Name: _____ Study Guide

Topic 5: Erosion & Deposition

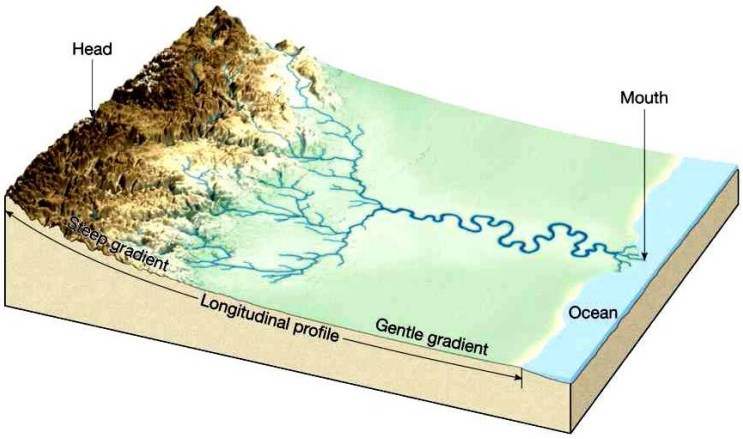
Erosion: the removing of and transporting of weather sediments

- Gravity: the driving force of all erosion

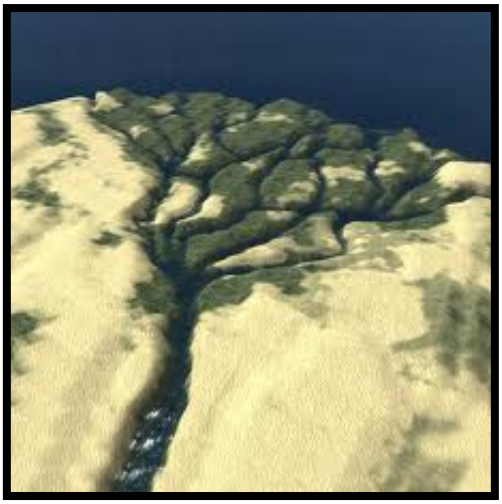
Agents of Erosion:

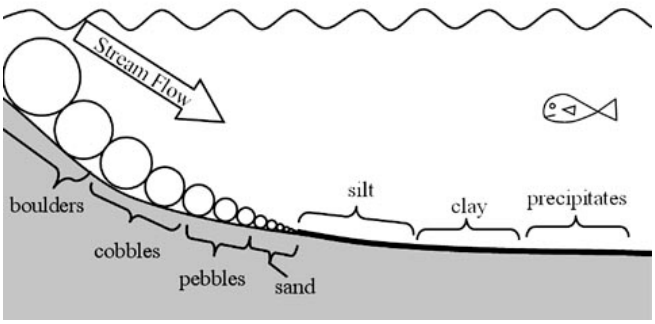
- **Rivers**
- **Glaciers**
- **Wind**
- **Waves**

Rivers



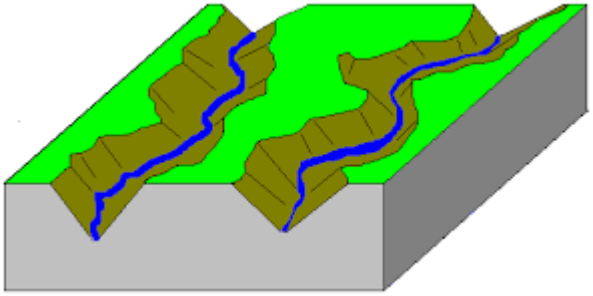
- Rivers are the most effective agent for all the earth
- **Drainage Basin** : area that eventually drain into a major river
- **Tributary :** a creek that brings water to another creek or river
- **Delta:** sorted feature created when a river enters a lake
    - In a delta, water slows down. Slower moving water can't carry as much. Heavy rocks are dropped first, followed by gravel and then sand.



