

The rock cycle

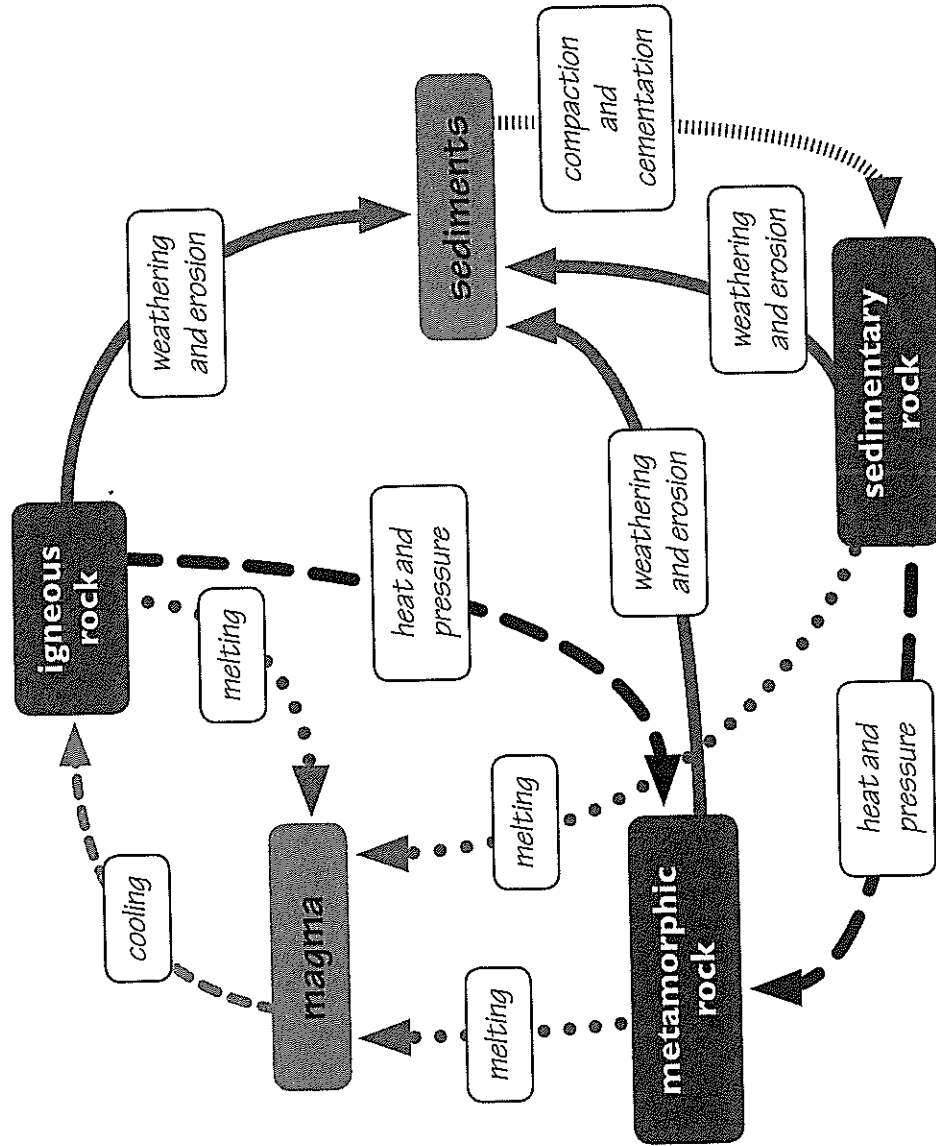
What is the rock cycle?

Like most things on the Earth, rocks are made and destroyed in **cycles**. The rock cycle shows how rocks are made, broken down and remade into different types of rocks. The rocks are slowly recycled over millions of years.

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The different types of arrows in the rock cycle diagram show the different processes that happen to rocks to change them from one type to another. Follow the arrows to see how:

- **igneous rock** can change into metamorphic or sedimentary rock
- **metamorphic rock** can change into sedimentary or igneous rock
- **sedimentary rock** can change into igneous or metamorphic rock.



