WorksheetCloud: MEMORANDUM
Grade 9
Subject: Natural Sciences
Topic: Acids and Bases Indicators

Activity 1

1.Something which shows whether a substance is an acid or a base, by changing colour when we add it to that substance, is called an _____.

indicator or acid-base indicator

2.The pH scale ranges between the values _____ and _____.

0-14

3. … have pH values less than 7.
Acids

4. Bases have pH values ranging between _____.
7 and 14

5. … substances have pH values approximately equal to 7
Neutral

Activity 2

Imagine we start with a beaker of clean, distilled water. Answer the following questions.

2.1 What will be the pH of the clean, distilled water?
The pH will be equal to 7.

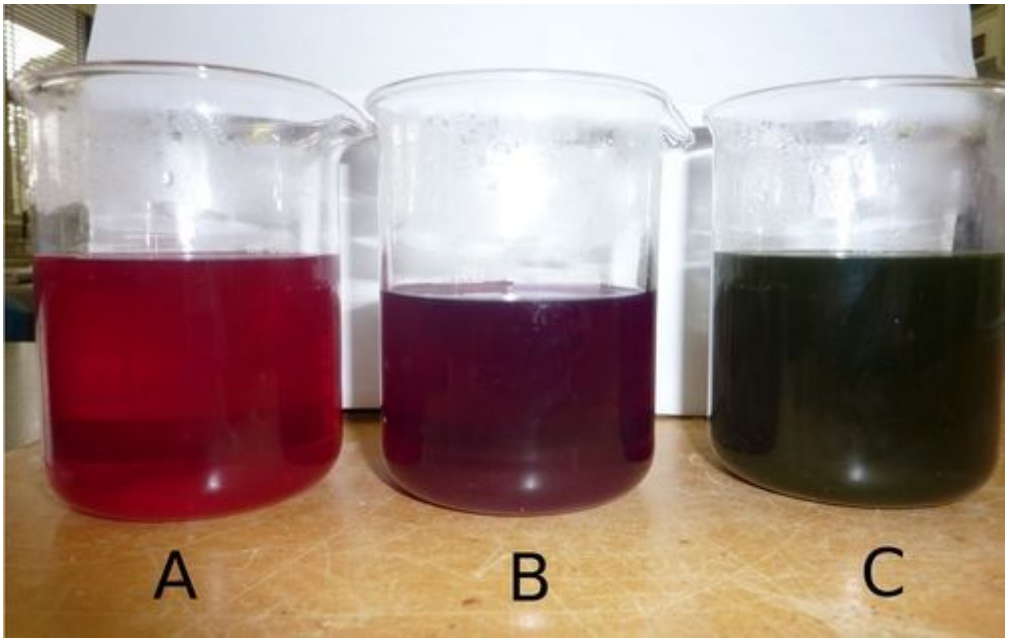
2.2 How will the pH change if we add a small amount of acid to the water?
The pH will decrease.

2.3 How could we get the pH to increase?
We would have to add a base.

2.4 How could we get the pH to increase to a higher value, for example 13?
We would have to add a large amount of a strong base.

Activity 3

In the following picture, the three beakers contain three different solutions. Red cabbage water was added to each of the beakers. Answer the following questions



3.1 Which solution, A, B or C, is the most acidic? Motivate your answer.

Solution A is most acidic. Red cabbage water turns red in acidic solutions.

3.2 Which solution, A, B or C, is the most basic? Motivate your answer.

Solution C is most basic. When red cabbage water turns green we know we have a basic solution.

3.3 Which solution, A, B or C, is neutral? Motivate your answer.

Solution B is neutral, because the colour of the red cabbage water is purple in the solution. This is the colour red cabbage water will have in neutral solutions.

3.4 What do you think would happen to the colour of solution A if we mixed it with solution B? Motivate your answer

The red colour of the solution would change. When we add a base to an acid, the acid loses some of its power. The acid makes the base lose some of its potency too. The mixture will be less acidic than solution A and less basic than solution C. If we added enough base for the mixture of the two solutions to be neutral, the solution will turn purple.