How Glaciers Carve and Change the Earth

KS4 GEOGRAPHY PHYSICAL GEOGRAPHY Ages 11-14 ⏰ 3 min read

What Are Glaciers?

Glaciers are enormous rivers of ice that form in cold mountain regions where snow falls so heavily that it doesn't all melt in summer. Layer upon layer of snow gets compressed over many years, eventually turning into thick, solid ice. These massive ice formations can be hundreds of metres thick and travel extremely slowly downhill—sometimes only moving a few metres per year, but sometimes much faster.

How Glaciers Reshape the Landscape

As glaciers move, they act like giant bulldozers covered in sandpaper. The sheer weight and power of the ice picks up rocks and soil, carrying them along like a conveyor belt. This process is called **glacial erosion**.

Think of it like a huge sheet of sandpaper being dragged across wood—it smooths, scratches and reshapes everything it touches.

Over thousands of years, glaciers carve deep **valleys** with steep, U-shaped sides. These are very different from river valleys, which have gentler V-shaped sides. The ice also polishes rock surfaces until they shine, and carves dramatic features called **cirques**—bowl-shaped hollows on mountainsides where glaciers start to form.

When Glaciers Melt: The Leftovers

As glaciers melt, they dump all the rocks and soil they've carried. This material, called **glacial deposits** or **moraine**, gets left behind in ridges and piles. These deposits can cover huge areas and completely change the shape of the land.

Think of it like a vacuum cleaner pushing dirt into a pile as it moves across a carpet.

Glaciers also create beautiful landforms like **moraines** (ridges of rock), **drumlins** (smooth, elongated hills) and **eskers** (winding ridges). Some glaciers create the lakes and lochs we see in places like Scotland and the Lake District today.

The Scale Is Enormous

The power of glaciers is hard to imagine. They can move **billions of tonnes** of rock and reshape entire mountain ranges. During the **Ice Ages**, glaciers covered much more of Earth than they do today, which is why many landscapes look the way they do.