Natural Selection: Variation, Adaptation And Speciation

In 1859 Charles Darwin discovered the theory known today as Natural Selection. His discovery explained how overtime species have had to change and adapt in order to better suit their living environments and stay alive whilst having a high reproduction rate. In some cases, the adaptation of species has been known to create new living things this is also known as speciation or even a species with a variety of unique characteristics which is known as variation.

Variation

Variation highlights any differences or changes within a species. An example of variation within a species could be us as people. As Humans we are all part of a species however no one is the same. If you take a group of people not one person would be the same. There would be a variation of gender, race, eye colour, hair colour and a lot more. Although some of our characteristics are genetics can be passed down through parents there is still a large variety.

An example of variation within natural selection would be similar to that in humans. If you were to look at a group of beetles you would quickly recognise the fact that they come in different colours. The colour of the beetles may have something to do with the environment they are living in to help them camouflage in order to survive. Within the species that is beetles you'll find that brown beetles are a lot more common than green. This is because green beetles stand out and cannot camouflage as well as others. This results in them easily being spotted by animals such as birds that are looking to eat. Brown beetles have the ability to hid within the earth and dirt making it harder to be seen by predators. When it comes to reproduction within this species because there are more brown beetles they will be reproducing more and therefore are more dominate within the population. Unfortunately for green beetles the rate of reproduction is a lot lower and if it continues this could result in them being wiped out within the species. This would show how brown beetles have adapted to their living environment in order to survive.

Adaptation

Adaptation within natural selection and evolution would indicate any physical or behavioural change in a species or organism in order to stay alive depending on where they live. Thousands of years ago giraffes had short necks. Due to the fact the food they wanted to eat was high up and in trees they had to stretch their necks in order to reach. The giraffes that developed the longer necks has a much higher survival rate and eventually shorter neck giraffes that had not adapted were wiped out. The changes to their skeletons have been passed through to their offspring giving them the genetic traits they will need to survive. This is known as skeletal adaptation.

Speciation

The adaptation of some species and organisms has been known to create new living things. This is called speciation and happens when a population of species becomes distant from one

another, they then split into their own groups and move to different locations, this can be because of geographical separation. Geographical separation is also known as allopatric separation and this is where species become divided because of geographical changes which could include a range of different things such as erosion, mountain building, migration, climate change and man-made climate change. An example of natural speciation would be the Galapagos Finch. Over a large number of years species of the Galapagos finch have relocated to different islands within the Galapagos in the Pacific Ocean. The way in which they have adapted and become their own unique species is that they all have different beaks depending on where they live and the resources, they have available to them. The reason they have the unique beak is to help them adapt to the foods they are eating. One species on the finch has a large beak which is quite blunt in order to help them eat seeds and crack open things that they can eat such as nuts. A group of finches on a different island eat cactus flowers and to avoid them getting hurt on the cactus spikes they have long thin beaks. There is another species of Galapagos finch living on another island that have medium size beaks which are to help them catch and eat insects. Due to the fact they are all living on different Galapagos islands they do not breed with one another which means the characteristics they have are unique to them and have been adapted to their living environments.