



WEEKLY HOME STUDY PACKAGE - WEEK 1 (05/07/21 – 09/07/21)

Subject	AGRICULTURE SCIENCE	Year/Level	13
Strand	SOIL SCIENCE		
Sub-strand	SOIL pH		
Content Learning Outcome	<ul style="list-style-type: none">• Define soil Ph.• Describe the sources of soil acidity and soil alkalinity.• Describe the effects of soil acidity and alkalinity on plant growth.• Explain ways of managing soil acidity and alkalinity.		

Solutions

1. Define soil pH

- **Soil pH** is the negative logarithm of the hydrogen ion activity. (1 mark)

2. Explain why majority of crops grow very well in ideal pH of 6.5 – 7?

This is because majority of micro and macro nutrients are available at this pH, thus plant easily get these nutrients uptake. (1 mark)

3. Explain how soil organisms and plant roots contributes to soil acidity?

- **Respiration by plant roots and soil organisms** produces carbon dioxide that reacts with water in soil to form weak carbonic acid (H_2CO_3). This is a weak acid which contributes H^+ to the soil solution thus increasing soil acidity. (2 marks)

4. State two effects of soil acidity and alkalinity on plants growth?

- Some plants simply do not grow well at a low pH.
- The activities of many of the following organisms are reduced:
- Low levels of Ca & Mg are present in soil.
- Elements such as aluminium and manganese become so soluble and they are toxic to plant growth.

5. List two factors which makes the soil acidic?

Excessive rainfall organic matter decay, acid rains,
uptake of alkaline nutrients by plants addition of acidic fertilizer. (2 marks)

6. Imagine the farmer is living on a coral island and wants to plant vegetables. Explain how the farmer will improve the pH of the soil before planting.

The farmer can make compost and add to the soil, this will balance the soil pH thus the plants can grow well. (2 marks)