

# Activity 5: Darwin Comic Strip

KS4



## Curriculum Links Wales:

- Humanities
- Health & Well-being
- Science & Technology

## Curriculum Links

### England:

English / Welsh, creative writing, responding to prompts; Geography, glacial landscapes; History, Shaping the nation; Science, understanding how theories develop over time.

**Time:** 1-2 hours

## Resources to download:

Darwin text paragraph sheet, comic strip template

## Other resources required:

pencils, clipboards.

**Group size:** whole class

## Outline Plan for Activity:

- Choose a suitable location in the reserve; e.g. you could choose to sit on the beach or by the large boulder on the southern side of the lake. Ask the learners to sit in a semi circle ready to listen.
- The teacher reads out the Charles Darwin information and the learners create a comic strip of the timeline of events.
- You could read each paragraph separately and allow the learners time in between to draw one box at a time.
- For more of a challenge, it works best for the teacher to read out the whole page at once, forcing the learners to remember the details to put into their comic.
- You may want to limit the learners to maximum word count. (e.g. 10 words in the text box, one word in the comic)

## Classroom activity ideas you could try before or after your visit:

- Research task on Darwin, the voyage of the Beagle, erratics around the world etc.
- Use software such as **COMIC-LIFE** to create a presentation of the comics created at Cwm Idwal NNR
- Convert the comics into full paragraphs

# Activity 5 worksheet: Darwin Comic Strip

**People were fascinated and astounded by the beautiful and dramatic landscape of Cwm Idwal and its surroundings. For a long time, people didn't know how this landscape came to be, originally it was thought that Cwm Idwal and surrounding features were created by the great biblical flood, a theory known as Dilluvialism. This has since been widely abandoned.**

Charles Darwin visited Cwm Idwal in 1831, and observed that the large, scattered boulders at Llyn Idwal (the lake) contained something very unusual. He arrived here to investigate what would become his world famous but controversial publication 'On the Origin of Species', but he actually saw the first clues to the formation of Cwm Idwal. He noticed that the scattered rocks and boulders held tiny fossils of sea creatures and oceanic plant life.

Darwin realised that the rocks must have formed within an ancient ocean, and therefore had been later uplifted to the surface by forces within the Earth's crust as vast tectonic plates shifted

around the Earth's surface. Cwm Idwal's geology reveals a violent and explosive volcanic past with rocks such as Pitts head tuff and Rhyolitic tuff being present. It is possible to see from the shapes and composition of the rocks today that some shapes are a result of hot lava cooling under cold sea waves, meaning they were formed from under water volcanic eruptions.

For centuries the secret of Cwm Idwal's formation was just that - a secret. It was around ten years later that Darwin returned in the 1850's and realised that the landscape had been carved by gigantic glaciers. These slow moving rivers of ice had left behind a valley where the evidence is etched into every rock. Glaciers carve steep-sided valleys as they erode the rock beneath them. The larger the glacier, the deeper the valley it can erode. Glaciers would have been present here tens of thousands of years ago when Wales was much colder than it is today.

Prior to his important visit to Cwm Idwal, Darwin voyaged on the HMS Beagle and found boulders on the beach at Tierra del Fuego, where he observed icebergs and glaciers that carved their way to the sea. This further helped form his understanding of the mountainous landscape in Wales and on understanding and communicating his glaciation theory Darwin is famously quoted as saying:

*"... a house burnt down by fire did not tell its story more plainly than did this valley"*

He wrote many geological papers and provided the inspiration for the theory of glaciation; not something he's really famous for!

These boulders are now named after Darwin himself and his research and writing enabled people to understand this incredible landscape. These rocks also go by another name, 'local erratics'. An erratic is a rock that differs in geology and size to the surrounding area that it is found. They have been carried from their point of origin by a glacier and deposited in an area with different geology. Darwin's boulders are the same geology as their surroundings in Cwm Idwal so would have been moved in the same way as an erratic but just not travelled as far.

# Activity 5 worksheet:

## Darwin Comic Strip

**1** How did people originally think Cwm Idwal, its features and the surrounding areas were formed?

**2** What did Darwin discover in the rocks on his first visit to Cwm Idwal?

**3** What did Darwin realise had happened to create these rocks millions of years ago?

**4** How has the landscape been shaped over the last 18,000 years to look as it is today?

**5** Before confirming his theory, where else did Darwin go and what did he notice there?

**6** How could we explain "Darwin's Boulders" in relation to glaciation theory?