**1.3.2 Exercise 1 – Redox Reactions of Group 2 metals**

**1. Reaction with Oxygen**

a) Write an equation, with state symbols, to show the reaction of calcium with oxygen.

b) Use oxidation numbers to show that this is a redox reaction.

c) Describe what you would see if a piece of calcium was left to stand in air.

d) State how your observations would be different if you used magnesium instead of calcium.

**2. Reaction with Acids**

a) Write an equation, with state symbols, to show the reaction of magnesium with hydrochloric acid.

b) Use oxidation numbers to show that this is a redox reaction.

c) Describe what you would see during this reaction.

d) Write equations, with state symbols, to show the reaction of magnesium with sulphuric and nitric acids.

e) State how your observations would be different if you used calcium instead of magnesium.

f) How could you confirm the identity of the gas evolved?

**3. Reaction with water**

a) Write an equation, with state symbols, to show the reaction of strontium with water.

b) Use oxidation numbers to show that this is a redox reaction.

c) Describe what you would see during this reaction.

d) Predict the approximate pH of the resulting solution and describe how you could test this.

e) State how your observations would be different if you used calcium instead of strontium.

4. **Explaining trends in reactivity**

a) State and explain the trend in reactivity in the metals of Group 2