3-BY6 Adapt to survive

If there were a brown bear and a white bear in the Antarctica, the brown bear wouldn't survive as well as the white bear because it wouldn't be able to camouflage and everyone would be able to see it. So then, that one would die off and wouldn't pass its genes through, it wouldn't have kids and it wouldn't be able to pass them on. But the white bear could have kids and pass it on and then they would have the white gene and they would keep passing it on and they would survive better than the brown bear.

In the DNAs again like your personality, like some people have blond hair and brown hair and the parents might have it and the grandparents might have it and they would …. their parents might not have it and then they pass it on. The parents would have the gene but they might not be using it and the kids might use it.

Claim(s) **Evolution is when changes in the traits or features of a species help survival in their environment.**

Members of the species lacking that trait will die off.

The trait that helps survival is in the DNA in the genes and is passed on to offspring.

Any challenges to the expressed claim?

Anything to disagree with?

Any clarification needed?

Question(s).

What animal can you think of together with the trait that helps it to survive?

What plant can you think of together with the trait that helps it to survive?

Note: Polar bears evolved from brown bears; the two forms may interbreed on the extreme edges of their ranges. See https://www.coolantarctica.com/Antarctica%20fact%20file/wildlife/Arctic_animals/polar-bear.php

Research suggests that polar bears and brown bears split relatively recently in evolutionary time – between a third and a half million years ago, at which time the polar and brown bears shared a Most Recent Common Ancestor (MRCA).

Hair colour is just one of the adaptations of the white polar bear. Natural Selection assumes that some traits are advantageous to an animal or plant's

survival. The white colour acts as camouflage against the ice and snow of the polar bear's Arctic habitat, allowing it a better chance of creeping up on its favoured prey animal, the seal. In this and other ways, Polar bears are naturally selected by their freezing white environment of ice and snow to be successful in feeding, surviving and reproducing themselves.

Natural Selection happens over very many generations as the bears reproduce. A 'generation' is the number of years it takes for bears to become adult and produce offspring. Polar bear males become adult in 6-10 years and females 4-6 years. https://polarbearsinternational.org/ At 10 years per generation, there would have been something like 40+ thousand generations of bears reproducing to arrive at the present situation where the current adaptations for survival are prevalent amongst polar bear populations.

Our research suggests that Selective Breeding is a more accessible idea to pupils than Natural Selection. In Selective Breeding, humans decide which heritable traits will be selected for reproduction in offspring. Animals or plants not having the favoured traits will be prevented from breeding; parent animals or plants with the favoured characteristics will be brought together to reproduce offspring with the favoured features. In this way, crops and animals have been developed to have the features that people find desirable. High yielding crops, increased volumes of milk production in cattle, or beef, pork and mutton production, and so forth, have been produced through Selective Breeding.

In Russia, the fox has been selectively bred over many generations for its fur and serves as an interesting case study in selective breeding. See the Primary Science article on Inheritance for more details.