THE ROCK CYCLE

What is weathering?

Rocks break down over time. The process where rocks are broken down into smaller pieces is called weathering. Temperature changes, wind, water, waves, ice, plants, animals and chemicals can cause rocks to break down.

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How does temperature change cause weathering?

When a rock gets hot it expands a bit, and when it gets cold it contracts a bit. If this happens many times, it causes the rock to crack and pieces break off. This happens a lot in the desert, because it is very hot during the day and very cold at night.

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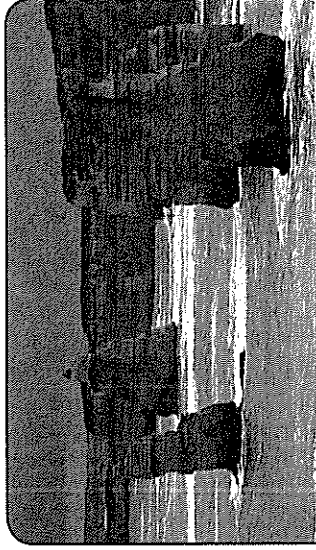
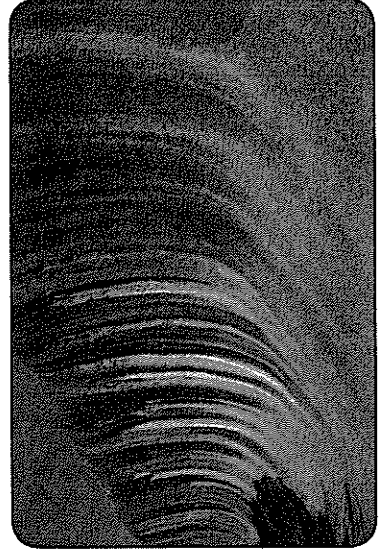
How does ice cause weathering?

When water freezes, it expands. When water gets into a crack in a rock and then freezes, it makes the crack bigger. This lets more water go deeper into the rock. When water freezes and thaws again and again, it will split pieces off the rock.

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What else causes weathering?

Wind can blow small grains of sand against a rock, wearing it away. Rain and waves can also wear away rocks.



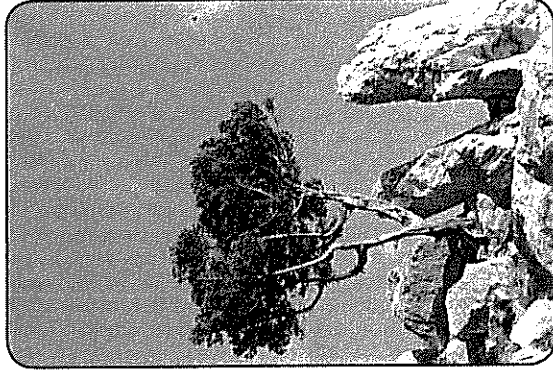
The Twelve Apostles are located along the Great Ocean Road in Victoria. They are a group of limestone stacks made by the force of the waves breaking up rock along the coastline.

THE ROCK CYCLE

How can plants and animals cause a rock to weather?

When animals trample over or burrow into rocks, they can cause the rock to break apart.

Plants can also cause a rock to break down. Seeds may fall into cracks in rocks and grow into plants. As the plant grows, the roots break apart the rock.



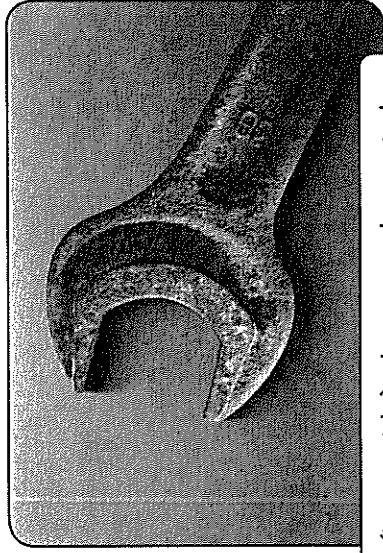
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How can chemicals weather rocks?

