

Section 2: Sea Ice

LESSON 6: RESEARCH IN ACTION

All lesson resources can be found at: encounteredu.com/teachers/lessons/frozen-oceans-geography-14-16-lesson-6

Summary

Measuring the thickness of sea ice has not been possible via satellite until very recently and even now the Cryosat satellite can only survey up to a latitude of 88° north and south. The other way to measure sea ice thickness is by hand, walking for days across the frozen ocean in temperatures down to -40°C. Pupils will learn how the data they will be studying was collected.

Preparation

- Familiarise yourself with relevant multimedia content from encounteredu.com/teachers/lessons/frozen-oceans-geography-14-16-lesson-6
- Print out enough copies of:
 - Student Sheet 6a – Catlin Arctic Survey 2009
- There are a range of options for pupils to communicate their work, all of which were methods used by the scientists. Print out enough copies of (if using):
 - Student Sheet 2b – Scientist tweet
 - Student Sheet 2c – Blog post
 - Student Sheet 2d – Storyboard template

Notes

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Aims / Objectives	Activities	Resources	Outcomes
<p>STARTER:</p> <p>CAN YOU TELL HOW THICK THE ICE IS?</p>	<p>Satellite imagery is able to show sea ice extent.</p> <p>It is much harder to determine sea ice thickness via satellite. One mission has been trying to do this</p> <p>The only other option is to collect the data by hand. Introduce the Catlin Arctic Survey 2009</p> <p>If the ice is thinning then it will be more susceptible to increased melt rates</p> <p>Student Sheet 6a can be used to promote classroom discussion about the importance of the expedition</p>	<p>See: http://www.esa.int/SPECIALS/Cryosat/index.html for information on the Cryosat mission to determine sea ice thickness and the state of the cryosphere</p> <p>Background on the Catlin Arctic Survey 2009 and sea ice thickness can be found in: Student Sheet 6a - Catlin Arctic Survey 2009</p>	<p>Know that measuring sea ice thickness is difficult and important</p>
<p>LIFE ON AN ARCTIC EXPEDITION</p>	<p>Show students vidoes that show what a day in the life of an Arctic expedition is like</p>	<p>'Ann's food bag' video</p> <p>'Ann's hand bag' video</p> <p>'Expedition update' video</p> <p>'Catlin Arctic Survey expedition trailer' video</p>	<p>Know what it would be like to be an Arctic explorer</p>
<p>DATA COLLECTION IN THE ARCTIC</p>	<p>The data set on snow and ice thickness was mostly collected by hand, drilling into the ice using a hand drill. The video shows how the data was collected</p>	<p>'Drilling the ice' video</p>	<p>Know the techniques used for collecting snow and ice thickness data</p>
<p>A DAY IN THE LIFE</p>	<p>Pupils create a presentation of the day in the life of an Arctic expedition</p>	<p>This can be created using:</p> <ul style="list-style-type: none"> — A slideshow programme — Through Twitter (use Student Sheet 2b) — As a blog post (use Student Sheet 2c) — A storyboard for a short video (use Student Sheet 2d) 	<p>Demonstrate understanding of the realities of remote field research</p>
<p>PLENARY</p>	<p>Pose these questions for class debate:</p> <p>'Why do you think that there were no scientists on the expedition?'</p> <p>'What might have been the advantages and disadvantages of just having experienced polar explorers?'</p>	<p>Whole class discussion</p>	<p>Debate the issue of what kind of people can collect scientific data</p>