

Teacher note: This is a transcript of the video of the same name.

The theory of evolution (by natural selection)

Charles Darwin was a famous scientist in the 1800s. He was famous because he came up with an idea that changed the way we think about life on Earth forever: the theory of evolution. Darwin loved animals and studied them all of his life.



In 1831, he went on an exciting voyage aboard the ship, HMS *Beagle*. The *Beagle* visited the coast and islands of South America and Australia, where Darwin observed and collected a wide range of weird and wonderful plants and animals.

When he got back to England, he analysed his collection closely. That was when his ideas about evolution started to form.

Darwin had found around 15 different species of finch when he was on the Galapagos Islands. He noticed that the birds were similar to other finches in lots of ways, but their beaks were all different shapes.

Darwin looked into it further. He realised that the different beaks matched the type of food available on each island.



The finches who ate insects had skinny, pointed beaks, so they could pick them up better, and those that ate hard fruits had beaks that were sharp, so they could get through the skin.

Darwin decided that there was only one way this could have happened. The birds must have adapted to their environment over time.

This led him to another idea which he called the survival of the fittest. In any environment, plants and animals from the same species show natural variation in their physical characteristics, such as neck length in giraffes. Darwin suggested that those plants and animals best-suited to their environment are more likely to survive and pass on their characteristics to their offspring. Over a long period of time, the characteristics of the surviving members of the species will come to predominate.

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Confused? Take the peppered moth. In London in the early 1800s, 98% of peppered moths had light-coloured bodies. Only 2% were dark.

The light moths were very happy, because they were the same colour as the trees, which meant they could easily hide from hungry birds. The dark peppered moths were easy to see and... well... eat.

Then came the factories and the smoke of the industrial revolution. Many trees turned black with soot and suddenly, it was the dark moths who were able to survive better in their environment.

By 1895, the dark peppered moths made up 95% of the population. That's quite a turnaround!

The process of natural selection usually takes much longer, but this is a good example of how it works.

What about us humans? Good question. Darwin went on to suggest that humans share a common ancestor with modern apes. This was controversial, because it went against the religious beliefs of many people.

Darwin's theory of evolution by natural selection had a great impact on the world. Today, it is widely accepted as our best scientific explanation of how life on Earth works.

