

Homework 1 – pH, Acids and Bases, Effect on the Environment/society

1) Look at the list of substances below:

ammonium chloride	copper (II) oxide
potassium sulfate	sodium oxide
lithium nitrate	zinc oxide

Put these substances in a table with the headings - alkalis, bases and salts.

2) Look at the oxides below and write the letter of the category that describes them best.

Category **A**: Dissolves in water to give a pH less than 7.

Category **B**: Dissolves in water to give a pH more than 7.

Category **C**: Have no effect on the pH of water.

- a) sulfur dioxide
- b) sodium oxide
- c) carbon dioxide
- d) copper (II) oxide
- e) iron (III) oxide
- f) barium hydroxide

- 3) Give two examples of the damaging effects of non-metal oxide production by burning fossil fuels.
- 4) Acids in foods can cause problems such as tooth erosion. However, acids such as citric acid are often added to foods by manufacturers. Why is this?

National 5 Extension

- 1) What happens to the concentration of hydrogen ions when compared to the concentration of hydroxide ions when the following substances are added to water?
- a) Copper oxide
 - b) Potassium oxide

c) Nitrogen dioxide

2) A pupil collected 20cm^3 of sulfuric acid and added 3 drops of universal indicator. He then added 100cm^3 of water.

a) What would he observe when he added the water?

b) Would the pH increase, decrease or stay the same?

c) Would the hydrogen ion concentration increase, decrease or stay the same?

d) Would the acidity increase, decrease or stay the same?