Mt's are produced by forces from plate tectonics and continental drift.

Rock weathering = decomposes and physically breaks down due to chemicals from rain (weak acids) weak acids work on iron and aluminum rocks and turns that part to clay.

Sand of beach comes from the weathering of rocks.

Agents of erosion =
- Streams
- Glaciers
- Waves
- Wind

Erosional Landform = is the hole in the ground.

Landforms =
- Erosional = hole in ground
- Residual = is landform that is left
- Depositional = streams will dump the ground material that gets washed away and carried to an area.

Marine terrace - natural waves have carved side of Mt.

Water:
1. Streams = Erosion
2. Gravity also plays a role
Water

- also acts like a LUBRICANT and will Collect

Soil Fluxion

LANDSLIDES
MUD SLIDES

WATER FLOWING
(Streams/Rivers)

- Laminar - Think Drive way, water lays flat along drive way and is less likely to make a groove or path
- Streamflow - water finds its path as to which way its going to travel.

Water will cut deeper and deeper as it travels

water is traveling 5x's faster

1x's slower travels @ a speed slower due to debris

30 sq ft

100 ft

102 sq ft friction
1. Dissolved load
2. Suspended load
3. Saltated load
4. Bed load

Rocks that bounce around because they are too light to be bedload and too heavy to be suspended load.

Spring flood = cuz water is greater & moving faster.

Saltated load → Becomes suspended load
Bed load → Becomes saltated load.

GOLD RUSH (1848) → gold came from MTs.

Placer deposit = gold becomes concentrated in the stream beds and sinks because gold weighs more than another sediment of the same size.

Graded slope:
- Least amount of water

Divides - split watersheds
- **WATER**

- **STREAM** Degraded = carries more material than it Dumps
  Agrade = it dumps off more than it can carry

When Streams travel into very flat areas it will

- **Alluvial Fan** = material clogs up Stream/River
  and soon Fans out.

  A lot of Alluvial Fans together make a Bajada.

Streams will Degradate and Change to Agrade Depending upon the season.
**5:20 PM**

**Geog.**

- **Dirt**: 2½ to 3 x's denser than H₂O
- MUD weighs more than H₂O

\[ \text{MUD} = \text{H}_2\text{O} + \text{Dirt} \]

\[ \Rightarrow \text{Call it Density Solution} \]

- **Q. Why is a Dam Good?**
- **REASONS:**
  - **Electricity:** Weight of water creates energy as it falls \Rightarrow **HYDROELECTRIC POWER** [cheap & clean]
  - **Flood Control:** Most dams have been built to help regarding floods
  - **Water for Drinking & Agriculture:** Storing H₂O
  - **Recreational:** Boating, waterski, etc.
  - **You can PROVIDE for a LARGE FISHING Community:** You can regulate how much H₂O is let out
WHY DAMS ARE BAD?

REASONS:
* Lose nutrients and deprive valley of nutrients.
  * Bad for agriculture
  * Failure of a dam - has liabilities for failure
    that can be very costly.
    * What would cause failure
      * Earthquakes
      * Design - Manufacturing
  * Creates thermal barrier warm water w/ dam (lake)
  * Fish are lost (Fishery's disappear)
    * No spawning
    Fish also need gravel to lay their eggs in
    * If fish lay in mud - The eggs are deprived of O₂ and die.

O N S I D E:
[SILT - Small fine textures grains]

(YOUNG)

When Mt. is new, it's going to be as tall and as steep as it will ever be.

Thus, the water (streams) will flow faster due to the slope of the Mt.

⇒ YOUNG/NEW STREAM

YOUTHFUL STREAMS CALLED = CONSEQUENT STREAMS

(BIRDS EYE VIEW OF)
(RIVER LOOK'S LIKE A TREE)
1955 - Santa Cruz was flooded out by the San Lorenzo River.

1. If the river rises over the levee, the sand and gravel will collect along to top of the levee and slowly build up levee.
2. Water now overflows and now reaches the flood plain - bringing fertilized/nutrients to dirt.

MEANDERS

1. Water is going to speed up as it goes around the bend.
2. At the slip-off area on the other side of the bend that is where the material which was undercut gets deposited.

Ox Bow Lake

River cut itself off due to the slip-off slope.

LAMS

* At the end of the raining season, the goal is to have the reservoir full. Thus we try to do during the dry season.
ENTRENCHED MEANDERS - a river that cuts into its meanders on the flood plains.

TYPES OF STREAMS

1. Youthful Streams = Consequent Stream
   - very steep topography

2. Subsequent Streams

3. Radial Drainage - water flows down the hill or on all of the sides

FOLDED MTS

Radial Patterns

FLOW OF H₂O

Also called = Trellis Patterns

DOME MTS

Water Flow

TOP VIEW
Colorado River → in Grand Canyon = Youthful River
River was there before the plateau went up ↑

Antecedent Stream = is there Before the Land Rose / Landform.

Superposed Stream = Stream over the Flood Plain Doesn't Carve thru the Harder Sediments

4 Kinds of Streams - Consequent Stream
- Subsequent Stream
- Antecedent Stream
- Superposed Stream

What's the difference Between a Salt H2O Lake and a Fresh H2O Lake

A Fresh Water Lake Has an Outlet Which Salt is able to Leave Lake - Through Drainage.

Where lakes evaporate ⇒ you get Salt Flats.

Fluvial Geomorphology ⇒ People who study the movement of H2O.

Earth has more Fluvial Erosion vs. Glacial Erosion (Stream)

Glaciers = make a trough
- Found @ High Latitudes N° & S°
- @ High Altitudes/Elevation
GLACIER - (Hard H20)

Starts off as Snow - More Snow fall than melts

→ Neve - is the process which Glaciers are formed

→ 3 types of Glaciers

1) Continental Glaciers - Don't have Sides.

2) Mt. Glaciers - They do have Sides
   Valley Glaciers -
   Alpine Glaciers - Because they change shape from slopes of Mt. Side

3) PIEDMONT Glaciers
   Icefield made up of a bunch of Glaciers
   Ex: Mt. Glaciers
   Valley Glaciers
   Alpine (Etc)
Glaciers (Cont.)

- Usually Glacier occupies old stream valley.
  - Look @ pg. 29. Glacier carved out valley from a V-shape to a U-shape.
  - Ice makes vertical walls.
  - Faceted walls.
  - Truncated spurs.

  ![Diagram of Glacier Valley]

**Hanging Valleys**

- Back of valley is lower than front.
- And creates alluvial filling.
- Crack with ice called Crevasses.

**hanging valve**

- **Bergschrund**: where valley ends & Glacier Begins.

Deep Soil - Glacier removes

- Accordant Valley Floors - Streams come together at same level (no H20 falls).

- Spars come together = Interlocking spars.
Glacier makes mt. more jagged

Peak, Spitz, or Horn - mt. that is surrounded by glaciers
Matterhorn Peak - glaciers all around mt. carved all around mt.

Glaciated

(Arete - group of rocks that divide two glaciers valley)

Curved into called a Col
two glaciers which were so thick that they grew over the top of ridge and start eroding the mt.

Nunatak - equivalent to a Bata tub Ring
tells you how thick twice max elevation was

Ex: Half-dome
Glacier came within 700 feet of top of (1/2) dome

Revetion = snowfields turning into ice