

Clastic Rock Lab - Identification / Recognition

(Your) Name: _____

Clastic vs. non clastic (structure - sketch)

E.g. can you see individual clasts? Draw a **sketch** of the specimen, with scale !

Overall structure of bed/specimen and heterogeneity

E.g. multiple sub-lithologies, e.g. sandstone bottom and mudstone top)

Color

Grain size and particle characterisation (sorting, angularity, sphericity)

Structure (clast-supported vs. matrix-supported)

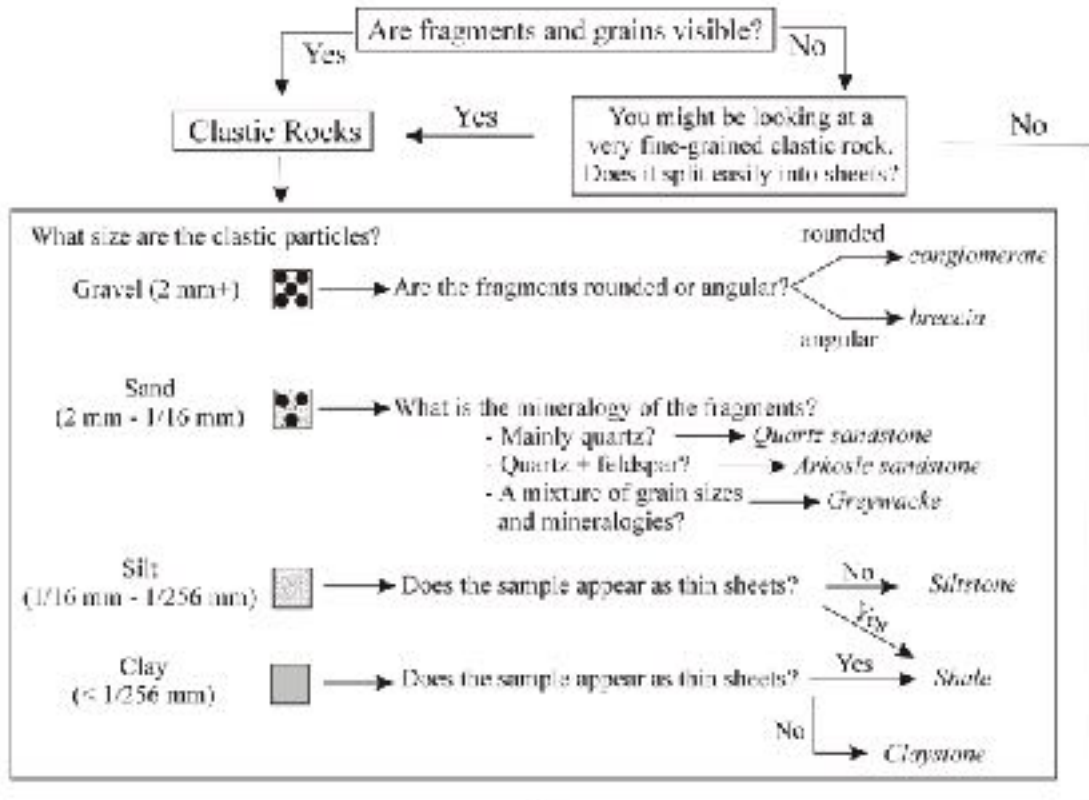
Matrix and cement (and characterisation if possible)

Detrital composition

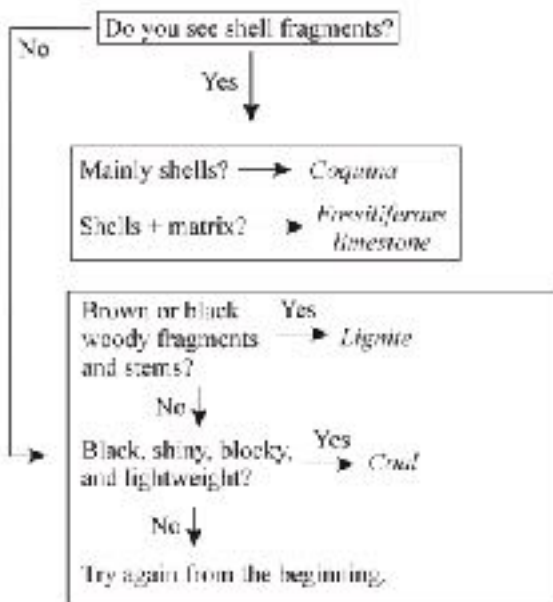
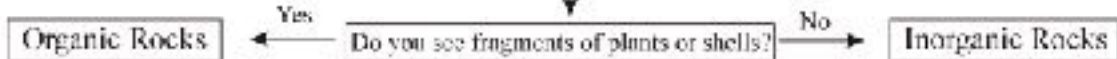
Textural and compositional maturity

