Chemical Weathering

What is Chemical Weathering?

- **Chemical Weathering** is the form of weathering where a mineral changes into a different type of mineral through chemical reactions.
- Any mineral created within Earth's mantle is exposed to high temperatures and it needs to adjust to cooler temperatures once it rises to the surface. Therefore, a series of chemical reactions changes its composition.
- Clay is one substance formed by chemical weathering. It's common because it is very stable for silicate minerals.

Study Tip

Think about why the materials used for storage are often waterproof and/or airtight.

What are the Different Forms of Chemical Weathering?

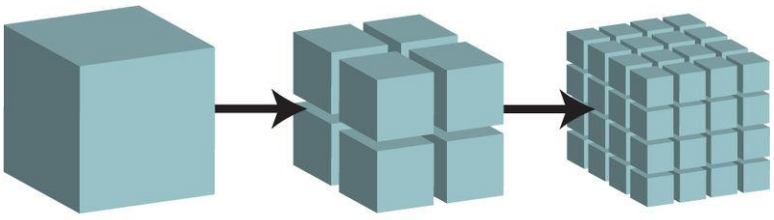
Water	Carbonic acid	Oxygen
Water is a polar molecule meaning that it has positive and negative fields that bind to opposite charges. **Hydrolysis** is the process where water separates a mineral's ions.	Carbonic acid formed from interaction between CO_2 and water. Carbonic acid helps to dissolve rock particles.	**Oxidation** is a process where O_2 reacts with another element Rust is created from the oxidation of iron oxide.

How Do Plants and Animals React to Chemical Weathering?

- Plants increase the rate of chemical weathering because elements are exchanged once plant roots take in soluble ions.
- Bacterial decay involves the use of carbon dioxide in respiration.

Does Mechanical Weathering Affect Chemical Weathering?

- Mechanical weathering increases the rate of chemical weathering because as rock splits, its surface area increases. With more surface area, chemical weathering will have a greater effect on the rock.



As rock breaks into smaller pieces, overall surface area increases.

Concept Check

- Describe what chemical weathering is and explain why it exists.
- Why is water able to cause chemical weathering?
- Why are plants and animals able to increase the rate of chemical weathering?
- Explain why mechanical weathering can increase the rate of chemical weathering.