

### **Activity-53: Substances present in soil (pH of the soil)**

Determining substances present in a soil requires a complex set of experiments to be performed. For the present purposes, let us group all the substances of the soil as Acidic, Basic and Neutral.

#### **Pre-requisites:**

Collect soils from various sources.

Soil with no plants growing in it.	Soil with very large trees.
Soil with herbs.	Soil with shrubs.
Soil with only grass.	Soil surrounding lakes or ponds.
Soil ½ foot to 1 foot deep	Soil at several feet depth. (From near construction site.)

#### **Requirement:**

A small stove or Bunsen burner, a large test tube or a heat resistant flask, litmus paper strips or a pH paper strip, a glass dropper, eye goggles and a set of gloves.

#### **Procedure:**

Take a definite quantity of soil (50 grams) from each source and dissolve in a definite volume of water-100-200 ml and boil it for some time (3-5 minutes). Let the solution cool.

Now aspire some solution with a dropper and drop in onto a litmus paper (or pH paper if available).

#### **Observation:**

Do you observe any colour changes in the litmus paper?

Tabulate your results as follows:

Soil (source)	No change in colour	Colour change	Nature (acidic, basic or neutral)
1.			
2.			
3.			
...			

Repeat the experiment by testing the pH as the solution boils. If you intend on boiling it for 5 minutes, measure the pH before lighting your heat source, at 2minute, 3 minute, 4 minute and 5 minute. To do this you will need a pH paper.

So you observe a pH change as the solution is being boiled.

Record you observation by stating the pH (chemical nature) as:

Soil (source)	Time of observation.	Nature: (changes in colour)
Source-1	Before boiling	
	During boiling- 1 minute	
	2 minute	
	3 minute	
	...after cooling	
Source-2	...	...



Red litmus paper with a drop of base here



Blue litmus paper with a drop of acid here

