

B. Comparing Reactivity of different Metals

Use the metal reactivity series you have written on page 1 to write 3 sets of sentences using the following structures:

- (a) *Metal A is more reactive than metal B.*
- (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)

(c)

II Reaction with water

Example:

- (a) *Aluminium is more reactive than lead.*
- (b) *Aluminium reacts with steam but lead doesn't because aluminium is more reactive than lead.*
- (c) *Aluminium reacts with steam to form aluminium oxide and hydrogen.*

(a)

(b)

(c)

III Reaction with acid

Example:

(a) *Calcium is more reactive than copper.*

(b) *Calcium reacts with hydrochloric acid but copper doesn't because calcium is more reactive than copper.*

(c) *Calcium reacts with hydrochloric acid to form calcium chloride and hydrogen.*

(a)

(b)

(c)

C. Write three sets of sentences

With reference to Part B., write sentences to compare the reactivity of different metals with reactants of your own choice.

1.

(a)

(b)

(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.

