needed to establish the exact position of hydrogen in the activity series? [Be specific, using only the reactants that were available in this investigation.]

8.) Using the data from this experiment:

(a) Would silver metal react with hydrochloric acid? _____

(b) Would magnesium metal react with hydrochloric acid? _____