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Lithification is the process that turns loose, unconsolidated sediment into solid sedimentary rock . The three ways lithification is accomplished, through compaction, cementation and recrystallization.

Cementation :

Cementation involves ions carried in groundwater chemically precipitating to form new crystalline material between sedimentary grains. The new pore-filling minerals forms "bridges" between original sediment grains, thereby binding them together. In this way sand becomes "sandstone", and gravel becomes "conglomerate" or "breccia". Cementation occurs as part of the diagenesis of sediments. Also the addition of new materials to the pore space between the existing grains.

Compaction:

compaction is the process by which a sediment progressively loses its porosity due to the effects of pressure from loading. This forms part of the process of lithification. When a layer of sediment is originally deposited, it contains an open framework of particles with the pore space being usually filled with water. As more sediments are deposited pressure increases thereby decreasing porosity leading to water loss.

Induration:

Induration, hardening of rocks by heat or baking; also the hardening of sediments through cementation or compaction, or both, without the introduction of heat.

Other examples of diagenesis are dolomitization, dissolution and tectonic disruption