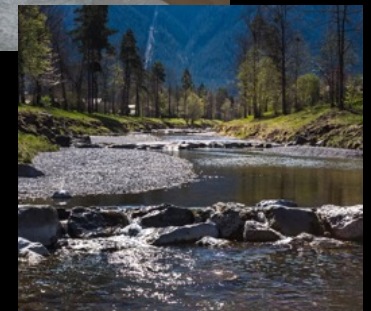
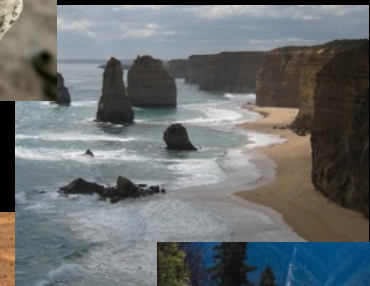


Erosion, Weathering, and Deposition

- Physical Weathering
- Chemical Weathering
- Erosion
- Sediment Transport
- Deposition



Preview File

Please enjoy this preview of your Student Version of the presentation. Please note within this sample file:

- Some slides appear blank because they have been removed
- Student versions have portions of the text removed which is given in the teacher version and appear as _____ which the students are to fill in
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Part 1 - Weathering

How Sediments Are Made



Weathering Erosion Deposition

W. E. D.

Weathering

Breaks It

Breaking
Down of the Material

Wind Water Ice

Erosion

Takes It

The Movement of
the Sediment

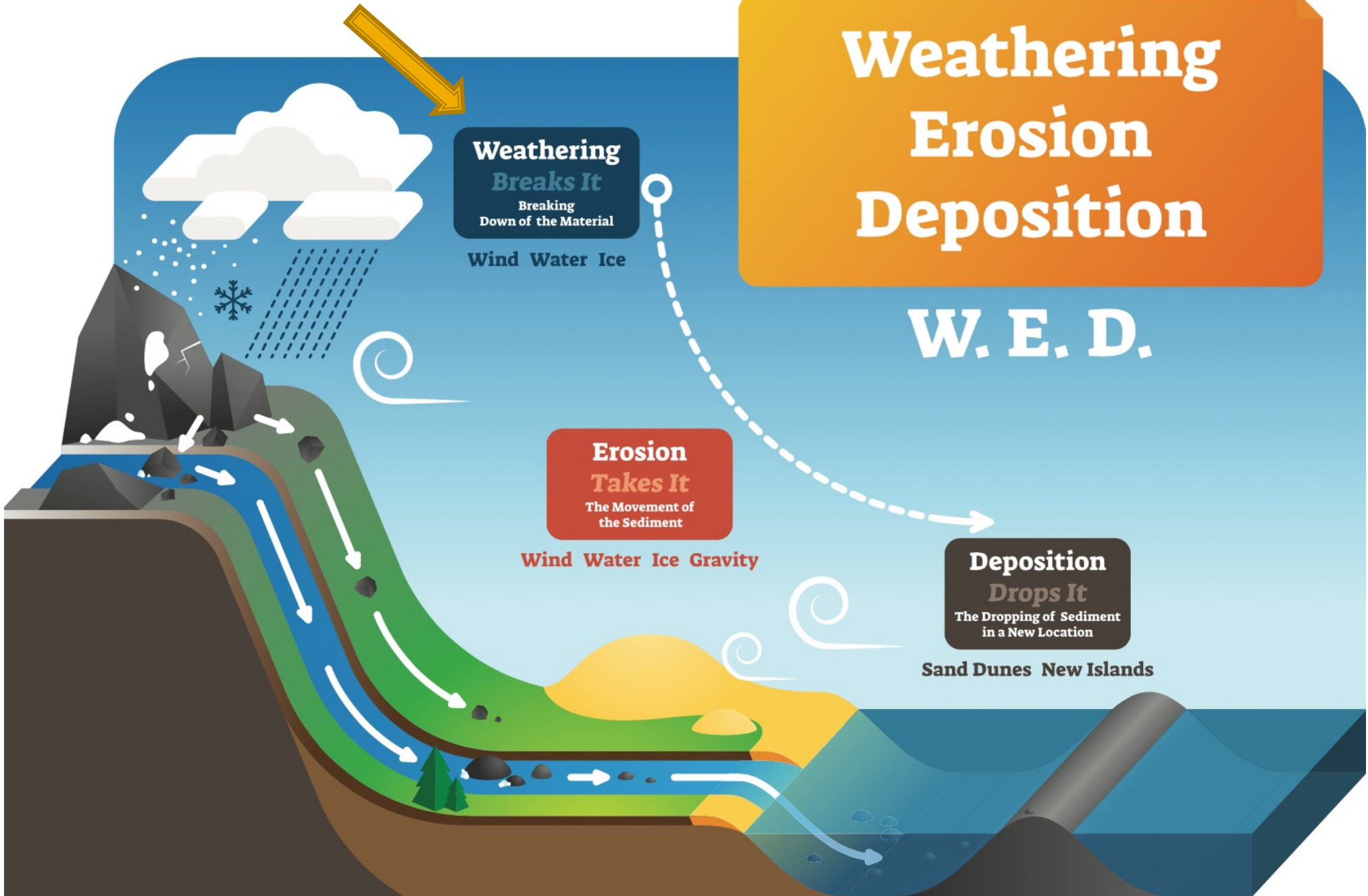
Wind Water Ice Gravity

Deposition

Drops It

The Dropping of Sediment
in a New Location

Sand Dunes New Islands



Two Main Processes For Breaking Down Rocks, Soil, and Minerals

- Weathering



