Adaptations

Adaptation is the process by which organisms develop traits that help them survive in their environments[1]. Because these traits make the organism more successful, they are passed down from generation to generation until they become a common characteristic of the species as a whole.

Most adaptations are the result of a random genetic mutation that occurs in response to a change in an organism's environment. If this chance mutation improves the success of the organism, it will continue to be passed down into future generations[2].

Sometimes adaptations are physiological traits, but they can also be behaviours that increase survival and reproductive success. Essentially, adaptations increase the chances of securing food, finding shelter, and passing on genes.

EXAMPLES FROM SOUTHERN CANADA

Many animals found in our schoolyards have developed special behaviours and physical traits to help them survive. Squirrels have brown, grey or black fur that help them blend into their environment. They also have strong back legs and a big tail that help them jump from branch to branch and balance to avoid predators. House sparrows have thick beaks designed to crack seeds and catch insects. They are also very social birds and will work together to drive predators away from nesting areas during the breeding season. In the spring and summer, monarch butterflies visit Canadian soils after migrating from Mexico, where they overwinter. By locating to a milder climate, the butterflies secure a better chance of survival. As well, their bright colour warns predators they are poisonous.

EXAMPLES FROM NORTHERN CANADA

Many animals developed adaptations that help them survive the extreme environment in the Arctic[4]. For example, polar bears are well camouflaged with the snow. Their white fur and thick layers of fat also keeps them warm in very cold temperatures. Their fur is greasy too—so water drips off easily, helping polar bears stay dry. The shape of a polar bear is also an advantage. Their large feet distribute their weight on the ice, and their compact body keeps them from losing too much heat through their skin surface[5].

The arctic fox has adapted by developing thick fur that changes colour with the seasons. Their small ears keep them from losing too much heat, but they still have incredible hearing that can detect prey moving in underground tunnels[6],[7].

The snowy owl has thick, velvety feathers that are as silent as could be[8]. This helps them hunt and keeps them warm. They even have feathers on their legs and feet, which isn't common for birds. These feathery boots keep their feet warm in the cold[9]. Like the polar bear, they also have a compact body that keeps them from losing too much heat through their surface.

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