Unit 4 Chemistry 3202 Name:_____

Strength of Oxidizing Agents and Reducing Agents

Website:

http://www.chem.iastate.edu/group/Greenbowe/sections/projectfolder/flashfiles/redox/home.html

Pre-Lab:

Do metals lose or gain electrons when they react? _____

Are metals oxidized or reduced when they react? _____

Are metals oxidizing agents or reducing agents? _____

For each activity below, place a checkmark (✔) when a reaction occurs.

Activity #1

	$Mg_{(s)}$	$Cu_{(s)}$	$Zn_{(s)}$	$Ag_{(s)}$
$Mg^{2+}_{(aq)}$				
$Zn^{2+}_{(aq)}$				
$Cu^{2+}_{(aq)}$				
$Ag^{+}_{(aq)}$				

List the oxidizing agents from strongest to weakest

_____

_____

_____

_____

List the reducing agents from weakest to strongest

_____

_____

_____

_____

Activity #2

	$Fe_{(s)}$	$Cu_{(s)}$	$Zn_{(s)}$	$Pb_{(s)}$
$Fe^{2+}_{(aq)}$				
$Zn^{2+}_{(aq)}$				
$Cu^{2+}_{(aq)}$				
$Pb^{2+}_{(aq)}$				

List the oxidizing agents from strongest to weakest

_____

_____

_____

_____

List the reducing agents from weakest to strongest

_____

_____

_____

_____

Activity #3

	$Fe_{(s)}$	$Pb_{(s)}$	$Ni_{(s)}$	$Sn_{(s)}$
$Fe^{2+}_{(aq)}$				
$Pb^{2+}_{(aq)}$				
$Ni^{2+}_{(aq)}$				
$Sn^{2+}_{(aq)}$				

List the oxidizing agents from strongest to weakest

_____

_____

_____

_____

List the reducing agents from weakest to strongest

_____

_____

_____

_____

In the table below:

- list the oxidizing agents from strongest to weakest in the column on the left.
- list the reducing agents from weakest to strongest in the column on the right.

Oxidizing agents (strongest at the top)	Reducing agents (weakest at the top)

1. How can the positions of the oxidizing agent and the reducing agent in the above table be used to predict whether a reaction will occur?

_____

_____

2. Use the above table to determine which pairs of reactants should produce a reaction.

a) $Ag^{+}(aq)$ + Fe(s)

b) $Fe^{2+}(aq)$ + Ag(s)

c) $Cu^{2+}(aq)$ + Ni(s)

d) $Ni^{2+}(aq)$ + Cu(s)