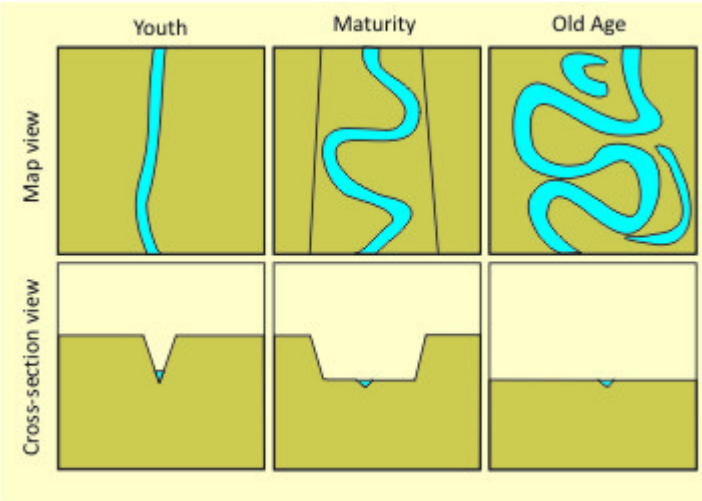


Rivers and Erosion:

- Rivers make V-shaped valleys



Age of Rivers:



Young Rivers: fast, strait, steep, erosive, have waterfalls

Mature Rivers: meanders, small flood plain, quick, carry a lot of sediment

Old Rivers: flat, slow, large flood plain, large meanders, oxbow lakes, does not carry a lot of sediment

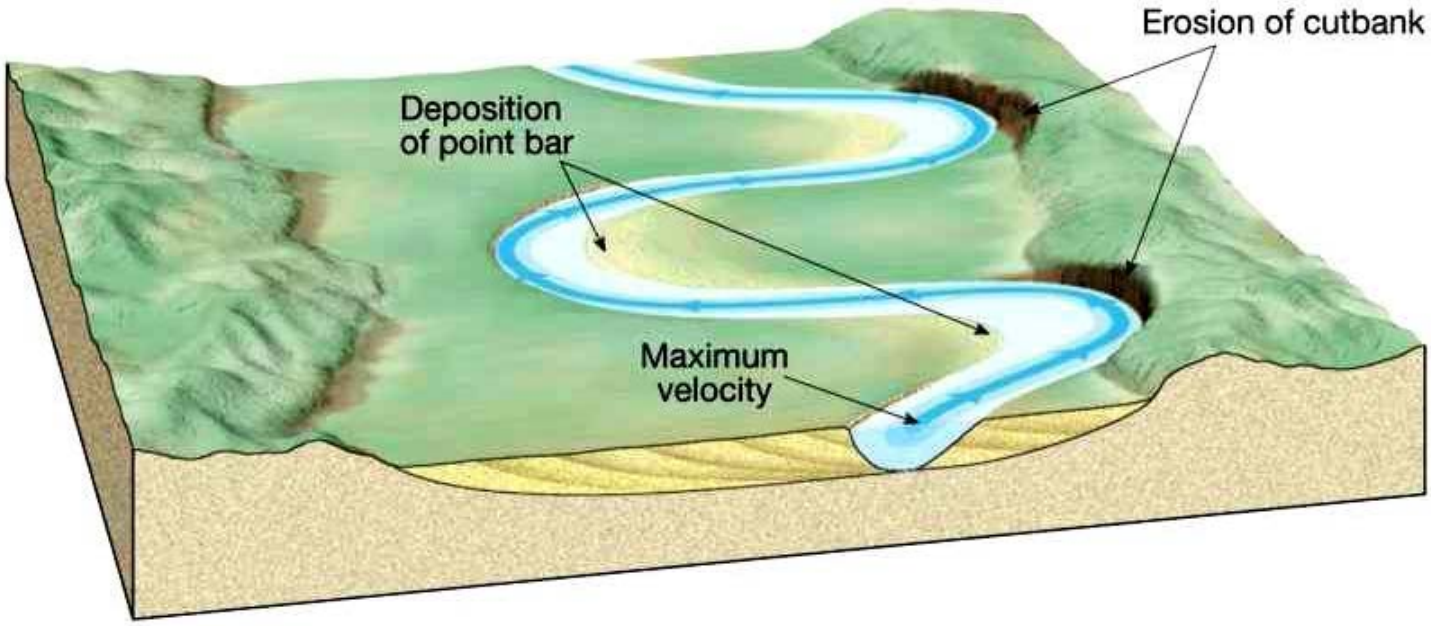
How do streams and rivers carry material?

