

## Key Stage 3

### Antarctic relationships

#### Student worksheet



Antarctica contains unique habitats that are home to many different animals.

Each animal is dependent on others for its survival, so a change in the population of one animal can affect many others.

Unfortunately, many of the species in Antarctica are threatened with extinction including some species of penguin.

#### Penguin Watch

Scientists at The University of Oxford use time-lapse cameras to take photos of penguins all year round.

They upload these images to their website and ask members of the public to count the penguins.

The populations of penguins are affected by changes in the populations of lots of different organisms. So, by monitoring the penguins it helps scientists to work out changes happening in Antarctica.



#### Your task:

1. Cut out the Antarctic organism cards. Arrange them on a large piece of paper to build a food web that shows what eats what. Join each organism in the web using an arrow. The arrows show the flow of energy, from the organism being eaten to the organism eating it.
2. Use your food web and the information below to determine how the population of chinstrap penguins has changed over time.

1900s-1970s

Whaling was a major industry - blue whale and orca populations decline.



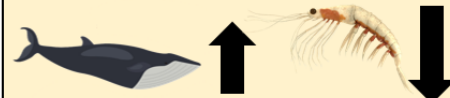
1970s-1990s

Whaling stopped and krill fishing started.



1990s >







Krill fishing expanded. Whale populations recover.



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### Antarctic organism cards

<p style="text-align: center;"><b>Blue whale</b></p>  <p><b>Eats:</b> krill. A single adult blue whale can eat 36,000 kg of krill a day. <b>Predators:</b> none</p> <p><b>Top fact:</b> The blue whale is the largest animal ever to have lived on earth. Its tongue has the same mass as an elephant!</p>	<p style="text-align: center;"><b>Chinstrap penguin</b></p>  <p><b>Eats:</b> krill and small fish. 95% of the food it eats is krill. <b>Predators:</b> Orca and leopard seal</p> <p><b>Top fact:</b> Chinstrap penguins are the most abundant penguin in the Antarctic, but their population is decreasing.</p>	<p style="text-align: center;"><b>Krill</b></p>  <p><b>Eats:</b> phytoplankton. It is a herbivore. <b>Predators:</b> blue whale, chinstrap penguin, leopard seal</p> <p><b>Top fact:</b> There is an estimated 125 million tons to 6 billion tons of krill in the waters around Antarctica.</p>
<p style="text-align: center;"><b>Orca</b></p>  <p><b>Eats:</b> leopard seals and chinstrap penguins <b>Predators:</b> none</p> <p><b>Top fact:</b> Orcas are also known as killer whales but are actually the largest species of dolphin and one of the world's most powerful predators.</p>	<p style="text-align: center;"><b>Phytoplankton</b></p>  <p><b>Eats:</b> nothing. Phytoplankton is a plant so produces its own food using photosynthesis. <b>Eaten by:</b> krill</p> <p><b>Top fact:</b> Phytoplankton are microscopic, plant-like organisms. They need sunlight for photosynthesis, so most live in the upper part of the ocean.</p>	<p style="text-align: center;"><b>Leopard seal</b></p>  <p><b>Eats:</b> krill and chinstrap penguins. <b>Predators:</b> orca</p> <p><b>Top fact:</b> Leopard seals often wait underwater near an ice shelf to catch penguins as they jump off the ice to enter the water.</p>