- Erosion

- The process by which rocks, soil, and minerals are removed, transported and added to a new place

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Weathering

There are 2 main ways weathering can happen:
Physical and Chemical.

1. **Physical Weathering** is when rocks and soil break down but do not change chemically. What they are made of does not change but they look different.
2. _____

Major Types of Physical Weathering

1. _____

2. _____

3. _____

4. _____

5. _____



Phang Nga Bay, Phuket Province,
James Bond Island

Thermal Stress

- _____
- This causes the outer layers of rock to _____
- The peeling of outer layers is sometimes called exfoliation

The exfoliation Dome, called the moon rock, in the Augrabies National Park, Northern Cape South Africa



Pressure Release

- Rocks underground are under a lot of pressure from everything on top of them
- _____
- This can cause sheets of rock to break away



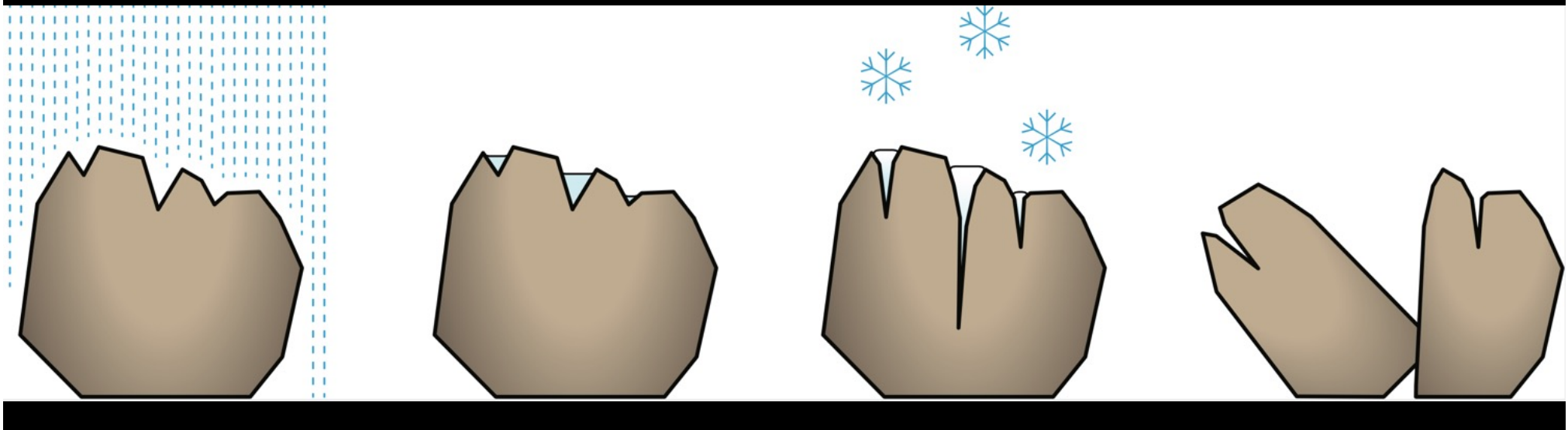
Pressure release in granite.
Nannestad, Norway.