Materials are transported in the water by:

- **Bedload/ Bouncing** along the bottom (bed) of the stream
- **Suspension:** sediment floating within the water (looks muddy)
- **Dissolving/ Solution:** like salt going into a solution

Stream Velocity- the speed of the stream

- Maximum velocity: (**fastest water) is where the most erosion takes place.**
- Occurs:
  - When the stream has a **steep gradient**
  - When there is a **greater discharge** (volume) of water.
  - Along the **outside of meanders** (stream beds). Most erosion occurs along the outside of a bend, so the stream is deepest there.



- Minimum velocity: (**slowest water) is where the most deposition takes place.**
- Occurs:
  - When the stream has a **low gradient (ground is flat)**
  - When there is a **less discharge** (volume) of water
  - Along the **inside of the meanders** (steam bends)

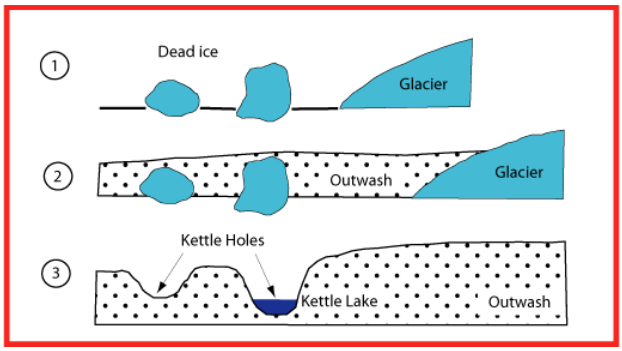
- Sediment size and stream velocity
  - **The faster the stream, the bigger the sediments it carries.**
  - Sediments are always transported slower than the stream velocity.
  - Roundness of pebbles: **abrasion** during transport causes the edges of sediments to wear off, making them become **rounder and smaller**.

Glaciers: moving snow and ice that contains, water, rock and sediments

- Much of New York State was covered in glaciers
- Glaciers retreated 15, 000 years ago
- Cause of glaciers: Earth experience thousands of years of below normal temperatures due to changes in Earth's orbit and ocean currents.

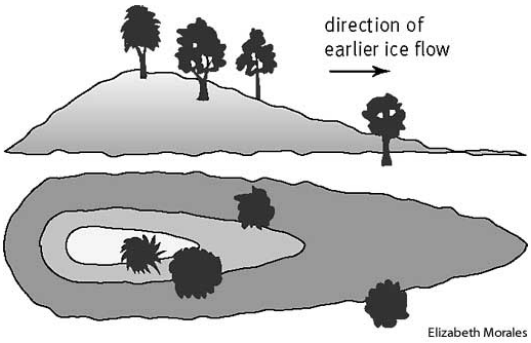
- **<u>Erosional features:</u>**
  1) U-shaped valleys- shows the direction of where the glacier came from
  2) Glacial Striations (scratches) – shows the direction of where the glacier came from

- **<u>Depositional features:</u>**
  1) **Kettle Lakes**: are depressions (holes in the ground) left behind after partially-buried ice blocks melt. Many are filled with water, and are then called "kettle lakes".



  2) **Eskers:** a long ridge of gravel and other **<u>sorted</u>** sediment, typically having a winding course

  3) **Drumlin:** a small tear-drop shaped hill of **<u>unsorted</u>** sediment
     * Shows where the glacier came from

