

LESSON NOTE FOR WEEK SEVEN

SUBJECT: GEOGRAPHY

CLASS: SS2

TOPIC: ACTIONS OF GLACIER



ACTIONS OF GLACIER

The action of a glacier is an important agent of erosion, transportation and deposition in temperate regions or mountainous regions.

TERMS ASSOCIATED WITH GLACIER

1. **Ice:** This is a solid form of water which results from freezing when the temperature is below 0° .
2. **Snow:** This refers to frozen water vapour that falls in form of crystals from the atmosphere.
3. **Snow-Line:** It is the lower limit of snow cover on a mountain.
4. **Glacier:** This means moving ice i.e. large accumulation of ice in motion.
5. **Glaciation:** It is the wearing away of the earth surface by a glacier either by plucking or by abrasion as well as the transportation and deposition of the glaciated materials.
6. **Snow Field:** This is the region or area that is permanently covered by snow
7. **Nivation:** This term refers to the frost action of snow. Snow itself is frozen

ACTION OF GLACIER EROSION

1. **Sapping:** This is the breaking up of rock by alternate freezing and thawing of water at the bottom of cracks.
2. **Plucking:** It is the tearing away of rocks which have become frozen on the side or bottom of a glacier.
3. **Abrasion:** This is the wearing away of rocks beneath a glacier by the scouring action of the rocks embedded in the glacier.

FEATURES OF GLACIER EROSION IN THE HIGHLAND AREAS:

1. **Striations:** are scratches or marks left on rock over which glacier passes. Rock fragments or mountain embedded in the glacier affect the striation of rocks
2. **Corries or Cirque:** is a deep and rounded hollow or depression with steep sides, formed through erosion by ice. They are arm – chair shaped hollows, resulting from plucking of rock materials down the slope. After the ice has moved, it later forms corrie lake.
3. **Arête:** occur when two corries cut back opposite side of the same mountain. Resulting in a knife edge ridge called arête. Arête is therefore a wall ridge like structure separating two corries

4. **Pyramidal peak:** occurs where three or more corries cut back on the same mountain. A pinnacle shaped like pyramid, develops and is called **pyramidal peak**.
5. **Bergschrund:** is formed at or near the head of a glacier. It is a deep and vertical crack separating the lower part of a glacier that has started to move down its valley and the upper part which is static.
6. **U- Shaped Valley or Trough:** is a wide flat floor with very steep side which has been eroded by glacier. All the sides and floor including all debris are washed away by glacier. This results in the formation of a U-shaped valley which forms the main valley
7. **Hanging Valley:** results when glacier action from tributaries eroded materials into the main or U shaped Valley.
8. **Rock Basin and Rock Step:** when two tributaries join a main valley, the additional weight of ice in the main valley cuts deeper into the valley floor at the point of convergence, thus forming a rock step. It can also be formed due to the difficulties in resistance to frost action. Rock basin is formed when glacier erodes and excavates the valley floor so deep to form rock basin
9. **Moraines:** are made up of rocks that are shattered by frost action, embedded in the glacier and brought down the valley. Moraines exist in lateral, medial ground and in terminal forms.

FEATURES OF GLACIER EROSION IN LOWLAND

1. **Roche Mountain:** are resistant residual rock structure. The surface is striated by ice movement. Its upstream side is smooth due to abrasion while downstream is rough due to plucking. The surface is also rough
2. **Crag and Tail:** is a mass of hard rock which slopes on the upstream side that protects the softer leeward slope from erosion and later develop to form the tail

FEATURES OF GLACIER DEPOSITION IN LOWLAND AREAS

3. **Boulder Clay:** This consists of stones of various sizes in a mass of sand and clay.
4. **Erratics:** These are transported rock fragments which are composed of materials entirely different from the bedrock of the region where they are deposited. They are deposited when the ice carrying them melt into water.
5. **Drumlins:** It is composed mainly of boulder clay.
6. **Eskers:** These are long narrow ridges of sand and gravel deposited by melting water. They are usually porous.
7. **Terminal Moraines:** They are made up of boulders which are deposited at the edge of the ice-sheet.
8. **Outwash Plain:** This is a large area consisting of sand and gravel that are washed down the mountainous zone and deposited to form outwash plain which lies beyond the terminal moraines.

Homework

1. Explain the following terms associated with :
A. Ice B. Snow C. Snow-Line D Glacier E. Glaciation F. Nivation
2. List four features associated with glaciers in highland areas.