

Module F

Unit 1

Lesson 2

Exp 3

Relating Sedimentary

Rocks to

The Earth's systems

Sedimentary Rocks

- Form when sediments are compacted or cemented together by new minerals,
- This process is gradual and may take up to millions of years to occur.
- Examples:
 - The minerals quartz and calcite are common sedimentary cements.
- Sedimentary rocks are named according to the size and type of fragments they contain.
 - For example, one type of sedimentary rock called *mudstone* is made up mostly of cemented mud particles.

Geological process

- How does sediment get pressed together, or compacted, and cemented?
 - When the weight of overlying layers of soil and sediment press down on lower layers of sediment and dissolved minerals solidify between sediment pieces and cement them together.
- Sedimentary rocks may also form from the remains of fossils of once-living plants and animals.
 - For example, when layer upon layer of plant material is buried, compacted, and exposed to the higher temperatures and pressures beneath Earth's surface, over millions of years, this process may form coal.

Time Scale

- Sedimentary rock forms slowly over time.
- The pressure needed for compaction of some sedimentary rocks happens under many layers of sediment and rock, over thousands or millions of years.
- Sedimentary rock formed from the compaction and cementation of sediments may take many thousands or even millions of years to form.



Sedimentary Rock in the Geosphere

- Sedimentary rock is often identified by its visible layers.
- Water plays a key role in forming, as well as exposing, sedimentary rock.
- Water contains many dissolved minerals and salts can flow through sediments and leave the minerals and salts behind, which can cement the sediments together.
- After a rock forms under the surface, uplift can push the rock up and weathering and erosion might expose and shape the rock into the formations
- For example, the Colorado River has helped to shape the Grand Canyon and expose the many colorful layers that make up the canyon walls.