Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_\_\_\_

**Sedimentary Rock Lab**

Sedimentary rocks may be classified into three groups based on what they are made of and how they were formed. If the sediments that make up the rocks came mostly from the shells of animals or from the body parts of plants and animals, the rock would be classified as *organic* sedimentary rocks. If the sediments were produced from elements that were dissolved in water but later came out of solution, the rocks would be classified as *chemical* sedimentary rocks. When elements come out of solution, the elements are said to have precipitated and the process is called chemical precipitation. Chemical sedimentary rocks are also called evaporates. If the sediments were formed from particles that were weathered from other rocks, the rocks are called *clastic* sedimentary rocks (also called detrital rocks). Clastic sedimentary rocks are classified on the basis of the size of the sediment particles that the rock is made of. Most sedimentary rocks are made of fragments of other rocks. These fragments look very much like sediment. Some sedimentary rocks have a range of particle sizes. Other sedimentary rocks consist of one sediment size. Some sedimentary rocks are composed of plant and animal products or remains and often contain fossils. Sedimentary rocks often have distinct parallel layers and often appear dull.

# Sedimentary Rock Classification Chart

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Conglomerate | Breccia | Sandstone | Shale | Limestone | Coal (Bituminous) |
| Contains Fragments | \*\* | \*\* | \*\* | \*\* | \*\* |  |
| Round Fragments | \*\* |  |  |  |  |  |
| Angular Fragments |  | \*\* |  |  |  |  |
| VERY Small Fragments |  |  | \*\* | \*\* |  |  |
| Bubbles when acid is applied |  |  |  |  | \*\* |  |
| Black color (mafic) |  |  |  |  |  | \*\* |
| Lighter color (felsic) | \*\* |  |  |  | \*\* |  |
| Contains plant material |  |  |  |  |  | \*\* |
| Organic Sedimentary Rock |  |  |  |  | \*\* | \*\* |
| Clastic Sedimentary Rock | \*\* | \*\* | \*\* | \*\* |  |  |
| Number from Lab (prediction) |  |  |  |  |  |  |
| ACTUAL Number from Lab |  |  |  |  |  |  |

Which two numbers from the lab are not sedimentary rocks? \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_

# COMMON SEDIMENTARY ROCKS

|  |  |  |
| --- | --- | --- |
| Sedimentary Rock Type |  |  |
| **Organic** Sedimentary Rock: formed from the remains of living things such as plants and animals  If the rock is made up mostly of shells (limestone)  If the rock is made up mostly of plant and animal remains (coal) | **Chemical** Sedimentary Rock: formed when elements that were dissolved in water come out of solution  Sediment particles too small to be seen with the unaided eye. If the mineral material that comes out of solution is:  Calcite becomes LIMESTONE  Dolomite becomes DOLOMITE  Halite becomes ROCK SALT  Gypsum becomes GYPSUM | **Clastic/detrital** Sedimentary Rock: formed when the particles that are weathered from other rocks are cemented together to form a new rock (also called fragmented rocks)  Boulder size (greater than 256mm): Conglomerate  Cobble sized (64-256mm): Conglomerate  Pebble sized (2-64): Conglomerate or Breccia  Sand sized (0.06-2mm) Sandstone  Clay sized (less than 0.06mm): Shale |

# Clastic Sedimentary Rocks

|  |  |  |  |
| --- | --- | --- | --- |
| Name | **Texture** | **Composition** | **Comments** |
| a. | Round pebbles | Any kid of rock or minerals | Pebbles held together with sand, clay, and cement |
| b. | Angular pebbles | Any kids of rock or minerals | Pebbles held together with sand, clay, and cement |
| c. | Sand-sized grains | Quartz (most common) or feldspar and quartz | Cement may be calcite, iron oxide, or clay |
| Siltstone | Very fine grains | Mostly quartz, same clay | Gritty feel |
| Shale | Microscopic grains and flakes | Mostly clay, some mica | Occurs in layers, not gritty feel |

# Non-clastic Sedimentary Rocks

|  |  |  |  |
| --- | --- | --- | --- |
| Name | **Texture** | **Composition** | **Comments** |
| d. | Coarse to microscopic crystals | Calcite or microscopic shells | Chalk—microscopic shell texture, a precipitate or evaporate |
| Chert (flint) | Microscopic crystals | Chalcedony | Common as masses or as a precipitate |
| Alabaster (rock gypsum) | Microscopic to coarse crystal | Gypsum or anhydrite | Evaporate |
| Rock Salt | Cubic crystals | Halite | Evaporate |
| Peat, lignite | Coarse to microscopic plant fragments | Product of plant decay in absence of oxygen | Fragments of plants to fine-grained carbon compounds |

***Answer the following questions using the tables on the sheet:***

1. What kind of clastic particles make conglomerates?
2. How are conglomerate and breccia alike?
3. What is the basic texture difference between sandstone and siltstone?
4. How might you tell the difference between a very fine sandstone and a more coarse shale?
5. What is the basic mineral composition of limestone?
6. What is the name of the non-clastic rock which is made of the mineral halite?
7. Which of the sedimentary rocks is composed of organic matter?
8. How does the composition of siltstone and shale differ?
9. How are alabaster and rock salt alike?
10. Using complete sentences, write a description of sandstone.