Frost Weathering

- Sometimes called frost wedging
- Water can get inside any kind of hole or crack in a rock

- _____

- _____



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Frost Weathering



Salt Crystal Growth

- Salt crystal growth causes disintegration of rocks when saltwater _____
- These salt crystals can expand up to 3 times their original volume as they are heated up, exerting pressure inside the rock like frost weathering



Hydraulic Action

- Hydraulic action is a group of

- Example: Water that repeatedly hits the surface of a rock can break it apart



London Bridge - Australia

.....

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Types of Chemical Weathering

- Chemical Weathering is a change in the chemical structure of the substance... not simply breaking it apart like physical weathering
- The 3 main types of Chemical Weathering are:
 1. _____
 2. _____
 3. _____

Dissolution

- _____
- This happens when acids dissolve rocks and minerals
- An example of dissolution is carbonation



Carbonation



3

- Carbonation is when _____
- Rocks that contain a high amount of calcium (like limestone) will react with the carbonic acid and the rocks will simply melt away

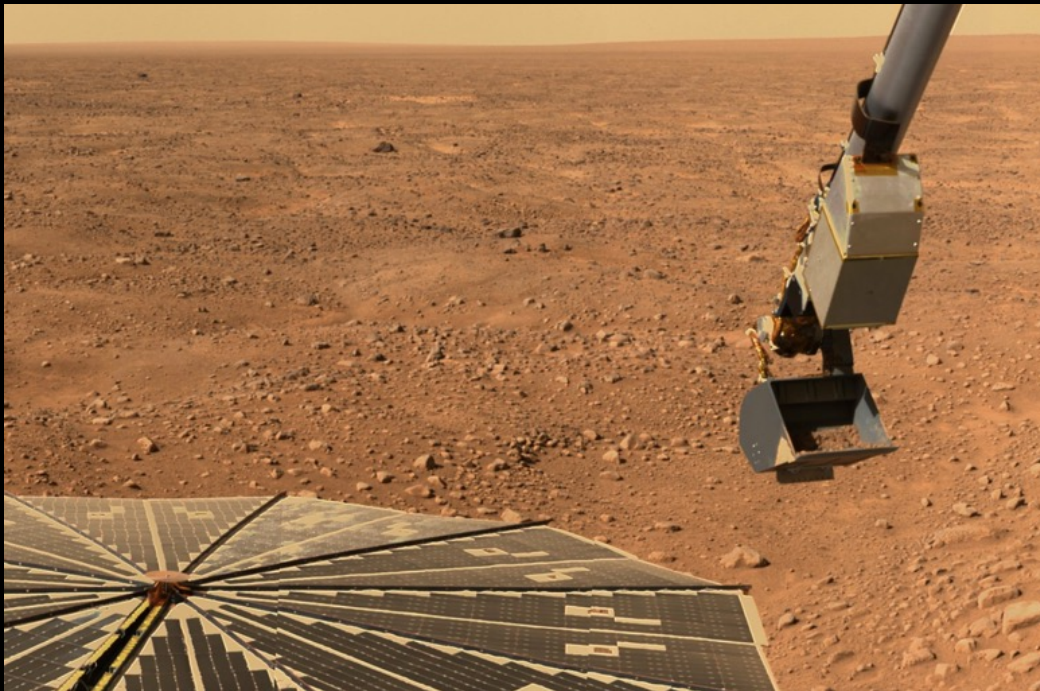


Many limestone statues have been dissolved by acid rain.

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Oxidation

Iron easily oxidizes and forms red rust while copper creates a green oxide.



Red iron oxide surface of Mars.



When the Statue was unveiled in 1886, it was a shiny brown color, like a penny. Oxidation of the copper turned it green.

