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GEY204 ASSIGNMENT

Lithification is the processes by which loose sediment is hardened to rock.  Once this happens, continued erosion and re-transport of the sediment become much more difficult.  There are three basic ways that lithification is accomplished.

Cementation
The process of precipitation of cement between mineral or rock grains and forming solid clastic sedimentary rock, one phase of lithification.

Compaction is the consolidation of sediments due to the intense pressing weight of overlying deposits. Compaction happens when sediments get buried. This literally squishes the sediment grains together, compressing them into a mass. With sufficient pressure and the passage of time, the grains get rearranged and more organized, much like winning a game of Tetris where the majority of the falling tiles fit snuggly together. As the sediments consolidate, the original pore space that divided them is reduced and any water that was in those spaces is squeezed out.

Induration
This is the process of the strengthening of rocks by heating, compaction or cementation, or a combination thereof. Hardened applied to rocks hardened by heat, pressure or by the addition of a cementing ingredient, for example, a marl indurated by the addition of calcite as a cement. The accumulation of sediment results in the earlier deposits being overlain by younger material, which exerts an overburden pressure that acts vertically on a body of sediment and increases as more sediment, and hence more mass, is added on top. Loose aggregates initially respond to overburden pressure by changing the packing of the particles; clasts move past each other into positions that take up less volume for the sediment body as a whole. This is one of the processes of compaction that increases the density of the sediment and it occurs in all loose aggregates as the clasts rearrange themselves under moderate pressure.

Examples of Diagenesis
1. Chemical alteration of a feldspar to form a distinctly new mineral in its place, a clay mineral.
2. Dissolution
3. Tectonic disruption