

Does sea ice matter?



Instructions and answers for teachers

These instructions should accompany the OCR resource ‘Does sea ice matter?’ activity which supports OCR GCSE (9–1) in Geography B (Geography for Enquiring Minds)

GCSE (9–1) in Geography B (Geography for Enquiring Minds)
Lesson Element

Does sea ice matter?

Task 1 – Arctic Bingo

Transpiration
Habitat
Tundra
Humus
Biome
Permafrost
Ecosystem
Temperature range
Waterlogged

Bingo grid

June 2015

OCR
Oxford Cambridge and RSA

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Lesson Element supporting PowerPoint

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The Activity:

This activity comprises of 4 tasks.



This activity offers an opportunity for English skills development.

Associated materials:

- ‘Does sea ice matter?’ Lesson Element learner activity sheet.
- ‘Does sea ice matter?’ supporting PowerPoint presentation.



This resource is an exemplar of the types of materials that will be provided to assist in the teaching of the new qualifications being developed for first teaching in 2016. It can be used to teach existing qualifications but may be updated in the future to reflect changes in the new qualifications. Please check the OCR website for updates and additional resources being released. We would welcome your feedback so please get in touch.



Key information

This activity is designed to cover elements of the specification as follows:

4.3 a What is it like in Antarctica and the Arctic?

The activity is based on the Arctic and assumes that students will have already covered the geographical location of the Arctic/Tundra biome and the distinctive characteristics of the climate here, as well as the characteristics of the Arctic flora and fauna, including food webs. Students will also need a basic understanding of the causes and consequences of global warming. To address common students misconceptions, students should know/understand:

- That the Arctic is essentially an ocean surrounded by land
- That much of the ice is sea ice – some of which is permanently frozen and some that retreats in spring and summer, so the total amount of ice is variable through the year
- That melting sea ice does not cause sea level rise (think of an ice cube in a glass of water) – it is melting land ice that causes variation in sea volume

Useful reading for teachers in preparation for this lesson can be found here:

<http://www.greenpeace.org/international/en/publications/Campaign-reports/Climate-Reports/Climate-Change-Impacts-on-Arctic-Wildlife/>

<http://www.mnh.si.edu/arctic/index.html> (Arctic wildlife)

<http://reindeerherding.org/herders/sami-norway/>

Does Sea Ice Matter?

The following tasks will help the student to:

- Know key Arctic geographical terms and definitions
- To understand the interdependence of climate, soil, water, plants, animals and human activity in the Arctic
- To investigate the links between human activity and the well-being of this extreme ecosystem

Task 1 – Arctic Bingo

Present the following list of words (but not the definitions) **randomly** to students. They must pick 6 terms to write in their grid. Then one by one read out the **definitions only**. If students think that they have that term in their grid, they can cross it off. The winner is the first to correctly get all 6 definitions. Check their definitions verbally when you think you have a winner. Use another term for a tiebreak.

Term	Definition
Tundra	Climate type characterised by extreme cold, low temperatures and frozen soils
Humus	Organic material formed by the breakdown of plant matter
Biome	A community of plants and animals that occurs naturally together
Temperature range	The difference between highest and lowest average annual temperature
Habitat	The place where a plant or animal lives
Ecosystem	The plants and animals that live in a specific place
Transpiration	The loss of water through pores in the leaves of plants
Permafrost	Ground (rock and soil) which is below freezing (below 0°C)
Waterlogged	Pore spaces in soil are filled with water
Adaptation	Characteristics of a plant or animal that make it suited to it's environment

Bingo grid

Task 2 – Does sea ice matter?

Students can work in pairs for this activity. Each pair will need a set of mystery cards. Students must find a way to sort/group/organise the cards to try to answer the question: Does sea ice matter?

It may help to refer back to previous learning of food webs. Cards can be cut out to re-sort, colour-code etc. They are not presented in any particular order. Students will need to make connections between pieces of information on different cards.

After students have organised their cards, use teacher-led discussion and feedback to reveal their findings.

Task 3 – Summarising human impacts

Ask pairs of students to write two different stretch and extend questions about the range of impacts that humans are having on the Arctic ecosystem. They must also write the number of marks and the success criteria. Examples could include:

1. Describe how indigenous people impact the Arctic ecosystem?
2. Explain the threats to traditional ways of life in the Arctic?

Task 4 – Consolidating writing skills

Now ask students to group with another pair and choose one question to answer. This can then be peer assessed using the success criteria.

At home

Create a collage of images to show 'why sea ice matters' in the Arctic, include annotations



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