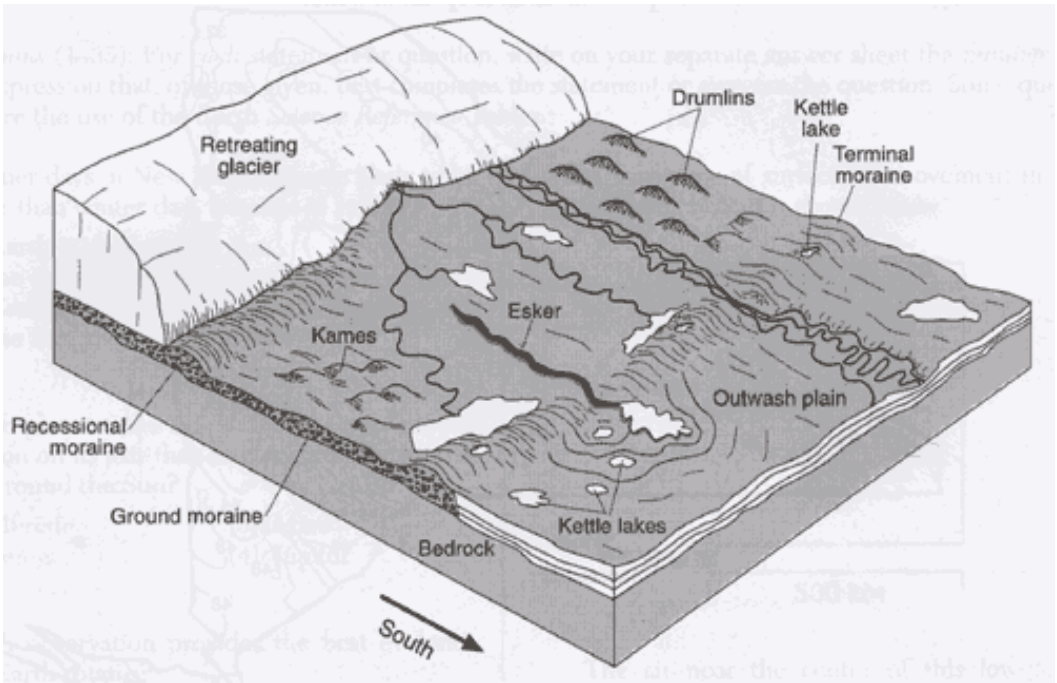


4) **Moraines:** a mass of **<u>unsorted</u>** rocks and sediment carried down and deposited by a glacier

5) **Erratic:** a rock or boulder that is different from the surrounding rock

* This is evidence that a glacier once covered the area because only a glacier could move a bolder this big.

6) **Outwash plain:** the area that is covered by water from a melting glacier



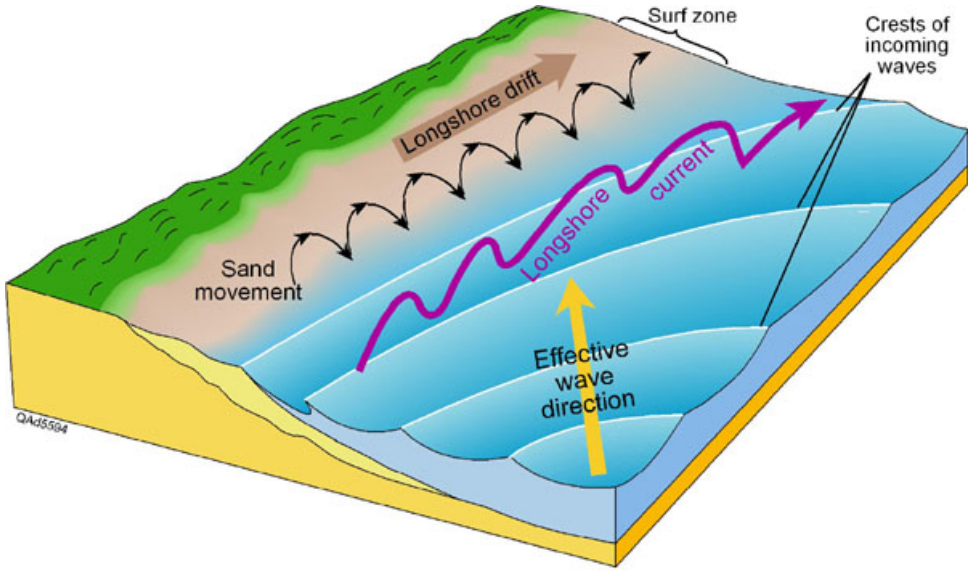
Wind

1) most affect in **dry (desert) climates and shorelines.**

2) Creates **sand dunes (like a snowdrift)**

Waves

- **Longshore drift is the movement of material along a coast by <u>waves</u>**
  - Waves are caused by prevailing (global winds)
  - Waves change the shape of the beach due to erosion
  - Waves cause sediments to become round due to abrasion.



  - Long short current is responsible of moving sediment down the coast and creating sand spits and small islands. (See picture below).