

WEATHERING

- ◆ Weathering is when rocks get broken down into smaller pieces
- ◆ These pieces are called "SEDIMENT"



pebbles



WEATHERING IS



CRUMBLING
INTO
SEDIMENT

NOT

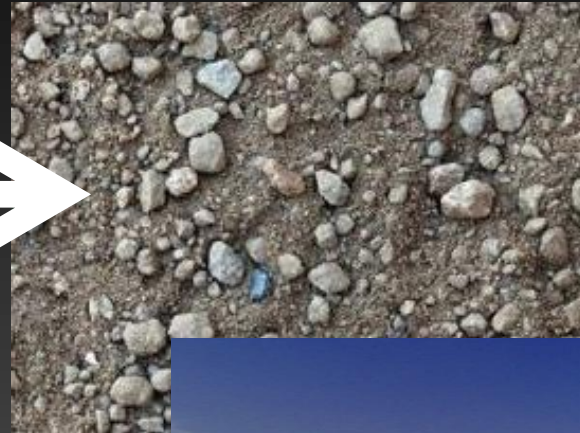
MOVING
THE
SEDIMENT



EROSION

ALL rocks can be weathered

Igneous



Sedimentary



Metamorphic



breaking


Into smaller pieces

◆ Weather causes weathering

...DUH!

◆ Dirt, soil, and sand are just weathered rock material...rock poop!

WEATHERING TYPES

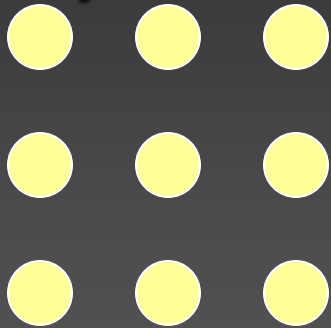
- ◆ **MECHANICAL:**
physically BREAKING the rock into pieces
 - ◆ **CHEMICAL:**
chemically changing or dissolving the rock away.
- 

Mechanical Weathering

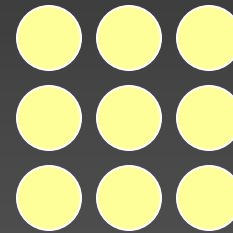
- ◆ **Rocks are physically broken into pieces by:**
 - Heat**
 - Pressure**
 - Ice**
 - Plants**
 - Water/Wind**

Heat:

◆ Heat
expands

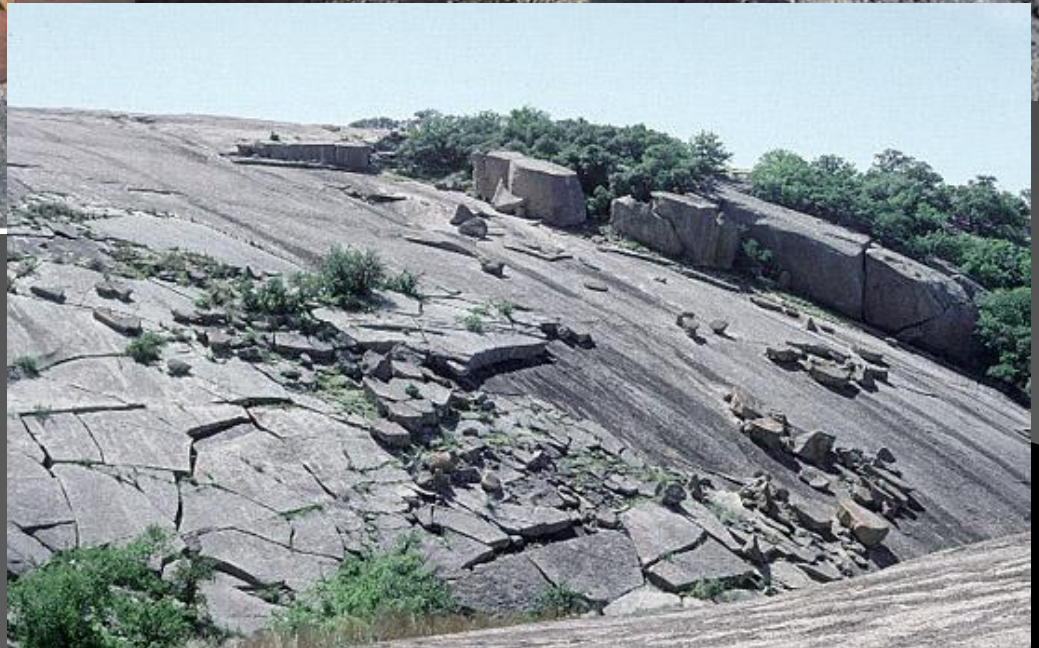


■ Cold
contracts



Over time, the constant
growing and shrinking cracks
the rock

Heat: mechanical weathering

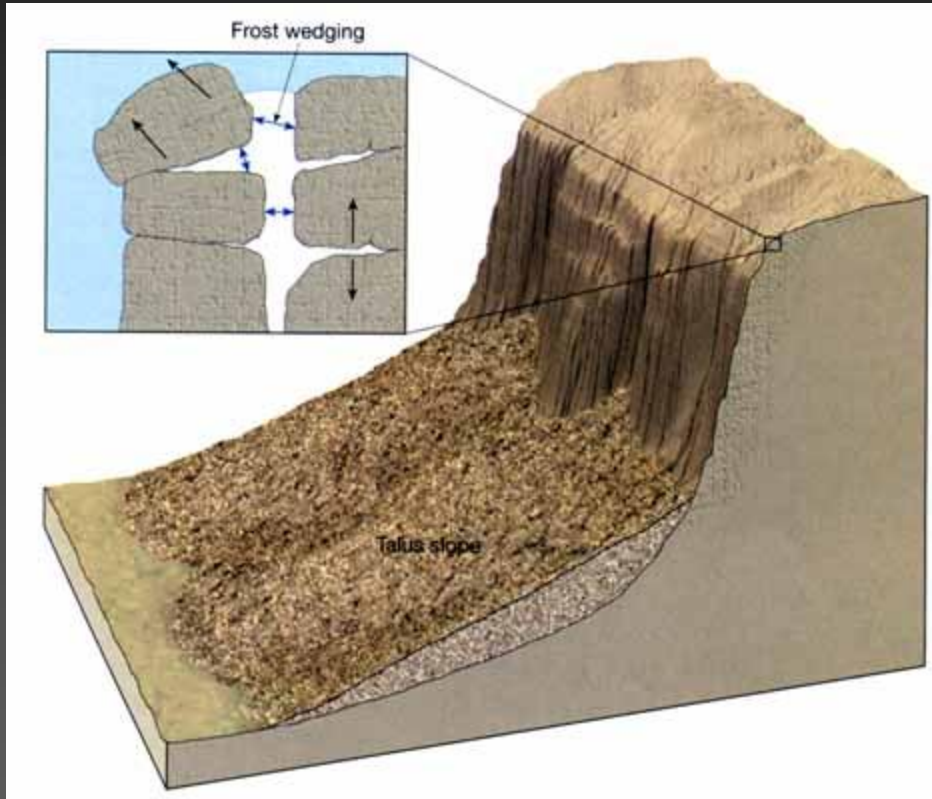
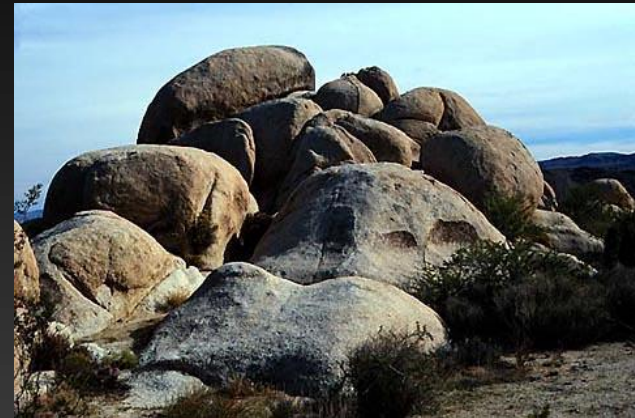