Hydration

- Mineral hydration is a form of chemical weathering that _____
- The H^+ and OH^- chemicals attract water which attaches to the minerals
- This

Then what?

Once the material has been broken down, it is free to be transported and deposited somewhere else... that's where erosion and deposition come in.

Part 2 – Erosion and Deposition: How Sediments Are Relocated



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Erosion and Deposition

- Erosion is when soil and rock (sediment) are taken from one spot and transported to another
- Deposition is the process in which soil and rock are added to a new location by erosion



Sediment Transport

- _____
- We'll talk about 5 ways that erosion happens:
 1. Aeolian
 2. Fluvial
 3. Glacial
 4. Coastal
 5. Debris Flow



Aeolian (ee-ow-lee-uhn)

- _____
- Air can't move large objects unless it's a hurricane or tornado
- Usually, wind can only move rocks that are less than 1 mm in diameter like sand and very small rocks





4



A sandstorm approaching Al Asad April 27, 2005.

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Glacial

- _____
- It can take years to centuries to form
- They are at least 0.1 km^2 in area and 50 m thick, but often much larger



Glaciers

- Glaciers move slowly due their weight
- Glaciers can move/flow in one of two ways:
 1. _____
 2. _____

You might have seen this if you put an ice cube on a table. In about a minute, it will slide very easily.

- And, because glaciers are so thick, they can carry the largest of all sediments... Boulders!



Fox Glacier – New Zealand

Glaciers



5

- The three main processes of sediment transport for glaciers

1. _____

2. Abrasion: The ice flows over the land and acts like sandpaper

3. Plucking:



Debris Flow

- Debris Flow involves moving large amounts of loose mud, sand, soil, rock, and water down a slope under the influence of gravity
- Debris flow is a general name for disasters such as like _____



A rockslide in Guerrero, Mexico



Goodell Creek Debris Avalanche,
Washington, USA

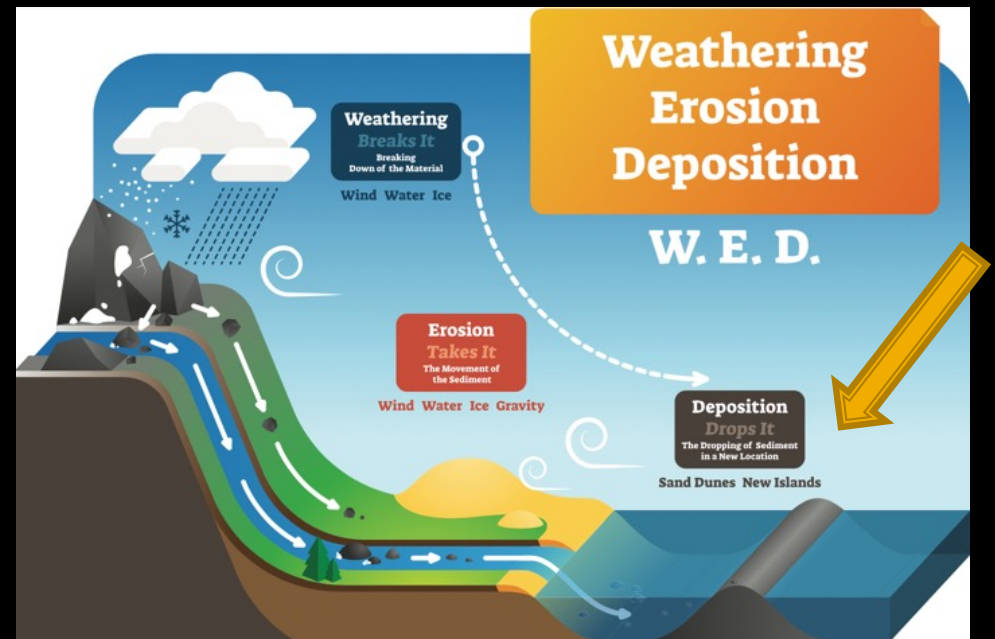


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Deposition

After the material has been broken down (weathering), the sediment is transported (erosion) and deposited somewhere new.



Deposition

Deposition happens when the force(s) responsible for

When this happens, the sediment is added to a new location.

