



Glacial environments

Lesson 5: How will melting glaciers affect people living in the UK?

Key idea:

Physical geography connects places together. As a result, processes occurring in glaciers in far-off places can still impact on people living in the UK.

Starter activity:

What happens to sea levels when glaciers melt and water runs into the sea?

The contributions that different melting bodies of ice could make to sea-level rise should be identified (via recall of lesson 1 – where is the earth's ice? - 7m of water could come from Greenland, far more from Antarctica, where 90% of all ice is stored). The golden rule to be learned is: *local melting will have global impacts*. Do students know what the scientific projections tell us? What facts have they picked up from the news or from things parents or other teachers have said? Students should discuss how high they think sea level could rise if different bodies of ice were to melt.

Main activity:

How will our place be affected by sea level rise?

The main activity looks at how rising sea levels could impact on the students' home town or on a coastal or river side settlement near sea level that they are familiar with.

For schools and towns close to sea-level, lower-impact scenarios of 1-5 metres will have very significant results. For schools further inland (e.g. on inland river flood plains), the effects of a much more extreme sea-level rise could be thought about (e.g. a total loss of land-based ice could result in a 70m rise). If there is no risk, then the nearest threatened coastal settlement can be substituted. Once the warming scenario has been outlined (with a rise-level established), a diverse range of impacts can be investigated, using Ordnance Survey maps and local area knowledge. Full instructions about what to do are included in the Word document 'How will melting ice affect our place' that can be downloaded. Students are encouraged to examine a range of data sources:

- Identify a critical contour line on the local Ordnance Survey map – areas below this will be lost to the sea or a widening river estuary, thereby changing settlement patterns. How is local housing affected? Where will people live? Where will those who lose their homes move to? Who will help them? The Environment Agency website will also help map this risk (see link below).
- What kinds of industries and activities are affected?
- What important landmarks are lost? What amenities? (e.g. sports pitches)
- Are there any positive changes? (e.g. better water sports & shipping routes)

The document includes a table to be filled in. It lists possible thematic impacts and asks for local street names or districts to be named by students. There is also a poster to be completed (Word document 'Our place'), possibly using illustrations in the spaces provided. The key areas to investigate in the poster presentation are impacts of sea-level rise on:

- Home-owners and families made to move;

- Businesses and tourist industries;
- Schools, hospitals and other services;
- Plants, animals and ecosystems.

Alternatively, different groups of students could explore in depth one chosen aspect of the threat. They could then share their findings with the rest of the class. If time allows, they could also prepare suggestions about how the threat can best be dealt with (suggestions should be realistic, with costs identified as well as benefits).

Plenary

How will sea level rise in other places impact on life in our place?

As a plenary, discuss with the students the concepts of interconnectedness and interdependency. How will sea level rise in other places affect our lives? Here are some examples of questions that students can consider:

- What products may no longer be sold in local shops due to flooding in other places where these products are made or grown?
- How might the holiday destinations of local people change due to flooding (e.g. Venice)?
- Might more refugees need to come and live here if their own countries become uninhabitable?

Further research

Sea-level rise projections can be seen at: <http://flood.firetree.net/>

The Environment Agency has existing flood risk maps (enter your school post-code where indicated) which can be taken as a starting point for investigating sea-level rise impacts: www.environment-agency.gov.uk/

To see the (highly unlikely!) 70-80m upper limit impact on the UK as a whole, visit: <http://merkel.zoneo.net/Topo/Applet/>

You will also need OS maps of the area around your school and any other useful information e.g. geology maps, historical landmark information, local sites of significance, etc.