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Expedition life

In this exercise book we will be investigating what life is like on a Polar Expedition. Antony Jinman is a polar explorer, who has many year’s worth of experience that he has compiled into this exercise book. He has skied solo through the mountain passes of Baffin island, crossed ice caps and is one of only 200 people who have ever skied from land to the North Pole.

Activities in this book will explore expedition life, expedition planning, creative writing and the history of Arctic expeditions.

To complement this exercise book and learn more about expeditions please visit our ETETeachers website and see our supporting resources.

Videos:

- North Pole
- Penny Ice Cap
- Land that never melts
- BBC inside out
What is the difference between the Arctic and Antarctic?
The Difference between the Arctic and Antarctic

Looking at the statements below mark which ones are true or false. To help you get your answers you want to look through some of our expeditions heading to these regions, you could even ask the expert who are on the expedition.

<table>
<thead>
<tr>
<th>Statement</th>
<th>True or False (T or F)</th>
<th>Now for all the false ones change the wording to make them true</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polar Bears like to eat Penguins for dinner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antarctica is the highest, driest, windiest and coldest place on earth.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Arctic is ice on top of land</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Antarctic is ice on top of ocean</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The only direction you can go from the South Pole is North</td>
<td></td>
<td></td>
</tr>
<tr>
<td>There are stripy poles at the North and South Poles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>There are people permanently living in the Arctic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Arctic oceans have more fish than anywhere else in the world</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The emperor penguins incubates one egg on its feet for 9 weeks without eating</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glaciers are made from frozen rivers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The only reason seals have lots of fat is to help them float</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wool is the best thing to wear to keep you warm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The arctic ocean is the largest in the world</td>
<td></td>
<td></td>
</tr>
<tr>
<td>There are 6 sunrise and sunsets each year at the poles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Polar Bear is the world’s largest land meat eater.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
COULD YOU SURVIVE AN ANTARCTIC EXPEDITION?

**Description**

To organise an Antarctic expedition, understand the kit required and how to pack efficiently to survive such harsh conditions.

**Student Objectives**

- To be able to create a list of things that you would need on an Antarctic expedition.
- To also understand the idea of planning a route and deciding how long this will take.

**Materials**

Groups of 2 or 3
- Antarctic expedition map (can be found online or on google maps)
- Ruler
- Pens
- Pile of Polar Kit OR photos of kit
- 1 backpack
- 1 “food box”

**INSTRUCTIONS**

1. Explain what Antarctic conditions are like and briefly explain how to prepare for these.

2. Hand out a map to the group and ask them to find the distance between the start point (Rothera Base) and the Finish Point (the South Pole) using the scale. If they walk at a speed of about 15km a day, how long will this take?

3. Gather the group together as a whole. Show and describe each item/photo of kit on the floor. They have to decide as a team which items of kit they should take, making sure it all fits in the bag. The bag also has to fit all of their food in!
WHAT ARE THE MAIN THINGS YOU WILL NEED ON AN ANTARCTIC TRIP?

IT IS A LOT EASIER TO GO TO THE ANTARCTIC TODAY THAN 100 YEARS AGO. WHY IS THIS?
YOU HAVE JUST PLANNED AN EXPEDITION IN THE ANTARCTIC REGION, NOW USING THE KNOWLEDGE YOU HAVE GAINED ABOUT THE ARCTIC AND USING ANTONY’S POWERPOINT CALLED JOURNEY TO THE NORTH POLE, PLAN AN EXPEDITION IN THE ARCTIC REGION. THINK ABOUT WHAT PROBLEMS YOU MAY COME ACROSS AND HOW YOU WOULD SOLVE THEM.
DID YOU KNOW?
Planning is the most important part of an expedition, where you have to plan everything possible in the most detail you can. If you fail to plan, then you plan to fail.

Q: What time of the year is best to go to Antarctica?
A: The Polar Seasons mean that it is continuously either light or dark for 24 hours or dark for 24 hours. For this reason, it is better to go in the Antarctic Summer (our Winter in the UK) as it means you can actually see!

DID YOU KNOW?
Previous explorers who went to these regions who went to create the maps for them, had no maps to rely on themselves so if they got lost it was up to them to find.

A: There is little rescue available in Antarctica, and it could take weeks to reach you. You have to be prepared, and be careful to make sure you don’t get things like frostbite!
Also take repair kits for EVERYTHING – jackets, roll mats, cookers, tents, legs, hands etc.
Creative Writing

Write a short passage about what you think it would be like to be in the Arctic or Antarctic, think about how you think it would feel, smell, how cold it would be, what you would be wearing, what kit you will have and who you would want to be with you. Also think about what it would be like and how you would feel. Use the photo above for inspiration.

