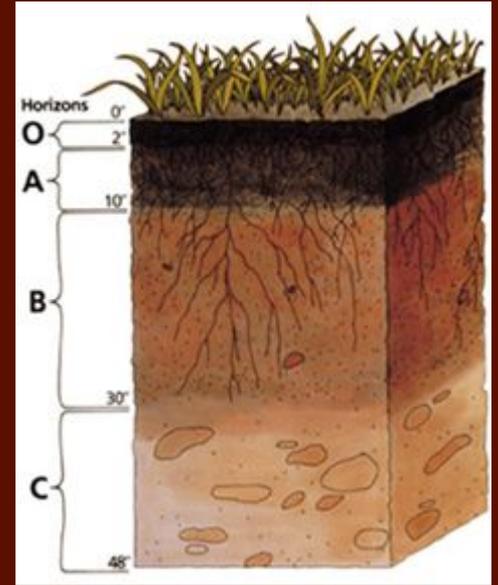




Chapter 2

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Weather and Soil



In this chapter there are three sections:

1. Weathering

- a. learn about the different types of weathering

2. The Nature of Soil

- a. how it forms and its characteristics

3. Soil Erosion

- a. why it's important and how we affect it

Lesson 1: Weathering

Objective

1. Explain how mechanical weathering and chemical weathering differ
2. Describe how weathering affects Earth's surface
3. Explain how climate affects weathering

What is weathering??

And it's ice in a cold December
But water when it becomes warm
And rocks broken they're expanding
And seeps in fissures and the holes that freezes on now



What are the two types of weathering??

A. Weathering and its Effects

Weathering:

surface processes that break rock into smaller and smaller pieces called sediment; sand, silt and clay

Pikes Peak - Colorado



B. Mechanical Weathering

occurs when rocks are broken apart by physical process.

The overall chemical makeup stays the same. Each fragment has characteristics similar to the original rock



Factors to Mechanical Weathering



1. Growing Plants
2. Burrowing Animals
3. Expanding Ice

1. Plants and Animals

Plants grow in rocks
and crack larger rocks
into smaller pieces



As animals dig into
the Earth they loosen
sediment and push it
to the surface.



2. Ice Wedging

Mechanical weathering

occurs in temperate and cold climates where water enters cracks in rocks and freezes. Water expands when frozen which cracks rocks. When the water melts it allow for more water to go in the crack.

most noticeable in mountains - warm days cold nights

potholes, cracks in sidewalks - WARWICK!!!

Ice Wedging



3. Surface Area

As rock is broken apart by mechanical weathering, the amount of rock surface exposed to air and water increases.

C. Chemical Weathering

occurs when chemical reactions dissolve the minerals in rocks or change them into different minerals.



Changes the chemical composition of the
rock



Factors of Chemical Weathering

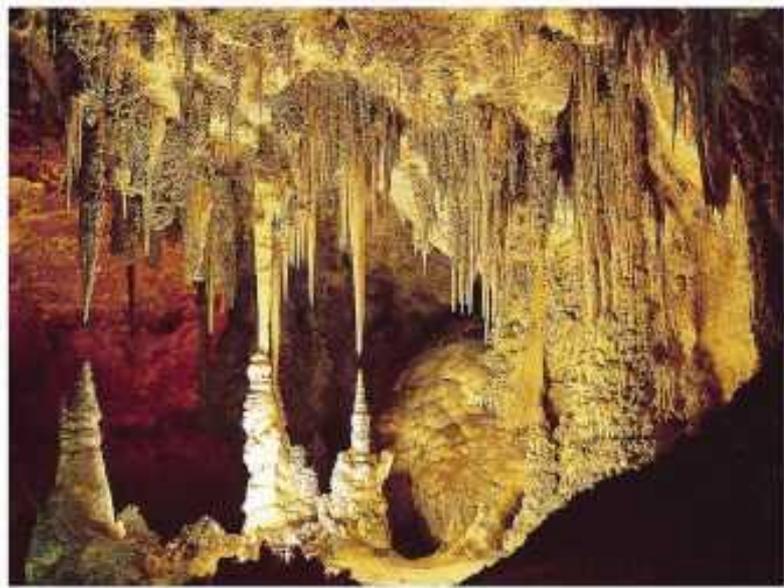
1. Natural Acids
2. Plant Acids
3. Oxygen

Carbonation – Carbonic Acid

Water + CO_2 \rightarrow H_2CO_3



Carl



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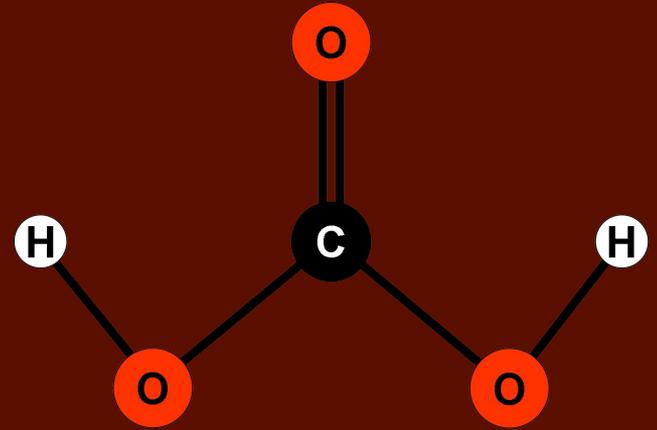
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1. Natural Acids

water + carbon dioxide = carbonic acid



2. Plant acids

Some roots and decaying plants give off acids that also dissolve minerals in rocks. These acids break down rock.

3. Oxygen

Oxidation: occurs when some materials are exposed to oxygen and water

ex. rusty bikes, swing sets



C. Effects of Climate

Climate is the process of weather that occurs in a particular area over many years.

Cold climates - Mechanical weathering rapidly breaks down rock

Warm Climates - Chemical weathering is brought on because of the wetter areas

Which type of weathering do you think is more rapid in Warwick? Why?



1. Effects of Rock Type

Marble weathers more rapidly in wet climates than granite