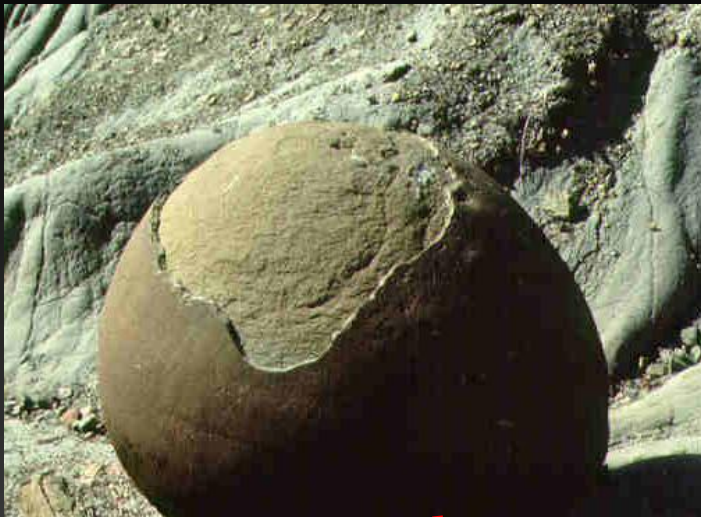
ICE WEDGING (freeze and thawing)

- ◆ Description: When water freezes inside of a crack in a rock, the water expands making the crack



