

## Part 1. An Activity Series for Some Metals.

Record your observations in the data table below:

	$\text{Cu}^{2+}(\text{aq})$	$\text{Mg}^{2+}(\text{aq})$	$\text{Pb}^{2+}(\text{aq})$	$\text{Zn}^{2+}(\text{aq})$	$\text{Ag}^{+}(\text{aq})$
$\text{Cu}(s)$	×				
$\text{Mg}(s)$		×			
$\text{Pb}(s)$			×		
$\text{Zn}(s)$				×	

## Part 2. An Activity Series for Some Halogens.

Record your observations in the data tables below:

Halogen	Color in Mineral Oil	Halide Ion	Color in Mineral Oil

### Reaction Data Table

Reactants	$\text{Cl}_2(\text{aq})$	$\text{Br}_2(\text{aq})$	$\text{I}_2(\text{aq})$
$\text{Cl}^{-}(\text{aq})$	×		
$\text{Br}^{-}(\text{aq})$		×	
$\text{I}^{-}(\text{aq})$			×

## Post-Lab Questions

1. Write balanced net ionic equations for all the reactions that occurred with the metals.
2. List the metals in order of decreasing ease of oxidation. Compare this list with an activity series found in a textbook. How do the two lists correlate?
3. Write reduction half-reactions for each of the metal ions. Arrange the reaction list in order of decreasing ease of reduction. Compare the order with a listing found in a table of standard reduction potentials. How do the two lists correlate?
4. Explain how to determine if a reaction occurs in the halogen experiment.
5. Why should the halide ions not dissolve in mineral oil?
6. Explain what is meant by solvent extraction. How is it used in Part 2?
7. Write balanced net ionic equations for the reactions which occurred with the halogens.
8. List the halogens in decreasing order of reactivity. Compare this list with an activity series found in a textbook. How do the two lists correlate? Predict the location of fluorine in this activity series.
9. Write reduction half-reactions for each of the halogens. Arrange in order of decreasing ease of reduction. Compare the listing with the order found in a table of standard reduction potentials. How do the lists correlate?
10. Why was it necessary to test the halide ions for their color in mineral oil?
11. Would it make a difference if calcium bromide solution,  $\text{CaBr}_2$ , is used rather than sodium bromide solution? Explain.