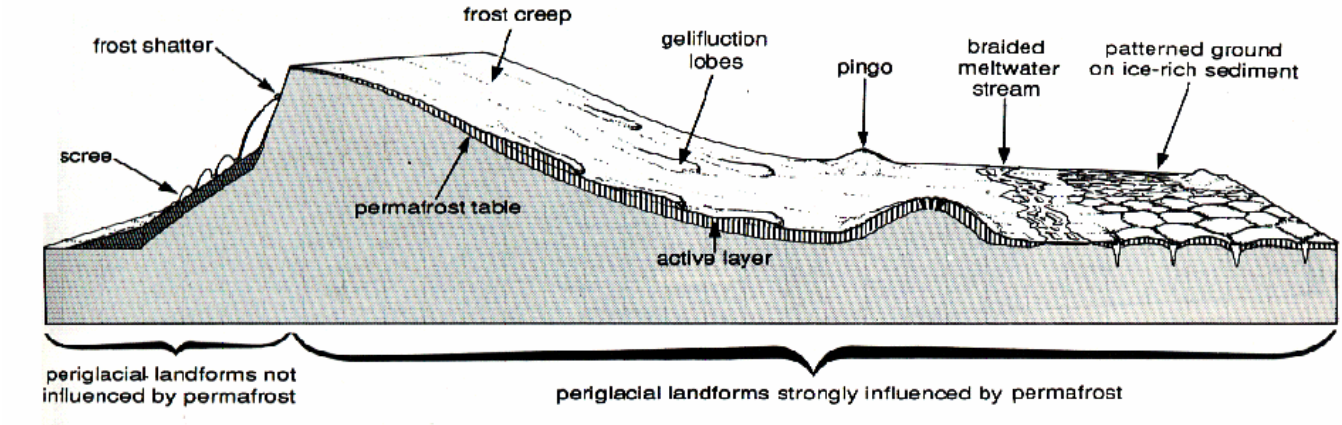
A2 Geography 4.2 Glacial Systems Student Notes

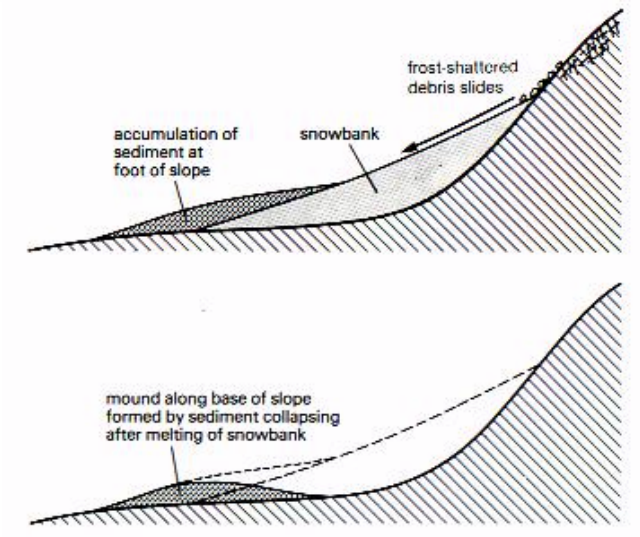
Periglacial Processes

The main processes that lead to periglacial landforms include:

- **Congelifluction, Solifluction:** a slow, down slope flow of masses of surface material saturated with water. It is most common under periglacial conditions. Seasonal thawing on the active layer provides water that saturates the surface material with water that cannot drain through the underlying permafrost. This causes the soil to slowly flow as it loses its shear strength, due to loss of friction and cohesion.
- **Congelifraction, frost shattering, freeze-thaw:** the mechanical weathering of rocks by the freezing of water leading to expansion, fracturing and disintegration of the rocks.
- **Congeliturbation, Cryoturbation:** a term to describe the general disturbance to the ground caused by frost action. It involves congelifluction, as well as local churning and frost heaving.
- **Frost-thrusting:** the *lateral* movement of soil and other ground-surface debris caused by the freezing of groundwater under periglacial conditions.
- **Frost-heaving:** the doming or *vertical* lifting of he soil surface into frost hillocks owing to the pressure caused by freezing groundwater under periglacial conditions.
- **Nivation:** localised erosion of a hill slope by frost-action, mass movements and erosion by meltwater at the edges, or beneath melting snowdrifts. The combination of processes causes snowdrifts to countersink into hillsides, producing nivation hollows, nivation benches and, in some cases, nivation cirques.

You should be able to describe and explain the processes of formation of each landform. Annotated diagrams and sketches should be used as well as examples fro one or more located areas.





Nivation Hollows and Nivation Cirques:

In some shaded locations, snow banks can remain all year round. The process of nivation can enlarge hollows on hillsides. Nivation hollows and nivation cirques are actively forming in places such as southern Iceland but relict features can be found in parts of the UK such as on the slopes of the South Downs above Eastbourne in Sussex.

The two hypotheses for the upward movement of stones in permafrost.