When water and air react with different minerals in rocks, new substances form. The new substances break away from the rock and the rock begins to crumble.

Water can also dissolve minerals in rocks. This is how caves are made. Rain that is made acidic by pollution released by cars and factories can attack limestone and marble, making them easier to crack and crumble.

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Rust (iron oxide) also attacks metal, causing it to weaken and break apart.



If rocks did not weather, there would be no soil for plants to grow in.

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THE ROCK CYCLE

What is erosion?

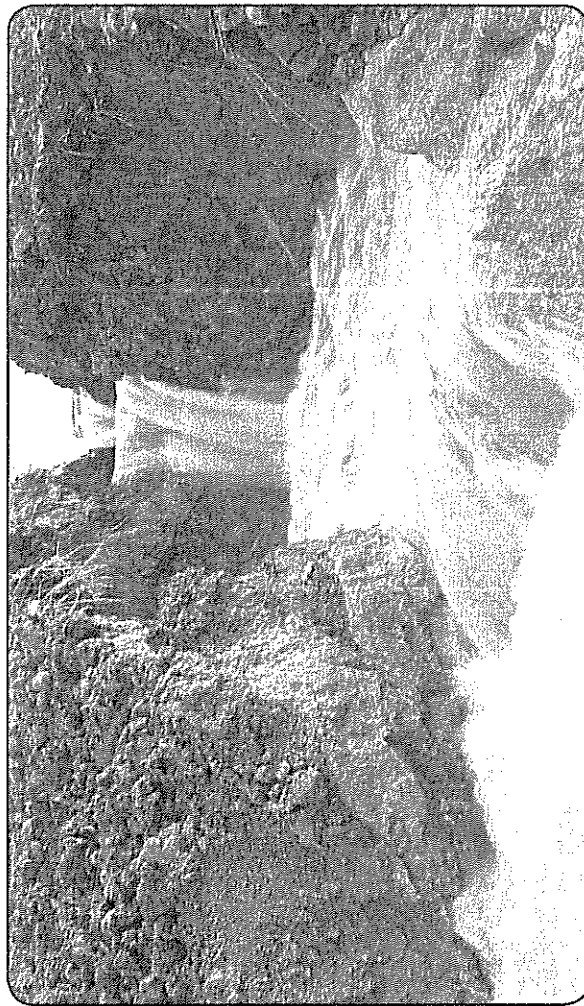
Erosion is the movement of weathered rock from one place to another. Wind, water and ice carry away the weathered rock particles and drop them somewhere else.



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What is compaction and cementation?

The weathered rock particles that are carried away eventually end up in a lake or ocean.



They settle in layers at the bottom of the water as sediment. The weight of the sediment on top squashes, or compacts, the sediment on the bottom. Water is squeezed out and different minerals cement the sediments together.

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THE ROCK CYCLE

How does the rock cycle work?

Sometimes metamorphic and igneous rocks from beneath the surface of the Earth are slowly forced upwards. They make their way to the surface because of movements within the Earth's crust. Once on the surface, the rocks are affected by weathering and erosion. Over time, metamorphic and igneous rocks can change into sedimentary rock.



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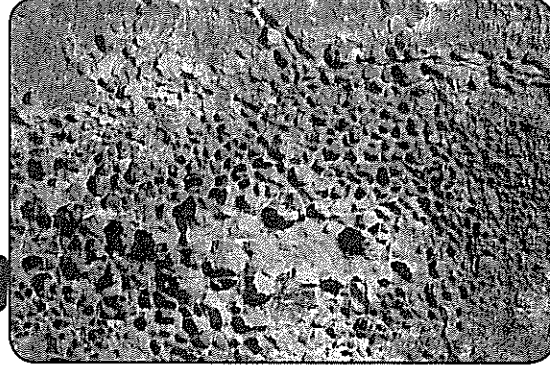


Over time sedimentary and igneous rocks may become buried deep in the Earth's crust where they are affected by heat and **pressure** to form metamorphic rock.

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Some metamorphic, sedimentary and igneous rocks will be pushed even further down into the Earth until they melt and become magma. When this magma cools, it will form igneous rock.

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