

ARCTIC EXPEDITION MAP



Are you ready to take on the LEGO® Arctic Expedition? The LEGO explorers are in the Arctic and they need YOUR help. The aim of the game is to help them travel around the map to reach the frozen mammoth, completing missions along the way. To get started, spread your map out on the table or floor. You'll need your LEGO bricks and minifigures - plus a sense of adventure. Let's GO!
Mike Libeck



HEROES NEEDED

START HERE!

Your arrival is by air because you can't build roads or train tracks on sea ice! And there are no shops here, so you have to bring everything you need with you!

MISSION 1 MAKE A SLED

It's tough trudging through the snow and ice. Make a sled out of LEGO bricks to help transport your equipment to base camp!

EXTRA CHALLENGE
Get your family to line up all their winter clothes and race to be the first to put them all on.

MISSION 2 SET UP CAMP

Brrr! It's so cold here. You need to keep your fingers covered up or else they could freeze! Build a LEGO base camp while wearing mittens or a pair of socks over your hands!

Huskies pull sleds in the Arctic!

Preparing for an Arctic adventure lesson plan

KS2 GEOGRAPHY / SCIENCE



Preparation:

- Freeze ice cubes
- Print the LEGO Arctic Map on A3 paper or open on the IWB

Equipment:

- Glass, plate and timer
- Map or atlas

Summary:

The Arctic needs our help! Imagine taking a class trip to Alaska to study its unique Arctic environment and important weather patterns. In this lesson, children will have a chance to prepare for their Arctic expedition by learning about the conditions that await them as they discover why the regions around the North Pole are so important – and why they need protecting.

Aims / Learning objectives:

- Understand key aspects of climate zones
- Explore connections between the Arctic and the water cycle
- Evaluate the importance of the Arctic to our planet and the threats it faces
- Identify similarities and differences with the Arctic in terms of physical geography



Introduction (10 mins)

Show the children a glass of ice cubes. Empty one onto a plate and use a timer to time how long it takes for the ice cube to completely melt. Ask them to think about some of the things that would make the ice melt faster or slower (e.g. blowing warm air onto it, putting it on a warm surface, keeping it in the fridge/freezer, etc.).

Ask them to imagine a piece of ice that's as thick (i.e tall) as the space between the ground and the crossbar of a football goal. Can they guess where in the world might have this much ice covering it? Give clues to help them guess 'the Arctic'.

Once they have guessed the correct answer, explain that the Arctic is covered by sea ice that's 2 to 3 metres thick (the bottom of a cross bar is 2.44m above the ground) and that in some regions it reaches 5 metres thick; that's taller than a double decker bus!

Main activities

1| Animal adaptation (15 mins)

Explain that the Arctic is located at the northernmost part of our planet. Scientists usually define the Arctic as the area above the 'Arctic Circle' – an imaginary line that circles around the top of the globe. Despite the freezing-cold temperatures, the Arctic is home to lots of wonderful wildlife, including polar bears, Arctic foxes, walruses, seals and whales! However, conditions of the Arctic are incredibly harsh. In order to survive, animals need specially adapted features; adaptations such as thick fur for warmth, extra fat or blubber, and fur that is camouflaged in the snow.

Main activities

1| **Animal adaptation (continued)** Ask children to draw a picture of a polar bear with annotations explaining how the animal is adapted to life in the Arctic, (i.e. webbed paws for walking on the snow and swimming, sharp claws for hunting, etc.). They could use the following polar bear primary resource to help them: <https://www.natgeokids.com/uk/primary-resource/polar-bear-primary-resource/> Could they use some of the adaptations seen on polar bears to help them design their own outfit for their Arctic adventure?

2| Worldwide weather (20 mins)

Arctic sea ice keeps the polar regions cool and helps moderate global climate. Explain to the class how the ice is able to reflect sunlight that strikes its bright surface out into the atmosphere and back into space. This means the sunlight or 'solar energy' that is reflected back is not absorbed into the ocean, keeping temperatures cool nearer the North Pole. As sea ice melts in the summer, it exposes the dark ocean surface. Instead of reflecting the sunlight, the ocean absorbs the sunlight, making ocean temperatures warmer.

We know that the Arctic is extremely cold, but it's important to fully understand the climate if you're planning an imaginary class trip there!

Ask children to work in small groups of 4-5 to write a report on the Arctic's climate and how it affects the weather elsewhere in the world. Using their own research, answer the following questions:

- Can you use your knowledge of the water cycle to explain what happens to the climate in the Arctic during summer and winter?
- Why might changes in the amount of sea ice disrupt normal ocean circulation, leading to changes in global climate?
- Does the Arctic sea ice affect our weather here in the UK?

Children can use diagrams, photographs, maps and weather reports to help them with their study. Guide them with any tricky data or statistics. As you go around the class chatting to the different groups, ask them what weather essentials they would need to take on an Arctic expedition. What's the temperature like in Alaska in the winter? And the summer? Would the time of year affect what they wear and pack, or how they move around?

3| Arctic under threat (15 mins)

Now that the children understand some of the Arctic's special climate features, discuss with them the threat that it faces due to global warming (i.e. when rising temperatures gradually melt the sea ice, fewer bright surfaces exist to reflect sunlight back into the atmosphere. This means more solar energy is instead absorbed, and ocean temperatures rise further. Thus begins a cycle of warming and melting.). Explain how warmer water temperatures delay ice growth in the autumn and winter months, causing the ice to melt faster the following spring, meaning dark ocean waters are exposed for longer in the summer, heating the sea temperature even further for the following year.

Ask pupils to design a campaign poster or flyer highlighting the importance of protecting the Arctic sea ice. Posters/flyers could include information on human activity that leads to the decline of sea ice (i.e. CO2 pollution, use of fossil fuels, fracking, etc.); statistics on current rates of Arctic ice melt; or the importance of the sea ice to global temperatures. Once the campaign posters/flyers are finished, mind map ideas for where or who they could be sent to, to raise awareness about the threats to the Arctic. Who could help with protecting the Arctic by reducing the impact of global warming? Who needs to know about how important the Arctic is to the rest of the world?

Extending the lesson:

- Ask the children to pick an animal that lives in the Arctic and make a factsheet about that animal. What it looks like, the type of habitat it is found in, how it is adapted for that environment, what it eats and whether there are any threats to its survival. As a class, children could combine their factsheets in an 'Arctic animals guide' to help with animal identification on their imagined trip.
- Play a class game of 'true or false', presenting children with 'facts' about polar bears and challenging them to vote on whether they are true or false.
- Children could explore National Geographic Kids' 10 facts about the Arctic at [natgeokids.com/](https://www.natgeokids.com/)



Plenary

At the end of the class, ask the pupils to think about the following questions: Where is the Arctic located? Can you find it on a map? What is the coldest temperature recorded in the Arctic?

Homework question:

Does anybody live in the Arctic? Who?