Name:			)	Class:	Class:		
<u>S.3</u>	3 Chemistry	<u>!</u>	Comparing tl	ne reactivity of different metals.			
A.	Metal Reactivity S	eries					
1.	Write the reactivity	series of metals	s in descendin	<b>g order</b> : (Symbol of the metals in	bracket)		
		(	)	(most/least) re	eactive		
		(	<u>)</u>				
		(	)				
		(	)				
		(	<u>)</u>				
		,					
		(	)				
		(	)				
		(	)				
		(					
		(	)	(most/least) re	eactive		
•							
2.	In the above reactivity series of metals,  (a) use a green pen to indicate the cut-off line where the metal: (i) will burn (ii) will not burn or						
				nere the metal. (1) will burn (11) wh	iii not duin oi		
	<ul><li>(iii) will have no reaction with air (oxygen).</li><li>(b) use a blue pen to indicate the cut-off line where the metal will react: (i) with cold water, (ii)</li></ul>						
	with steam or (iii) there will be no reaction.						
	(c) use a red pen to indicate the cut-off line where the metal will react with acid: (i) with an						
	explosive reaction (ii) to form salt and hydrogen (iii) with a very slow reaction or (iv) will not react with acid.						
3.	As you noted from t	the metal reactive	vity series, sor	ne metals are reactive	e than others.		

## **B.** Comparing Reactivity of different Metals

Use the metal reactivity	series you have	written on pa	age 1 to wri	te 3 sets of s	sentences us	sing the
following structures:						

(a) <u>Metal A</u> is more reactive than <u>metal B</u> .
(b) Metal A reacts with water but metal B doesn't because metal A is more reactive than metal B.
(c) Metal A reacts with Reactant X to form Substance B and Substance C
I Reaction with oxygen
Example:
(a) Magnesium is more reactive than silver.
(b) Magnesium reacts with oxygen but silver doesn't because magnesium is more reactive than
silver.
(c) Magnesium reacts with oxygen to form magnesium oxide.
(a)
(b)
(0)
(c)
II Reaction with water
Evenule
Example:  (a) Aluminium is more reactive than lead
<ul> <li>(a) Aluminium is more reactive than lead.</li> <li>(b) Aluminium reacts with steam but lead doesn't because aluminium is more reactive than lead.</li> </ul>
(c) Aluminium reacts with steam to form aluminium oxide and hydrogen.
(c) Auminium reacts with steam to form auminium oxuce and nyurogen.
(a)
(b)
(c)

## III Reaction with acid

Example:								
(a) <u>Calcium</u> is more reactive than <u>copper</u> .								
(b) Calcium reacts with hydrochloric acid but	copper doesn't because calcium is more reactive							
than <u>copper</u> .								
(c) <u>Calcium</u> reacts with <u>hydrochloric acid</u> to form <u>calcium chloride</u> and <u>hydrogen</u> .								
(a)								
(b)								
(c)								
C. Write three sets of sentences								
c. Write three sets of sentences								
With reference to Part B., write sentences to con	npare the reactivity of different metals with reactants							
of your own choice.								
1.								
(a)								
(b)								
<u> </u>								
(c)								
2.								
(a)								
(b)								
( )								
(c)								
3.								
(a)								
(b)								
(c)								

## Possible Teacher-Student interaction to develop the language of comparison.

- T: Let us say that we have two metals, magnesium and iron, and the substance we want them to react with is hydrochloric acid, which is called the reactant. Now, look at the reactivity scale(s) and tell me which of these two metals should be more reactive? Magnesium or iron?
- SS: Magnesium.
- T: What is given off in the reaction between magnesium and hydrochloric acid?
- SS: Hydrogen.
- T: And what is the other substance given off?
- SS: Magnesium chloride.
- T: And what kind of substance is that?
- SS: A salt.
- T: Now, when magnesium and iron react with hydrochloric acid, what would you see? (shows the picture of the Mg in the HCl in the TT)
- SS: Lots of bubbles (lots of fizzing).
- T: Which one will have most bubbles?
- SS: The magnesium.
- T: Instead of lots of bubbles, we should say in science that the reaction effervesces strongly. Effervesces means to make bubbles. So we can say that the more reactive metal effervesces more strongly or more vigorously. So which one effervesces more strongly? Magnesium or iron?
- SS: Magnesium.
- T: Yes. Now, I am going to give you the names of 2 other metals and hydrochloric acid and you have to be the teacher and I will be your student. I want you to ask me the questions I just asked you.

The T Identifies 3 SS to come to the front to be the teacher and the T sits in the chair of one of the students and they ask and the T answers. Then the metals and the reactants are changed and 3 new SS come to the front and ask other (identified) SS at their desks the same kind of questions. Then you can work with the SS to write up an appropriate response such as:

Both potassium and calcium react with water but, if both potassium and calcium are in the same water solution, then the potassium will react but not the calcium because potassium is more reactive than calcium.



