Classification of Sedimentary Rocks

- Sedimentary rocks usually originate in water environments, either oceans, lakes, or river beds.
- Sedimentary rocks are grouped as:

1) **Clastic**
2) **Chemical**
3) **Organic**

- ***Clastic and chemical are the most common*** and make up the majority of sedimentary rocks found on Earth's surface.

1) Clastic Sedimentary Rocks

- Consist of solid particles from weathered rocks. These rock fragments include pebbles, sand, silt and clay.
- Rock fragments are a result of physical weathering.
- These rocks usually form in water environments such as, rivers, lakes, oceans, but can also form in deserts.
- Geologists use particle size to distinguish between clastic sedimentary rocks, as seen in this table.

Particle Name	Sediment Name	Rock Name
Boulder Pebble	Gravel	Conglomerate or Breccia
Sand	Sand	Sandstone
Silt Clay	Mud	Shale

2) Chemical Sedimentary Rocks

- These rocks form as a result of chemical weathering dissolving chemicals and transporting it in solution. When conditions are right, these dissolved chemicals change back into a solid through the processes of precipitation and evaporation.
- These rocks usually form in water environments such as lakes and shallow seas or oceans.
- Some examples of chemical sedimentary rocks include:

1) **Limestone**
2) **Rock Gypsum**
3) **Rock salt (Halite)**

3) Organic Sedimentary Rocks

- These rocks form as a result of once living material accumulating to form solid rock.

- The most common organic rock is coal, which forms when plant material in water saturated environments (swamps) die and accumulate to form peat. As peat is buried it compresses and eventually changes to form coal.

Sample Problem

Citing two differences, compare clastic and chemical sedimentary rocks.

Answer:

Sediment is formed by different processes. Sediment that forms clastic rocks are weathered by a physical weathering, whereas, sediment that forms chemical rocks are produced by chemical weathering.

Clastic rocks are generally classified by particle size, whereas, chemical rocks are classified by its chemical composition.