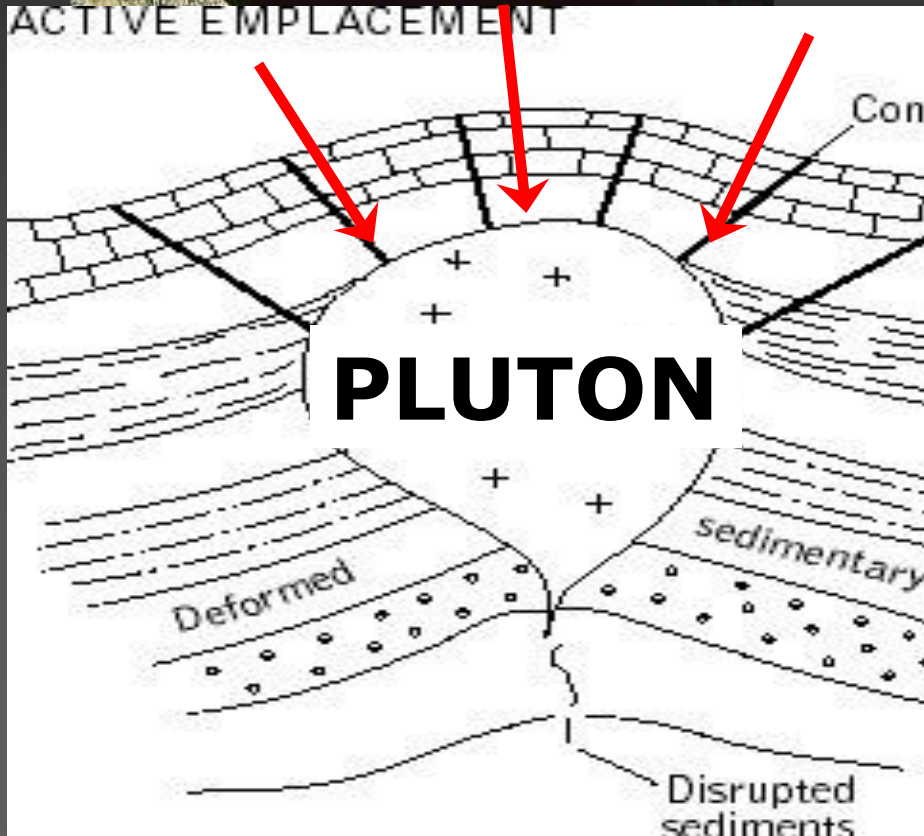
Ice: mechanical weathering

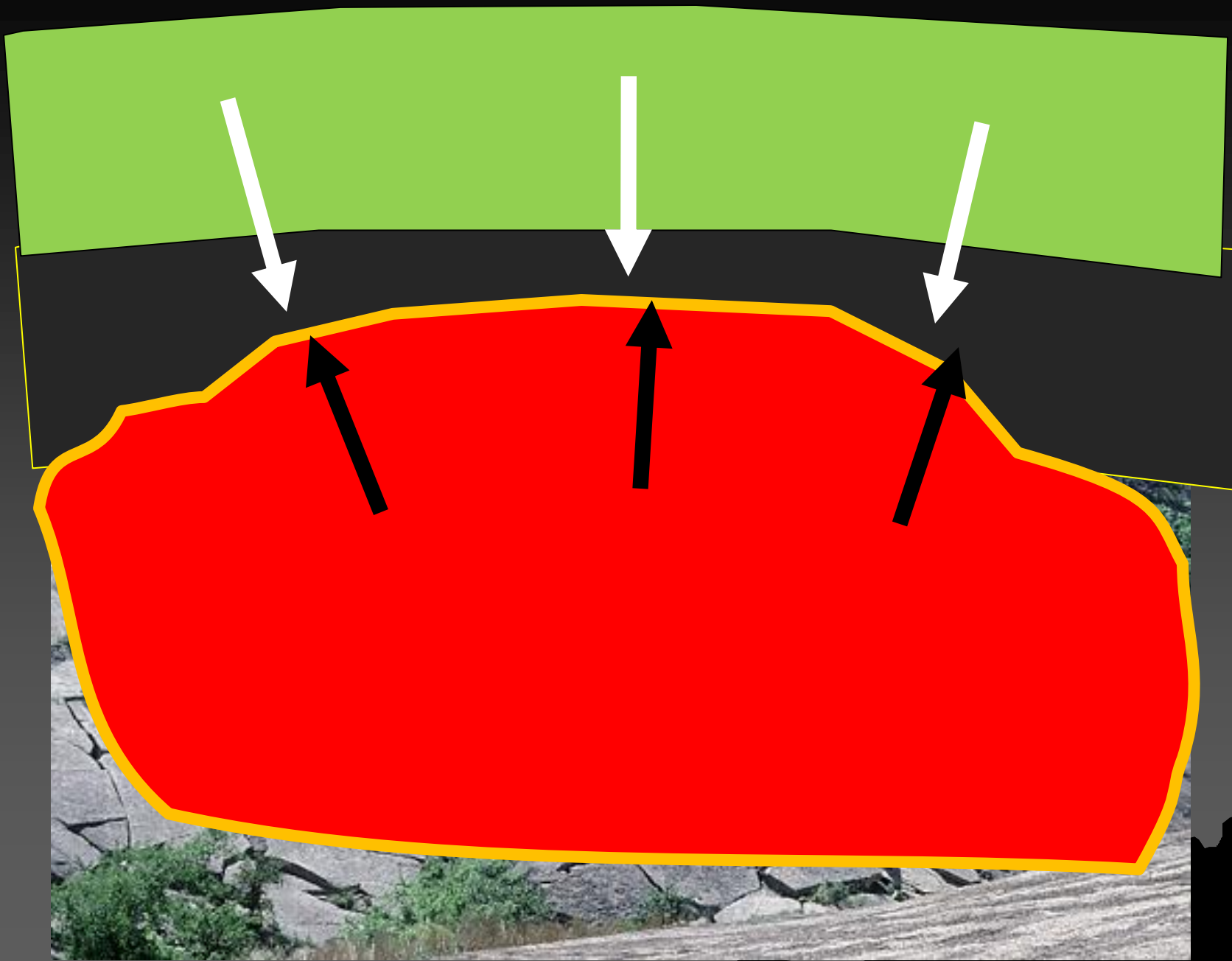




EXFOLIATION

- ◆ Erosion takes off the top rocks and it causes the rock to crack and flake off.





ROOT WEDGING

Roots of trees and other plants grow into cracks in rocks.



