Sedimentary Environments

Figure 1: Rocks have layers too

Exam will be 50-54 questions and the test is out of 100 points

Extra questions are delegated for extra credit

Formation

They form at a low place - Depositional environment

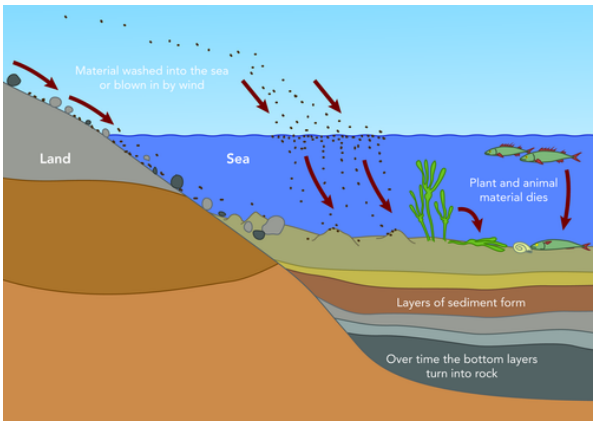

Figure 2: Sedimentary rock formation diagram

Places

- Mountains
- Steep streams
- Sand dunes
- Slow moving rivers (Mississippi River)
- Deltas, wetlands (places where coal forms)
- Lakes
- Beaches
- Reefs
- Lagoons
- Beach dunes
- Tidal flats

Physical Weathering

- Fracturing and crack rocks
- Frost and mineral weathering
  - (Ice expands when it freezes)
  - Sugar at the bottom of tea when there is too much sugar to be in solution
- Thermal expansion
- Roots and other biological activity

Figure 3: Goblin State Park

Chemical Weathering

- Dissolution
  - Water is slightly acidic (anything with pH of 7 and below)
- Hydrolysis
  - the chemical breakdown of a compound due to reaction with water
- Oxidation
- Biological reactions
  - Plants will poison other plants to prevent them to get their resources
  - Animals will dig and dig

Clast Sizes

- Boulders, cobbles, pebbles

Shape

- Rounder == more distance traveled
- Angular == freshly broken

Sorted

- Poorly sorted (fairly grade)
  - assorted sizes of clast
- Moderately sorted (moderate)
  - mostly the same size of clast
- Well sorted (poorly graded)
  - nearly all the same size

Controls on size, shape, and sorting

- Steepness of slope
- Strength of current
- Agent of transport

Common Clastic Sedimentary Rocks

- Conglomerate (Coarsest)
- Breccia
- Sandstone
- Shale (Finest)

How Clastic Sediments Becomes rock

- Compaction (Stuff on top of it)
- Cementation (Sand + Lime = Cement)

Rocks Formed by Chemical Reactions

- Setting → Rock salt
- Setting → Travertine (limestone)
- Setting (Coral reef) → Limestone with fossils
- Setting (Plant matter) → COal

Other nonclastic sedimentary rocks

- Gypsum
- Chalk
- Dolostone
- Chert

Types of bedding

- Parallel bedding

Figure 4: Parallel Bedding Example

- Cross bedding
- Graded bedding

Characteristics of Breccia

- With rocky matrix
- Without rocky matrix

Environments of Formation