

Charles Darwin's

*On the*

**ORIGIN**

*of*

**SPECIES**

With an introduction by  
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A long, long time ago, before humans even existed, the living world looked very different from how it looks today. Since life on Earth began, tiny organisms, plants and animals have been changing slowly, over millions of years, because of a process we call evolution.



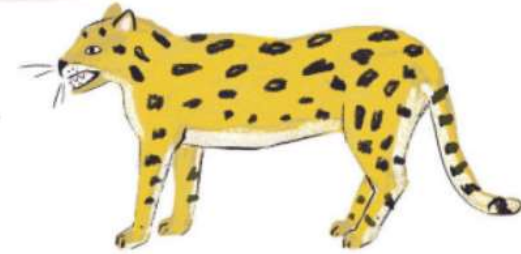
For most of human history, many people believed that everything in the world was created all at once. They thought that plants, animals and people were always the same as they are now.

But there were a few clever and curious scientists around who challenged this idea.



Georges-Louis Leclerc de Buffon

Animals change over time, and they often look different in different parts of the world.




Jean-Baptiste Lamarck

Hmm, perhaps giraffes who give their necks a good stretch to reach the higher leaves will go on to have baby giraffes with extra-stretched necks?

French biologist Jean-Baptiste Lamarck liked the idea that some animals evolved by using certain body parts more than others. It turned out he was a little off the mark with that theory, but it certainly did get people thinking!

It was right to notice that living things changed – or evolved – over time, but nobody was quite sure how this happened.

