

The background is a solid green color with several overlapping white circles of varying sizes and opacities, creating a layered, abstract pattern.

**Earth and Space Science
Monday
11/7/2016**

Last week we finished up the water cycle, read about the Earth's 4 major systems, and how energy is transferred on Earth.

We are going to back up a little bit this week and study a few more methods about how the surface of Earth is changing.

What are some ways that we have talked about so far?



Weathering

The breakdown of the materials of Earth's crust into smaller pieces. It can happen through physical or chemical means and through natural and man made processes.

Weathering

- ❖ **Chemical Weathering:** The break down of rocks involves a chemical change in at least some of the minerals within a rock. It involves rainwater, oxygen, carbon dioxide, and plant decay acids.
- ❖ **Physical or Mechanical Weathering:** The break down of rocks caused by physical processes. Only size changes, not the chemical composition

Physical Weathering

- ❖ **Process by which rocks are broken down into smaller pieces by external conditions**
- ❖ **Types of mechanical weathering:**
 - ❖ **Freezing and thawing**
 - ❖ **Plant roots**
 - ❖ **Abrasion (by wind and water)**
 - ❖ **Release of pressure**
 - ❖ **Animal actions**

Mechanical Weathering: Freezing and Thawing

As water freezes it expands placing pressure on the rock around it. When it thaws more water is able to enter the crack and then it is able to freeze again. The continual freeze-thaw action eventually cause the rock to break apart.



Mechanical Weathering: Release of Pressure

Rocks exfoliate, or break apart in layers as pressure from overlying rocks is reduced or removed.



Mechanical Weathering: Plant Roots

When plant roots grow into a rock or under a rock, they break rocks apart as they grow.



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Mechanical Weathering: Abrasion

Friction and repeated impact by water, ice, or wind.



Mechanical Weathering: Animal Action

Animals in the ground burrow and break particles off of rocks.



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**Earth and Space Science
Tuesday
11/8/2016**

Chemical Weathering

- ❖ **The process that breaks down rock through chemical change.**

- ❖ **The agents of chemical weathering:**
 - ❖ Water (acids)
 - ❖ Oxygen
 - ❖ Carbon dioxide
 - ❖ Living organisms
 - ❖ Acid rain

Chemical Weathering: Water

Water weathers rock by decomposing, dissolving or loosening parts of the rock.



Chemical Weathering: Oxygen

Iron combines with oxygen in the presence of water in process called oxidation.

The product of oxidation is rust.



Chemical Weathering: Carbon Dioxide

CO₂ dissolves in rain water and creates carbonic acid.

Carbonic acid easily weathers limestone and marble



Chemical Weathering: Plants

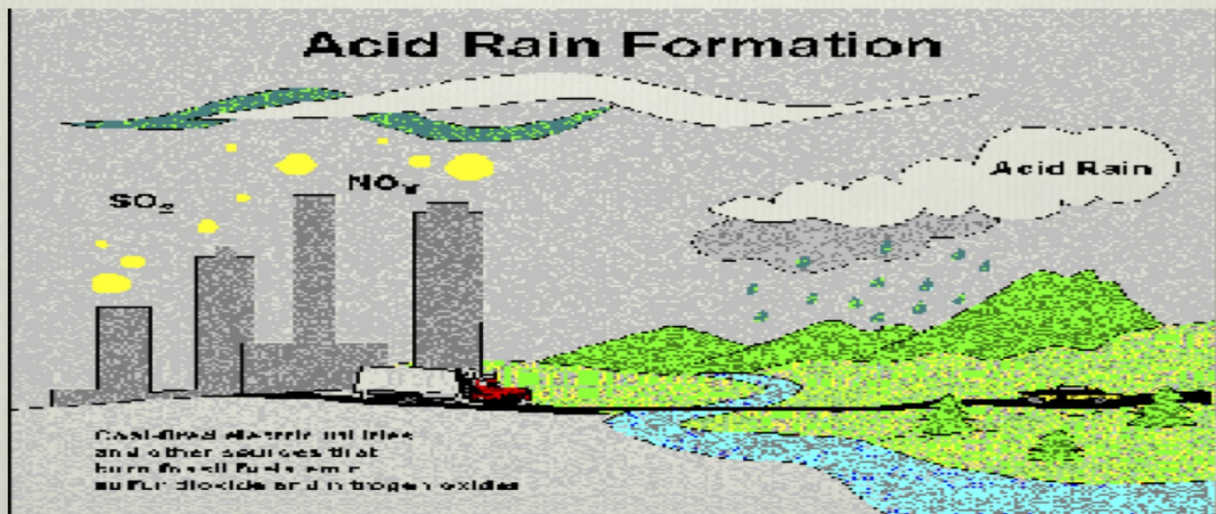
Plants that grow on rocks produce weak acids that chemically weather rocks.



Chemical Weathering: Acid Rain

Compounds from burning oil, coal, and gas react chemically with water, forming acids.

Acid Rain causes very rapid chemical weathering



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**Earth and Space Science
Wednesday
11/9/2016**

Out of the Dust

By Karen Hesse

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Rules of Dining

Ma has rules for setting the table.
Place plates upside down, glasses bottom side up,
Napkins folded over forks, knives and spoons.

When dinner is ready,
We sit down together and Ma says, "Now."

We shake out our napkins, spread them on our laps, and flip over our
glasses and plates, exposing neat circles, round comments on what
life would be without dust.

Daddy says, "The potatoes are peppered plenty tonight, Polly," and
"Chocolate milk for dinner, aren't we in clover!" when really all our
pepper and chocolate, it's nothing but dust.

P 63 Nightmare

I was coming home through a howling dust storm, my lower face was
scrubbed raw by dirt and wind. Grit scratched my eyes, it crunched
between my teeth. Sand chafed inside my clothes, against my skin.
Dust crept inside my ears, up my nose, down my throat. Shuddered,
nasty with dust.

In the house, dust blew through the cracks in the walls, it covered the
floorboards and heaped against the doors. It floated in the air,
everywhere.

Wind Erosion

- Wind is one of the major eroding forces on Earth. Take one minute to discuss with your table mate how wind changes the Earth's surface. Then, you'll have a chance to share with the class.



- <https://www.youtube.com/watch?v=PQmon7Rj6ns>

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**Earth and Space Science
Thursday
11/10/2016**

- Take a look at the valley on the right.
- Valleys are usually V-shaped. This one is more U-Shaped. How do you think that happened? Take a look at a few more examples on the next slide...





Glacial Erosion

- <https://www.youtube.com/watch?v=loI584OFVpE>



- as the video mentioned, glaciers move like giant rivers of ice, which takes the top layer of the earth with it..kind of like an ice cream scoop moving through a bucket of fresh ice cream.



- Over the past few days, we have gone more in-depth with several types of erosion. Can you remember them?
- In a moment, we will create a foldable in our notebooks to help us recall.