Please see the videos:

- Geographic North Pole
- Across the penny ice cap
### Description
Activity to compare different types of insulation.

### Student Objectives
To be able to understand how different insulation materials work, and the benefits of each.

### Size of groups
2-4 (depending on class size, 2 groups could test one of the materials, i.e. 8 groups testing four materials).

### Materials per glove and group
**Per group:**
- Wide mouthed glasses/beakers
- Small round tin containers (37° water)
- Thermometers
- 1 plastic bowl filled with cold water
- 1 stopwatch

**1 of the following:**
- Cotton wool
- Bubble Wrap
- Lard
- Polystyrene
- Feathers
- Air (as a control group)

**Per workshop:**
- 1 results table sheet (this can be written up on the board)
**INSTRUCTIONS**

<table>
<thead>
<tr>
<th>Introduction</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduce the different types of materials, and explain their uses.</td>
<td></td>
</tr>
<tr>
<td>Pin the results table to the wall/write up on board, and explain its use. Ask the group for some predictions.</td>
<td></td>
</tr>
<tr>
<td>Put the tin cup containing the 37 °C water in into the glass/beaker.</td>
<td>Students</td>
</tr>
<tr>
<td>Pad out the space between the two containers with one of the materials.</td>
<td></td>
</tr>
<tr>
<td>Measure the temperature of the water, and add it to the table.</td>
<td></td>
</tr>
<tr>
<td>Carefully put the glass and its contents in the tray of cold water.</td>
<td></td>
</tr>
<tr>
<td>Wait 3 minutes, and then re-measure the temperature after every 1 minute. Repeat this for about 10 – 15 minutes, remembering to enter your data to the results table as you go.</td>
<td></td>
</tr>
<tr>
<td>Add your temperatures over time to the table</td>
<td></td>
</tr>
<tr>
<td>Draw a graph showing temperature loss over time for your material and then add the other materials too.</td>
<td>Students or can be done as a class</td>
</tr>
</tbody>
</table>
WHAT WERE YOUR RESULTS?

WHICH WAS THE BEST INSULATOR?

WHICH WAS THE WORST?

WHY MIGHT WE NOT BE WEARING THE MATERIAL THAT IS THE BEST INSULATOR?
DID YOU KNOW?

Polar Bears don’t sweat all over their bodies like we do, but pant instead; this is known as cooling by evaporation. When humans want to cool off they will sweat and the billowing of clothes during movement creates air currents that increase evaporation and cooling.

Q: How does insulation work?

A: Insulation works by creating pockets of air in-between areas of different temperatures (i.e. the air between your body and your clothes). This reduces the transfer of heat from your body to the surroundings. This is also the way that feathers work to keep birds warm.

DID YOU KNOW?

Lots of layers of insulation is better than one, this is because more air is trapped between the layers which increases the insulation. Also, did you know that Polar Bear and Caribou fur is hollow?

Q: What would happen to the effect of insulation if the materials got wet?

A: Their ability to insulate and store heat would be decreased; this happens because heat travels better through liquids than air. In fact, you could repeat this experiment if you wanted and see the effect water would have.
The History of Arctic Expeditions

Have a look through our Power Point called The History of Arctic Expeditions and then complete the activities on the following page. Ensure you look through the power point keeping a close eye on the details, it may be better to complete the activities with the power point in front of you.
PICK ONE OF THE EXPLORERS THROUGHOUT HISTORY THAT YOU HAVE LEARNT ABOUT AND WRITE A DIARY ENTRY AS IF YOU WERE THAT PERSON
CONGRATULATIONS!!

You have completed this exercise book on expedition life, if you can complete all our text books then get your teacher to contact us and we will send you a certificate to say well done for passing our Polar Academy. In the meantime carry on looking through our ETETeachers.org site and watch our videos, look at expeditions and talk to people out and around the world on research projects!

DID YOU KNOW?

These days satellite communication enables explorers and scientists to keep in touch with the rest of the world and get help if needed.

Q: When is it the coldest in the Arctic?

A: At the beginning of the year the sun doesn’t rise above the horizon until the end of February. This is the coldest time of the year but also when the sea ice is most stable.
Congratulations on completing our exercise book!

For more information about Education Through Expeditions and our services please visit www.ETETeachers.org or email talk@etehome.org