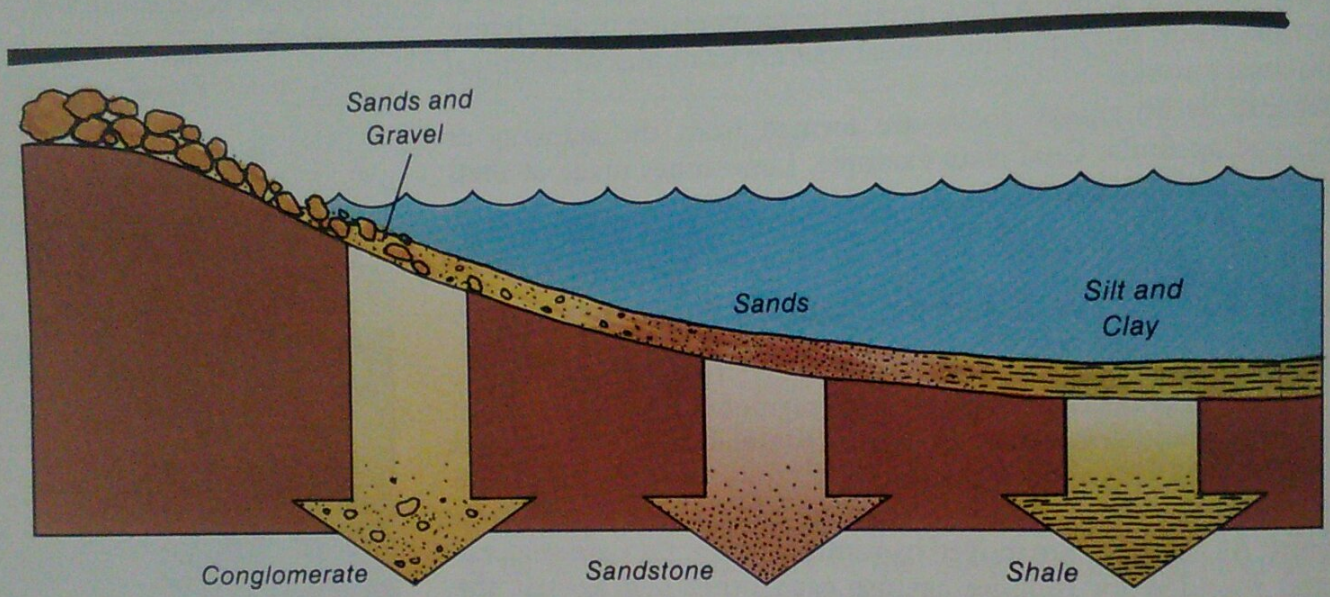
Topic 11 Sorting of Sediments

When a river flows into a lake or ocean, it drops its sediment load as it slows down. The first sediments to be dropped are larger pebbles and gravels. These settle to the bottom in the shallow areas near shore. Next to settle are the smaller sands and finally, in calm water, the silts and clays.

The process of sorting does not always produce perfect separation. Sand is sometimes found mixed with pebbles and gravels in shallow water or with silts and clays in deeper water.

In time, the sediments become cemented together into sedimentary rocks. Pebbles and gravels become conglomerate. Sands form sandstones. Silts and clays form shale.



5.9 The kinds of sediment deposited on the ocean floor vary with the distance from shore.

Topic 12 Conglomerate, Sandstone, and Shale

Conglomerate is the coarsest of the clastic rocks. It is a cemented mixture of rounded pebbles and sand grains that were deposited in rough water. The pebbles in conglomerate may be any rock material. Quartz is most common because it is so durable.

Most *sandstones* are made largely of grains of quartz. The cement in a rock seldom fills all the spaces between the grains. Sandstones may have up to 30 percent air space in them. The air spaces mean that sandstone is both *porous* (filled with small holes) and *permeable* (water is able to pass through it). Sandstones are rough, gritty, and durable if well cemented.

The clays found in *shale* are usually tiny flakes of the mineral kaolin. The spaces between the clay particles in shale are so tiny that water cannot pass through the rock. This makes shale *impermeable*. Shales are smooth, soft, and easily broken.

5.10 Conglomerate is a cemented rock of pebbles and sand grains.