

4.3 Glaciers at work

In this unit you'll find out how glaciers shape the landscape.

Glaciers work as they flow

As you saw on page 65, glaciers don't just sit there. They flow. And as they flow, they scrape and shape the landscape, like giant bulldozers.

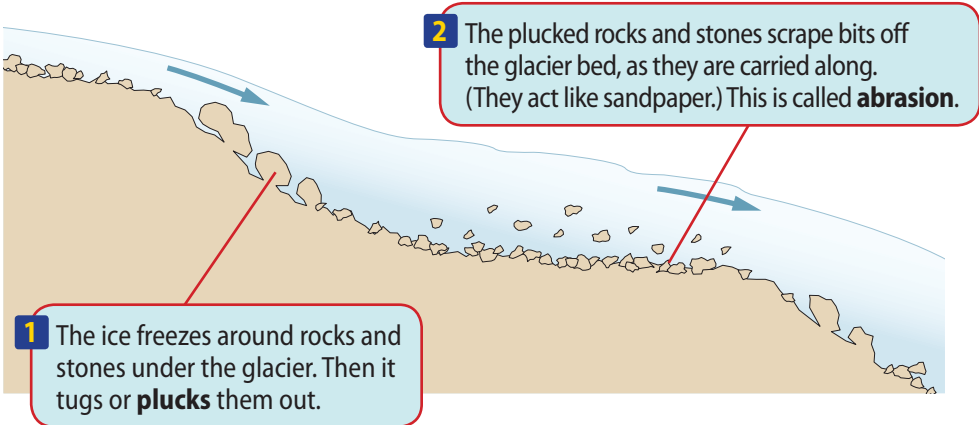
They do three jobs:

- 1 They pick up or **erode** material.
- 2 They carry it away, or **transport** it.
- 3 Then they drop or **deposit** it.

Let's look at these in more detail, for mountain glaciers.

1 Erosion

Glaciers pick up material in two ways.

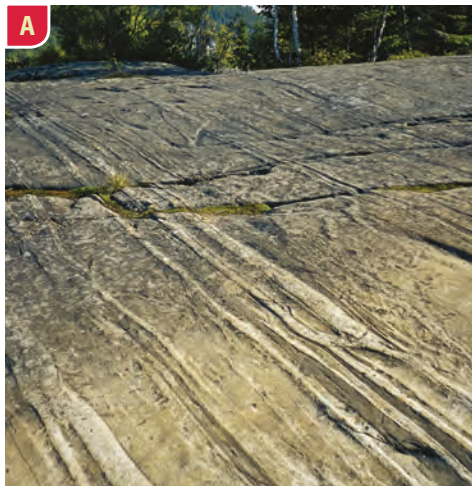
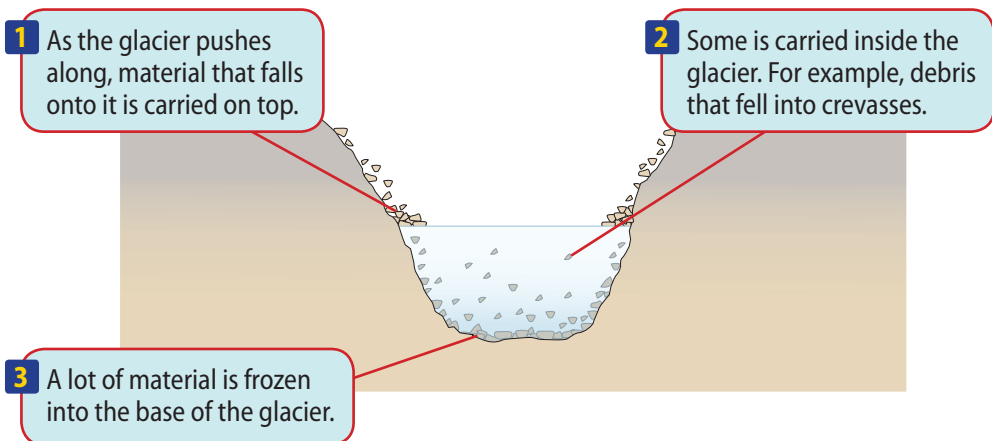


Freeze-thaw weathering helps

Plucking is easier when rock has been broken up by **freeze-thaw weathering**. First, water freezes in cracks in the rock. As it freezes it expands, so the cracks get bigger. Then the ice thaws. The cracks fill with water. It freezes again. The ice thaws again. And so on ... until the cracks are so big that the rock breaks up.

2 Transport

The glacier then carries away the material it has eroded. This drawing shows a slice through the glacier. Look how the material is carried.



▲ A glacier went this way! These deep scratches in the rock are the result of abrasion. They are called **striations**.

▼ Another glacier in the Alps. Look at the debris on it. Glaciers often look very dirty!



3 Deposition

As you go down a mountain, it gets warmer. So eventually the front of the glacier reaches a place where it melts. Look at this photo.

As the glacier melts, the load it is carrying falls to the ground. It is a mixture of rocks, stones, sand, and clay. It is called **glacial till**.

The water from the melting ice is called **meltwater**. It runs off, and will feed a river or lake.

Meanwhile, higher up the mountain, snow keeps on feeding the glacier. So the glacier keeps on flowing down to the place where it melts.



▲ An Alpine glacier melting. The end of a glacier is called its **snout**. The meltwater looks milky, because it carries lots of tiny particles produced by abrasion.

Glacial landforms

The result of all this work by glaciers is **glacial landforms**. (*Landforms* are features in the landscape.)

The UK has glacial landforms in the areas that were **glaciated** during the last ice age. You can see them in England, and Scotland, and Wales, and Northern Ireland. (Look at the white areas in map A on page 62.)

There are many good examples in **the Lake District** in England. So we will visit it often in the rest of this chapter.

Words to remember

glacial – to do with glaciers
That's a glacial landform!

glaciated – covered and shaped by glaciers, now or in the past
Most of Ireland was glaciated during the last ice age.

glaciation – the process or results of being covered by glaciers
We're studying glaciation this week.

Your turn

- 1 A glacier is like a great big bulldozer. Explain why.
- 2 a Write these six terms as a list, in the order that matches the glacier's journey.
glacial till striations melting
abrasion meltwater plucking
b Then beside each term do a drawing, to show that you *really* understand what the term means.
- 3 Look at photo **A**. What does it show? Describe it as fully as you can. Use the correct terms from this unit.
- 4 Look at all the debris on top of the glacier, in photo **B**. How did it get there?
- 5 Now look at photo **C**.
a What is this stuff called, and what's in it?
b Why was it dumped here?
- 6 Freeze-thaw weathering breaks up rock.
a See if you can write a set of bullet points to explain how it works. Add drawings if you like!
b It makes erosion easier, for the glacier. Why?
- 7 Now it's time to start your **glossary** about glaciation. You'll need at least two pages. To make your glossary:
a list all the words you met about glaciation so far
b beside each word, write its definition.