

Name: _____

Date: _____

Life Science

Period: _____

Classifying Sedimentary Rocks

Rocks derived from pre-existing rocks through the process of erosion, followed by compaction, or chemical precipitation, are called sedimentary rocks. Sedimentary rocks are grouped into three categories: **clastic**, **chemical** and **organic**.

Clastic sedimentary rocks are formed by mechanical weathering. Weathering produces gravel, sand and silt, which are then cemented together by natural cements such as silica, iron oxides and various carbonates to form **clastic** sedimentary rocks.

In the process of weathering, rocks or parts of rocks may be dissolved. As the solution cools or evaporates, the solid portion is deposited as precipitate. Rocks formed in this way are referred to as **chemical** sedimentary rocks.

Rocks which are formed from the compaction of plant remains are termed **organic** sedimentary rocks.

In this activity, you will identify and examine the characteristics of sedimentary rocks. **Clastic** sedimentary rocks may exhibit the sediment that comprises them. **Chemical** sedimentary rocks have a more homogeneous composition, and it may be much more difficult (or impossible) to distinguish the individual sediment. Only one of the samples is classified as **organic** sedimentary rock – can you figure out which one it is?

Procedures:

Using the descriptions for each rock in the five groups, identify the names of each one, placing the number in the correct column, and identify it as clastic, chemical or organic.

GROUP A			
Rock Number	Description	Name	Clastic, chemical or organic?
	Contains solid hydrocarbons and plant remains. Petroleum-like products can be distilled from this rock.	Oil shale	
	A sandstone composed of quartz grains cemented together by silica.	Quartz sandstone	
	A limestone composed of spherical concretions, each build up layer upon layer around some nucleus.	Oolitic limestone	

GROUP B			
Rock Number	Description	Name	Clastic, chemical or organic?
	Known as "soft coal". It is a lightweight, soft black rock made of compacted fossil plant material.	Bituminous coal	
	Essentially sand-sized particles cemented together by calcite, silica or iron oxides.	Sandstone	
	A fine-grained, light to medium gray colored rock consisting mostly of calcium carbonate.	Limestone	

GROUP C			
Rock Number	Description	Name	Clastic, chemical or organic?
	A gray sediment in which the constituent particles are predominantly of clay size. Has a layered appearance.	Shale	
	Composed of calcium carbonate deposited between layers of other sedimentary rocks.	Rock gypsum	
	Composed of reconsolidated gravel and sand particles. Particles ("clasts") are well rounded from erosional transport prior to deposition and compaction.	Conglomerate	

GROUP D			
Rock Number	Description	Name	Clastic, chemical or organic?
	Composed of rose quartz and pink feldspar particles with smaller amounts of mica. It is derived from the disintegration of granitic and other igneous rocks.	Arkrose	
	Crystalline in appearance with granular aggregates of sodium chloride deposited from evaporating sea waters.	Rock salt	
	A light-colored limestone formed from cemented fossil shell fragments deposited in swamp-like areas. It has a recognizable coarse, shelly texture.	Fossil limestone	

GROUP E			
Rock Number	Description	Name	Clastic, chemical or organic?
	Composed of sand grains cemented together. The bands of cement are different colors.	Banded sandstone	
	Composed of calcium carbonate deposited from solution in waters of springs, lakes or from percolating ground water. Exposure to the water makes the minerals look rusted.	Calcareous tufa	
	A fine-grained light brown rock composed largely of calcium carbonate deposited between layers of other sedimentary rock.	Dolomite	