ANIMAL ACTION

Animals or humans burrow and walk on surface of rocks



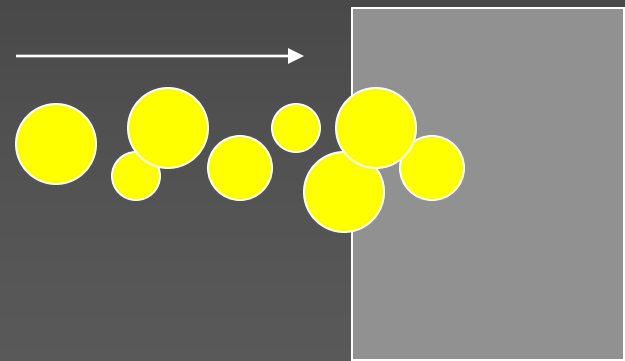
ABRASION

Sand in the wind, rivers, or ice “sandpapers” rock away



Water/Wind: mechanical weathering

- ◆ **Water and wind hit rocks with sand**



- ◇ **This is called “Abrasion”**

Water/Wind: mechanical weathering



MECHANICAL

WEATHERING IS THE
MOST COMMON IN
COLD CLIMATES (ICE
WEDGING IS HUGE)

Chemical Weathering

Dissolving

- ◆ **Acid rain**
- ◆ **Plant secretions**

Chemical Change

- ◆ **Hydration**
- ◆ **Oxidation**

CHEMICAL

WEATHERING IS THE

MOST COMMON IN

HOT AND WET

(HUMID) CLIMATES

HEAT AND WATER

SPEED UP REACTIONS



Water: Water weathers rock by dissolving it or changing the chemistry of a rock.

Chemical Change:

chemical weathering

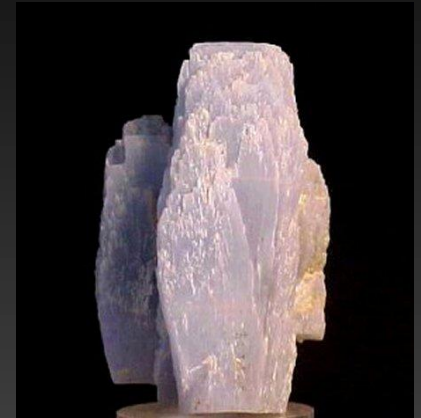
Hydration

- ◆ **Water atoms bond to the rock and makes them weaker**



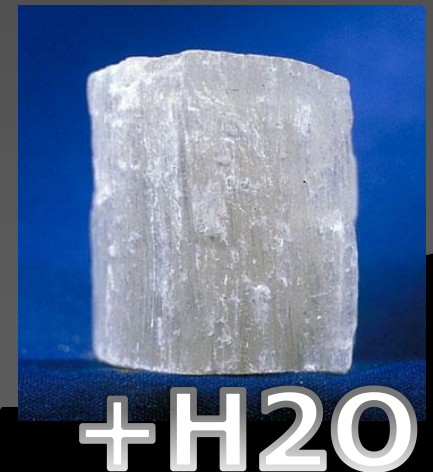
hematite

↓
goethite



anhydrite

↓
gypsum



OXYGEN: Oxygen combined with iron to form iron oxide (rust).



Makes rocks become crumbly.

Chemical Change:

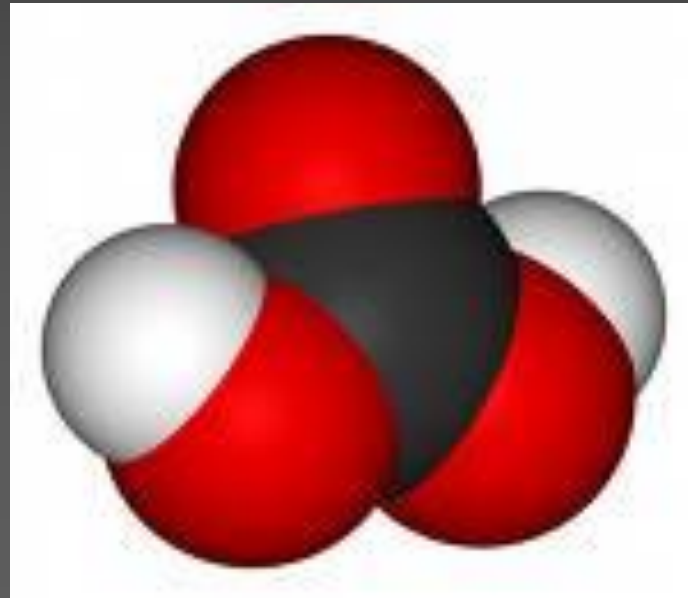
chemical weathering

Oxidation

- ◆ Iron combines with oxygen and water to form "rust"



Carbon Dioxide: dissolved in water becoming an acid that eats away rocks.



