**Discuss how factors can affect soil characteristics.**

Soil is influenced by a number of characteristics such as climate relief, parent rock and living things. These factors can affect a number of characteristics of soil such as colour, PH, humus content, structure, texture and water retention.

**Climate.**

Climate is the most influential factor when it comes to soil production. This is because Climate determines the rate of weathering which is the first stage in the formation of soil. In influencing weathering climate controls soil characteristics such as **colour, texture, PH and water content**. Soils that have developed in response to a climate are called **zonal soils**. In hot wet climates, chemical weathering is rapid and wet, **acidic** soils may occur due to high levels of precipitation like at the equator. Equatorial climates causes the soils on the equator to undergo laterisation, which is the heavy leaching of soil leaving iron oxides that reacts with water and oxides. This gives the soil a **red/ orange colour**.

Climate is also responsible for the type of **vegetation** in an area. This vegetation is in turn responsible for the amount of **organic matter** on the ground that can be broken down. Black earths which are soils formed from decayed grass are considered the most fertile type of soil. Brown soil is formed from decidious leaves in **cool temperate oceanic climates**. This climate (Temperature 15C in Juy 6C in February) is suitable for the long growing seasons of trees like oak trees and beeach trees which produce a yearly leaf litter and undergo’s humification to form **rich humus soils.**  A combination of the climate of brown soils as well as variety of organism and animals (bagder, fox that live in these climatic regions) give the soil a **crumby structure and loam texture** that is well **aerated and drained** and suitable for agriculture. The rainfall in this area is also moderate (1200 mm) which produces a soil that is **slightly akline** and leaching helps give the **soils its brown colours through all horizons**

Vegetation does not grow in temperatures under 5.6 degrees. Coniferious forests are often present in this climate and produce **very little humus**. Any humus that is produced here is usually **acidic** due to the acidic leaf litter which in turn affects the soil. Because of the lack of humus these soils are usually a **light colour** like Podzols.

The length of growing season is determined by the temperature which will affects the **vegetation** in an area as well as the **humus content**. Climate influences the soil processes that are dominant in the area such as humifcation, podzolisation and leaching that in turn affects the characteristics.

**Relief**

Relief refers to the shape of the land, and can create microclimates that influence soil. Lowlands are warm and flat. This encourages the build up of soil and are usually **well drained**. Biological activity is greater with higher levels of **humus producing fertile lands**.In general sloping land is well drained and soils are quite dry. Flat upland areas are usually cold and wet causing **water logging and gley** soils. Temperatures are also lower and **activity of micro organism are slower** forming infertile soil with **less humus** such as podzols In mountainous areas temperatures decrease with height, but precipitation also increase due to relief rain. These higher areas are covered by **thin leached infertile soils**.Aspect (direction of slope) also affects temperatures- south facing slopes get more sunshine encouraging **more growth** and **organic material** compared to north facing slops. Mass movement can also damage soil on steep slopes destroying **structure and texture**.

**Parent Rock**

The parent rock is the most dominant rock in an area. The soils get there minerals from this rock. These minerals are produced when rocks are eroded and weathered. Parent rock affects the **pH, colour, water retention, texture, and depth of soil.** Two examples of parent rocks that produce distinctive soils are limestone and sandstone. Limestone produces a soil that is **fertile rich coloured and crumb-textured** and easy to work with. The parent material is varied. Mostly it is boulder clay deposited during the last ice age. In Ireland local changes to parent material have created 3 variations in brown soils, Acidic brown earth, Shallow brown earth, Podzols. Sandstone produces a soil that **is acidic, crumb-textured and infertile**. . There are a variety of parent material that affects latosol ranging from metamorphic rock to sedimentary limestone to river alluvium. These variations cause the latosols to vary in colour from red to yellow. The parent material of a soil is not always rock as soil can develop on glacial till affecting and **texture and structure**.