

## PROJECT OCEANOLOGY



## Maintaining Homeostasis during an Arctic Expedition

Modified from an activity designed by Defence Dynamics (<u>www.defencedynamics.mod.uk</u>) and available through STEM Learning (<u>www.stem.org.uk</u>).

Listen to Polly explaining her grueling yet inspiring experiences during the expedition. Note that there are pauses in the audio – make sure you listen to the whole thing. In the table below, note any physical reactions or challenges she describes and the precautions or methods she used to deal with them. You will need to identify which homeostatic process is involved in her reaction and then write your notes in the corresponding row. When you are finished filling out the table, move on to the discussion questions on the back.

Homeostatic	Physical Reactions/Challenges	<b>Precautions and Preventions</b>
Process	e.g. "I was shivering"	e.g. "I wore layers to keep warm"
Thermoregulation (temperature)		
Osmoregulation (water and ions)		
Glucoregulation (blood glucose level)		



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## **Discussion Questions:**

1. Give an example from the story in which Polly's body reacted to maintain homeostasis:

2. A feedback mechanism is a mechanism in the body in which the results of a process affect the outcome. For example, when your blood glucose levels drop too much you experience the feeling of hunger. This result (hunger) prompts you to eat food, which increases the blood glucose level and decreases your hunger. Give an example from the story of a feedback mechanism in Polly's body. Try to use a different example than the one you used above for #1:

3. If you were to accompany Polly on an expedition to the South Pole, what do you think would be the most challenging aspect for you?