

Where and when:

Date: Monday, 7 November 2022

Time: 11:00

Duration: 30 minutes

Location: bbc.co.uk/livelessons

This programme is available to view from home or school, and no sign-up is required.

Simply visit the website on the day and follow the instructions on the page to watch.



Curriculum links:

KS2 Science / KS2 Geography / Science Second Level / Science and Technology Progression Step 2 / KS2 The World Around Us

- Recognise that environments can change and that this sometimes poses a danger to living things.
- Explore the relationships between living things, their habitats and their life cycles.
- Describe and understand key aspects of physical geography.
- Appreciate the contribution that individuals are making to society through scientific discovery.
- Suggest ways to live in a more environmentally responsible way.

Setup:

This Live Lesson will be broadcast on the CBBC channel and simultaneously on the BBC Teach website. We will be running a live commentary page on BBC Teach during the broadcast to reflect contributions from children watching from home and school.

The lesson can be viewed in a classroom or at home with a device (computer, tablet or mobile phone) linked to a reliable broadband connection, or watched on a television on the CBBC channel. We will be asking children to get involved in activities throughout the lesson and have provided downloadable [activity sheets](#) to help guide them through this.

Lesson content:

This programme is designed to engage primary learners from ages 7 to 11.

Section 1 - Introduction:

The presenters will introduce the lesson set onboard the RSS Discovery in Dundee. They will then reveal the programme mission - to transform us all into Arctic adventurers, investigate the impact of climate change and learn about harp seals.

As a quick challenge, children will be asked to call out the names of animals they think live in the coldest regions in the world.

Section 2 - Blubber and insulation:

The presenters will explain how animals in the Arctic, like the harp seal, have adapted to their environment. The presenters will then conduct an experiment to explore how blubber works and investigate how it keeps seals warm in the freezing polar conditions.

One presenter will put their hand in a bowl of freezing water while the other presenter times how long they can keep it in the water using a stopwatch. They will then repeat the experiment using a rubber glove filled with fat and compare the timings. The presenters will then explain how fat acts as an insulator and is just one of the ways harp seals have adapted to their cold environment. We advise reminding pupils watching that this one shouldn't be tried at home.

In activity 1, the presenters will show the children a picture of a harp seal. They will explain that blubber is just one of the ways harp seals have adapted to living in the Arctic. But they have other clever features too. They will be asked to work out and label what those adaptations are.

Download activity sheet 1 [here](#).

Section 3 - The impact of climate change:

This section is about climate change and will explore the potential impact of melting ice in the polar regions. The presenters will explain how higher temperatures in the Arctic are causing sea ice to melt, which forces harp seal pups into the water before they are ready.

The presenters will investigate the difference between melting land ice and sea ice. This experiment will consist of two identical containers, each filled with a layer of clay, water and the same amount of ice cubes. In one container, the ice will be in the water and in the other container, the ice will be on the land.

In activity 2, the presenters will ask the children to make their predictions. They will then reveal the results with a pre-set experiment and conclude that melting land ice is one of the largest contributors to global sea level rise. They will also emphasise that although melting sea ice doesn't impact sea levels as much, it is still having a significant impact on Arctic animals.

Download activity sheet 2 [here](#).

Section 4 - The amazing work of scientists:

In this section, the presenters and children will look at the important work of scientists and meet an expert from Frozen Planet II, Dr James Grecian. He will show them a seal tag and explain how this piece of equipment helps scientists track and learn about seals.

Dr James will show the presenters and children a graph (see below for source) which shows the rate of sea ice loss from 1980 as well as predictions for the future. He will explain why using the tags and finding out where the harp seals go means that scientists are better placed to understand how harp seals may be affected by climate change.

The presenters will then link to activity 3. Pupils watching will be asked to join in using their activity sheets featuring four pictures of scientific equipment used to gather data. In pairs or on their own, the children will be asked what each piece of equipment is used for measuring and the unit of measure.

Download activity sheet 3 [here](#).

Section 5 - How do I become a scientist?:

In the final part of the programme the children in the film will ask Dr James about his work as a research scientist and his experience filming Frozen Planet II. There will also be featured questions from children across the UK asking James how he became a research scientist and what we can do to protect the planet.

Useful links

- This [Newsround](#) clip explains climate change and what its effect is on our planet.
- An article for teachers looking at how we can teach children about [climate change](#).

Sources

- The data from the graph in section 4 is from [this IPCC report](#).