**Rock NAME/TYPE/CLASSIFICATION - sedimentary structures/
environment/facies**

Sedimentary Rock Identification Flowchart



Nonclastic Rocks



Common Minerals in Sedimentary Rocks	
Quartz	Can be any color, but most commonly light yellow or clear. Grains usually frosted. H = 7. No cleavage.
Chert	Microcrystalline quartz. Can be any color, but most commonly grey, red, or black.. Commonly displays conchoidal fracture. H = 7. No cleavage.
Feldspars	Commonly light pink to white. Grains will be angular to rounded, and some may show remnants of cleavage faces. Potassium feldspars will look fleshy, whereas plagioclase feldspars may show the "record groove" striations on some cleavage faces. H = 5.5 - 6 and two planes of cleavage.
Micas	Occur as flat, shiny flakes. Most will be sand-sized or less. Black varieties are biotite. Light varieties are muscovite. H = 2 - 3, and one plane of cleavage.
Calcite	Commonly grey to white in color, and of various grain sizes. Most commonly formed as an inorganically precipitated mineral, or as part of shells or corals. Also common as a cement in clastic rocks. Will fizz in HCL. H = 3, and three planes of cleavage that form a rhombohedron. Cleavage faces may be visible on larger grains.
Dolomite	Same properties as calcite, but will fizz only after powdered. Dolomite commonly forms as a replacement mineral of calcite after lithification..
Halite	Forms as the result of precipitation from seawater, usually in evaporative settings. Also found in arid continental settings. Minerals have three planes of cleavage that form perfect cubes. Usually white and fine grained to semi-cubic in sedimentary rocks. Tastes like salt. H = 2.5
Gypsum	Forms as the result of precipitation from seawater, usually in evaporative settings. Also found in arid continental settings. Minerals have one well developed basal cleavage and two other poor cleavages. Minerals are commonly fine grained and range from white to pink. Can be scratched with a fingernail. H = 2.5
Clay	A general term for a distinct group of minerals that are commonly 1/256 mm or less in size. Kaolinite is a type of clay mineral. Clays form in a variety of environments and sometimes help to hold larger sediment particles together.
Iron oxides	A general term for a distinct group of iron-based minerals that commonly acts as a cement in clastic rocks. Iron oxides will stain rocks orange and red, depending on the type and amount of iron oxide.

Sedimentary Rock Classification Chart		
CLASTIC		<p>Particles are 2 mm or larger in diameter, of variable mineralogies, but most commonly composed of resistant mineral grains such as quartz or chert. Commonly cemented with quartz or calcium carbonate.</p> <p>Conglomerate (rounded fragments)</p> <p>Breccia (angular fragments)</p>
		<p>Particles range from 2 mm to 1/16 mm in diameter and are dominated by quartz grains. Commonly cemented with quartz or calcium carbonate. Grains may be angular to rounded.</p> <p>Quartz Sandstone</p>
		<p>Particles range from 2 mm to 1/16 mm in diameter and are a mixture of quartz and potassium feldspar grains. Commonly cemented with quartz or calcium carbonate. These rocks tend to have an overall dark red color due to the potassium feldspar grains.</p> <p>Arkosic Sandstone</p>
		<p>Particles range from 2 mm to 1/16 mm in diameter and are a mixture of many different mineralogies. These rocks have a large percentage of incorporated silt and clay grains that give the rock an overall dark appearance. These types of sandstones are said to be immature due to their poorly sorted nature.</p> <p>Greywacke</p>
		<p>Particles range from 1/16 mm to 1/256 mm in diameter and are a mixture of many different mineralogies, but most commonly quartz and feldspar. Commonly cemented by quartz, calcium carbonate, or iron oxides. Grains can range from angular to rounded. Specimens dominated by the smaller particles, and with a bit of clay-sized material, may show fissility. Fissile samples are classified as shale.</p> <p>Siltstone</p>
		<p>Particles are 1/256 mm or less. Fissile specimens are classified as shale.</p> <p>Claystone</p>
NONCLASTIC	Inorganic	<p>Most commonly consists of clay to silt sized particles of calcium carbonate, but some may grow larger during lithification. Fizzes in HCL.</p> <p>Limestone</p>
		<p>Most commonly consists of clay to silt sized particles of calcium-magnesium carbonate, but some may grow larger during lithification. Fizzes in HCL only after powdered. Rock may have a smudgy appearance.</p> <p>Dolostone</p>
		<p>Rock formed by the precipitation of very fine-grained gypsum during evaporation of water. Rock may look massive to powdery. Can be scratched with the fingernail.</p> <p>Rock Gypsum</p>
		<p>Rock formed by the precipitation of very fine-grained halite during evaporation of water. Rock may look massive to powdery. Can sometimes be scratched with the fingernail, and tastes like salt.</p> <p>Rock Salt</p>
	Organic	<p>Rock is composed almost entirely of broken shell hash and debris. Looks like solid oatmeal. Shell material will fizz in HCL.</p> <p>Coquina</p>
		<p>Rock is a combination of shells (whole or broken) embedded in a limestone matrix. Rock matrix and shell material will fizz in HCL.</p> <p>Fossiliferous Limestone</p>
		<p>Rock is composed of microscopic siliceous shells of unicellular plants and animals. The shells recrystallized during lithification to form one solid mass of fine-grained quartz. Red varieties are called jasper. Black varieties are called flint. Specimens commonly show conchoidal fracture.</p> <p>Chert</p>
		<p>This "rock" is composed of partially decayed organic matter. It is usually brownish in color and composed of easily visible plant fragments. Lignite is an immature form of coal.</p> <p>Lignite</p>
		<p>This rock is commonly black in color, and may be somewhat shiny. It is lightweight and composed of plant fragments that have been "distilled" to remove almost all elements except carbon. Plant fossils may be visible.</p> <p>Coal</p>