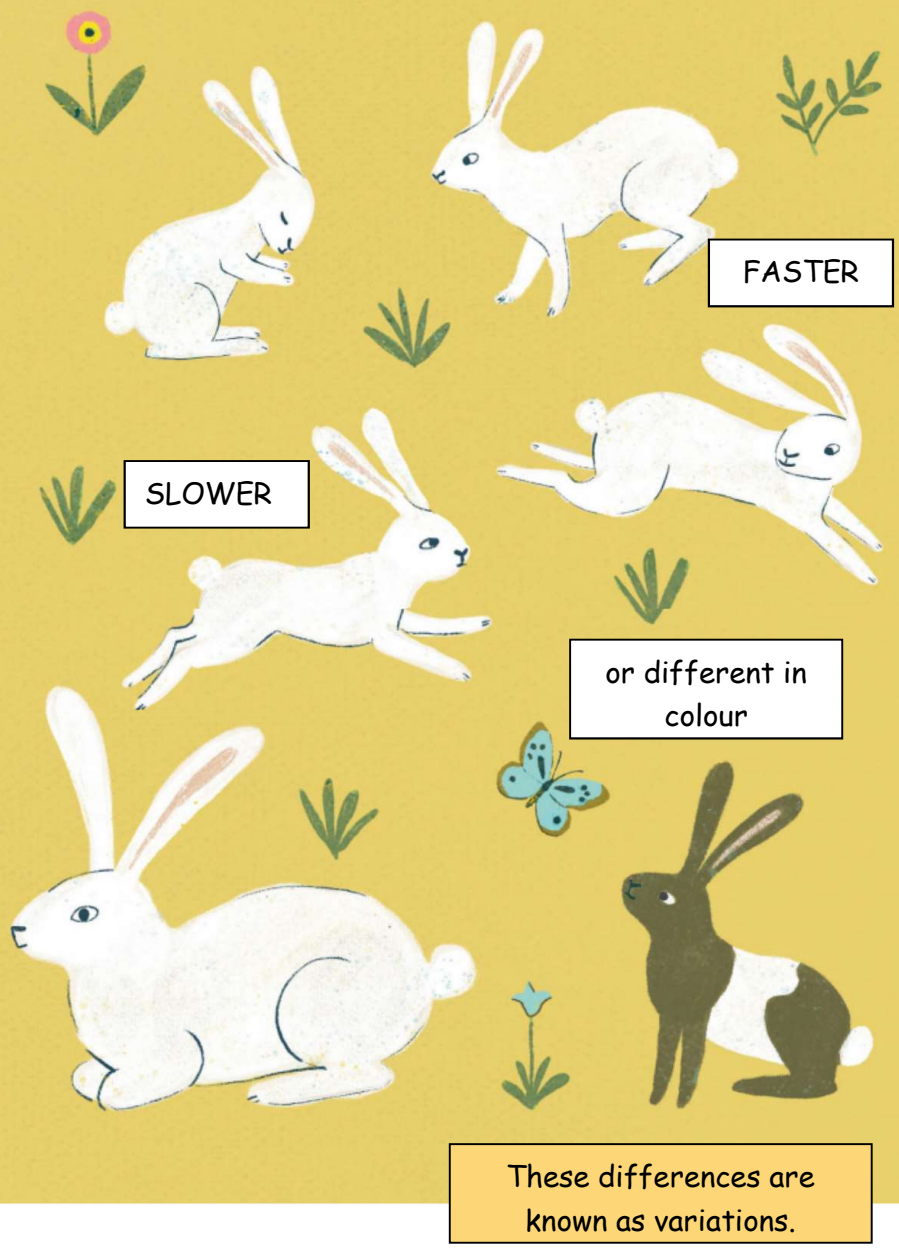
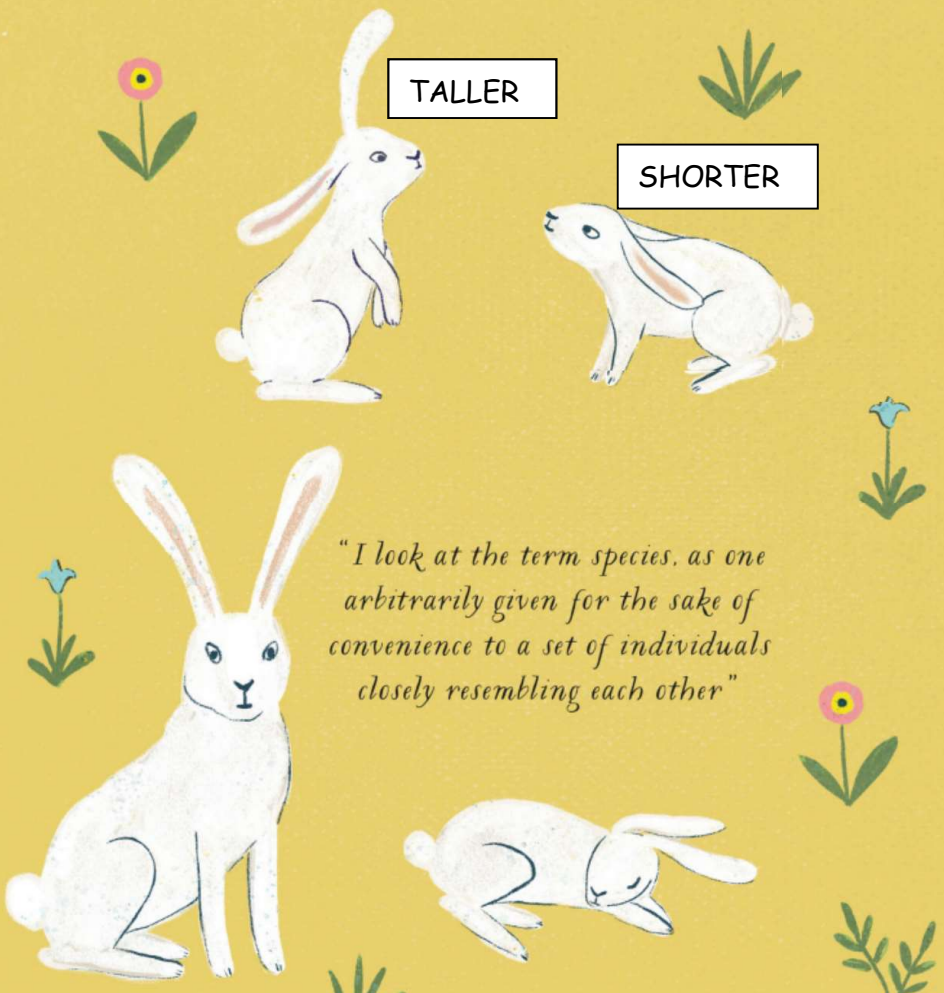


Darwin travelled the globe on board the HMS *Beagle*, visiting wondrous lands, studying animals and collecting fossils. Many things excited and amazed him on his adventures, and he wrote them all down as accurately as he could.

Soon though, the world came to know Charles Darwin, an English naturalist who would change people's understanding of how different species came to be.

In his book, Darwin explains that **species** are groups of living things that look alike and can have babies together. But even if they belong to the same species, no two animals are exactly the same.

Look closer and you will see some are:

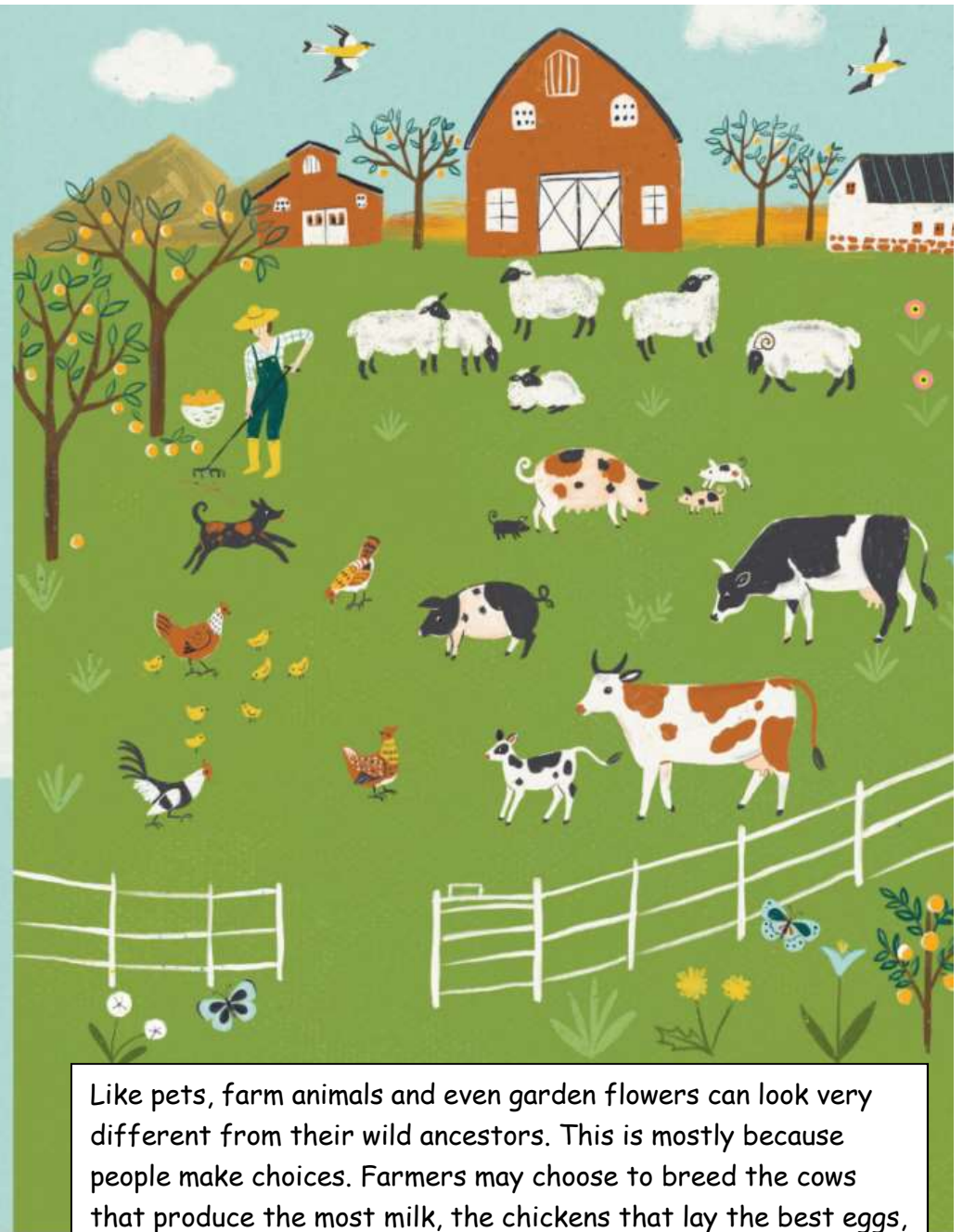




Animals that people have tamed and domesticated, like pets and farm animals, look very different from their wild ancestors. Take man's best friend for example - we now have over 340 breeds of dog! People have raised them for their different sizes, shapes, colours and even talents. Yet all of these breeds come from one kind of wild wolf, many howling moons ago!



Gardeners may encourage the growth of plants with large and beautiful flowers while they might weed out those that don't quite make the grade.



Like pets, farm animals and even garden flowers can look very different from their wild ancestors. This is mostly because people make choices. Farmers may choose to breed the cows that produce the most milk, the chickens that lay the best eggs, and the sheep with the warmest and most knittable wool.

## Variation under Nature



Species change in the wild too. Even without human influence of any kind, plants sprout and young animals in the wild are born, all with slight differences. Some differences don't matter. Some are not helpful at all...



... but some differences are very useful.



Large beak for crushing tough seeds

Darwin noted that Galapagos finches have developed beaks in all sorts of shapes and sizes. These differences help them to pick up their favourite snacks. Different beaks are good for different nibbles.



Small beak for feeding on soft seeds

Beak that can hold tools to probe and find insects



Long and sharp beak helps to tear cactus flowers





## Struggle for Existence

Nature may be beautiful and abundant, but living in the wilderness is not easy for any species. Many can't escape their predators or find the right conditions to survive.





Animals compete for food and shelter - things they must have if they are to survive and have babies. It's a struggle to live in the wild and only the best adapted will succeed.

## Natural Selection

"We see beautiful adaptations everywhere in every part of the organic world."



Some differences help animals survive in the wild. Some help them to hide, to hunt, to live longer or have lots of babies. Those babies will then grow to benefit from the helpful differences that have been passed down from their parents. The species is adapting to the world around it.