Dissolving: Acid Rain

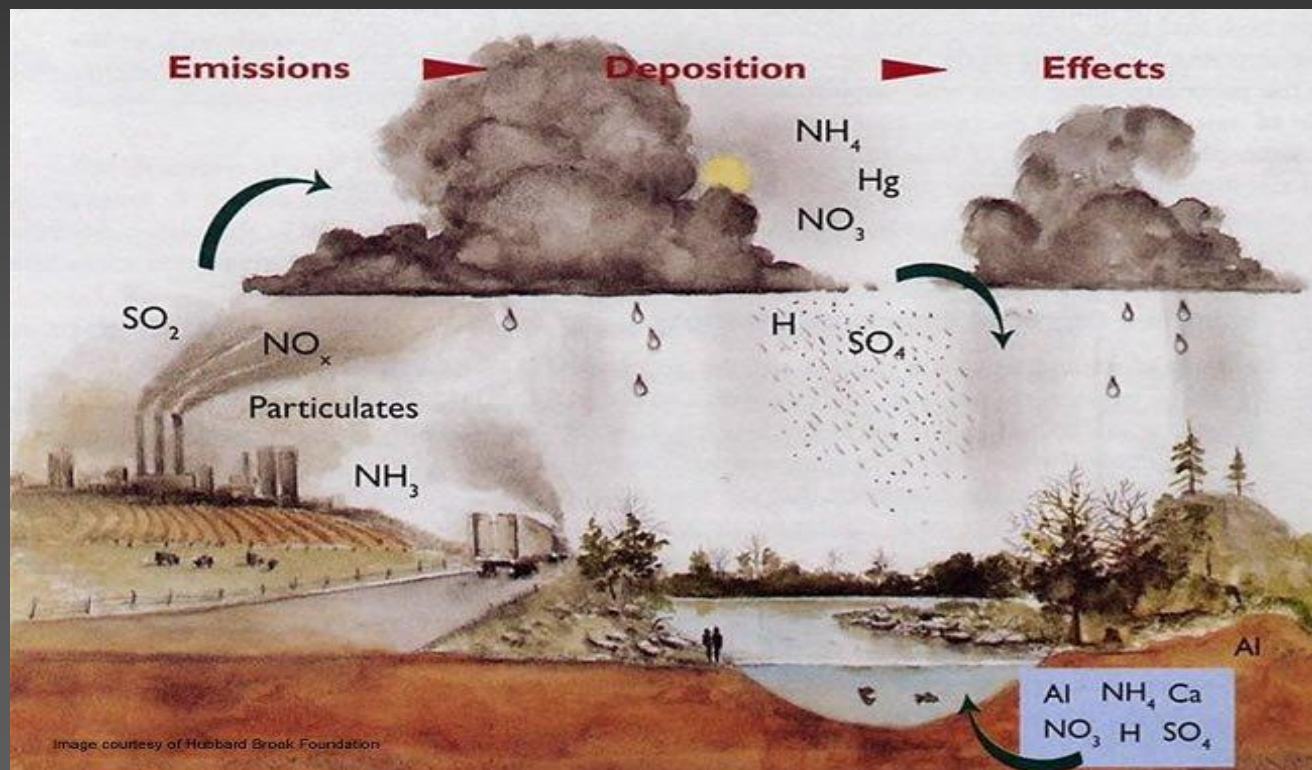
chemical weathering

**Dissolves away caves and
eats away statues and
buildings**



Acid Rain

Burning coal and oil causes this to occur



Living Organisms



**Even some
plants make
acid that
eats away
rock...plant
spit 😊**

MORAL OF THE STORY: Weather is Dangerous

