

## **LESSON FOR WEEK FIVE (5) ENDING 10<sup>TH</sup> OCT, 2025.**

**SUBJECT:** AGRICULTURAL SCIENCE.

**TOPIC:** ROCK FORMATION

**CLASS** JSS2

**DATE:** 6<sup>TH</sup> OCTOBER, 2025

Meaning of rock

Rock is the solid part of the earth's crust, consisting of aggregates of minerals.

### **TYPES OF ROCK AND THEIR FORMATION**

There are three types of rocks namely;

1. Igneous rock.
2. Sedimentary rock
3. Metamorphic rock.

**Igneous rock:** these are primary rocks formed as a result of the molten rock called magma on reaching the earth cools and solidifies. Example of igneous rock are basalt, granite, pumice, quartz, feldspar, and some mica.

**Sedimentary rock:** These are secondary rocks which are composed of fragment from other rocks and sometimes remains of living creatures which cemented together to form sedimentary rocks. Examples are; sand stone, limestone, coal, shale, and dolomite.

**Metamorphic rocks:** The word "metamorphic" is made up of "meta" which means "change" and "morphine" which means "form". Thus metamorphic rocks are igneous and sedimentary rocks whose structure have been changed by terrific heat and/or pressure, or gas and steam. For example, granite pressure has turned shale, a sedimentary rock into hard slate. Limestone has changed into marble. Sandstone can change to quartzite. Gneiss into schist.

### **ROCK WEATHERING.**

Weathering simply means the processes which break down rocks into smaller particles to form soil.

#### **TYPES OF WEATHERING**

There are three types of weathering;

1. Physical weathering
2. Chemical weathering
3. Biological weathering.

**Physical weathering:** This involves the splitting of rocks into smaller fragments. The agents of physical weathering are wind, temperature, water and ice or glaciation.

**Chemical weathering:** This involves a change in the chemical composition of the rock. The agents of chemical weathering are solution, hydrolysis, hydration, carbonation, oxidation and reduction.

**Biological weathering:** This is usually brought about by the activities of living organisms like plants and animals and man. The agents of biological weathering are plant, soil organisms, and human activities.

## **COMPOSITION AND PROPERTIES OF SOIL.**

Definition of soil

Soil is defined as the upper most layer of the earth crust on which plants grow.

### **FACTORS AFFECTING SOIL FORMATION**

The nature of the soil formed will depend on a number of factors below;

1. **Parent material:** parent material is the different rock mineral through which soil is formed. For example, granite gives coarse, acidic sandy soil while basalt gives fine-grained, alkaline clayey soil.
2. **Climate:** Climate accounts for the differences in the nature of soils in various climatic zones of the world
3. **Topography:** The slope of the land affects exposure of elements and distribution of the soil. Thus elevation of the soil influences the degree of soil erosion which leads to shallow or deep soil formation.
4. **Organic influences or Biotic factors:** The activities of microorganisms, animals and man influence the development of soil.
5. **Vegetation:** Vegetation cover incidentally affects soil formation since it adds organic matter to the soil in the form of fallen leaves, fruits and flowers, and dead plants.
6. **Time:** Soil takes many years to mature. It will take time for the rock to break into small pieces, and for small piece of rock to disintegrate into grains of soil.

### **COMPOSITION OF THE SOIL**

Soil contains five major components as follows; (a) mineral particles or the inorganic constituents. (b) organic matter (c) soil living organisms (d) soil air (e) soil water.

**Soil mineral or inorganic constituents:** These are rock fragments of various kinds, sizes and shape. They are the fragment on which the soil is built. They are sand, clay and silt. The chemical components are the macro and micro nutrients released during rock weathering.

**Soil organic matter:** Organic matter consists of the mixture of plant and animal residues in their various decomposition.

### **FUNCTIONS OF ORGANIC MATTER**

1. they help to maintain the soil structure.
2. They supply nutrient to the plants
3. They regulate the soil temperature.
4. They provide energy for activities of microorganisms in the soil, etc.

**Soil organisms:** The soil also contains other living organisms classified under these three groups;

- (a) Micro –flora examples are virus, bacteria, algae, fungi, action-mycetes.
- (b) Micro- fauna example, nematodes.
- (c) Meso- fauna examples include earthworm, rat, rabbits and snail.

### **IMPORTANCE OF SOIL ORGANISMS**

1. Decomposition of organic matter.
2. Formation of humus
3. Burrowing and aeration of soil, etc.

**Soil air:** Air is present in the pore spaces in the soil which are not occupied by water.

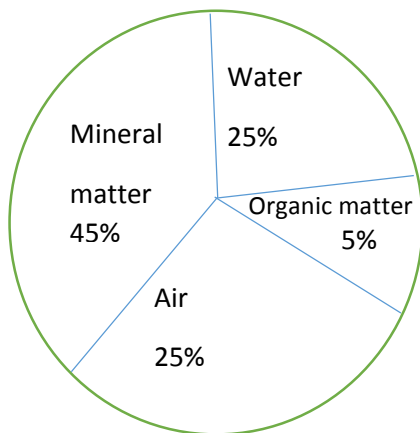
**THE IMPORTANCE OF AIR;**

1. it provides oxygen for the respiration of plant roots and living organisms.

**Soli water:** The pore spaces that are not filled with air are filled with water. Soil loses its water through evaporation from the surface, transpiration from leaves and run-off from soil surfaces.

**THEY IMPORTANCE OF SOIL WATER INCLUDE:**

1. It dissolves plant nutrients
2. It regulates soil temperature
3. It is necessary for photosynthesis, etc.



Percentage composition of soil.

**EVALUATION.**

1. Define rock.
2. List the types of rocks and state how they are formed
3. Give two examples of the different types of rock
4. Define soil.
5. List the composition of soil.

**ASSIGNMENT.**

Explain the following agent of rock weathering; ice, temperature, hydrolysis, carbonation, oxidation, wind, human activities, and hydration.