

It's not often that a biologist is described as revolutionary – but Charles Darwin was just that. He transformed our understanding of the natural world and even of our own species. Now, more than a century later, Darwin's pioneering work is still celebrated and his theories continue to shape our understanding of humans, animals and plants.

Charles Robert Darwin was born in 1809 in Shrewsbury, in Shropshire, England. It is said that even as a child he had a fascination with nature. Growing up, he loved to read, particularly books about nature, and enjoyed exploring local wildlife areas to observe and collect plants and animals.

When he was a teenager, in 1825 Darwin enrolled to study medicine at the University of Edinburgh, in Scotland. It soon became apparent, however, that medicine was not the career for him. Whilst at university, he witnessed surgery on a child. At the time, surgeries were carried out without antiseptics, which slow down or stop the growth of disease and microorganisms. They were also done while patients were still conscious and without pain relief. Darwin was deeply disturbed by the experience. Soon afterwards, he decided to end his studies and left the university without completing the course. Instead, he went to the world-famous University of Cambridge, in England, to study theology: the nature of god and religious belief.

Darwin's life and career took a significant turn in 1831. After a recommendation from one of his Cambridge professors, he was offered the chance to work as a naturalist on a five-year voyage aboard HMS Beagle. Darwin accepted the position and soon embarked – also taking the role of companion to the ship's captain, Robert FitzRoy.

The voyage aboard the Beagle took Darwin to remote locations that he had previously rarely even heard described by others. He was amazed by the unusual and fascinating new wildlife he encountered. He took detailed notes and collected plants, animals and fossils to take back to England. In 1836, he returned home from his travels and set about comparing and analysing the different specimens he had found. It was from this work and his discoveries that Darwin devised his most famous – and most controversial – theory.

Darwin's theory of evolution by natural selection attempted to explain the diversity and complexity of life on Earth. It presented the theory that organisms that were best suited to their environments would be more likely to survive and reproduce.

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Their offspring would inherit these characteristics and would pass them on to their own offspring in turn. Over time, these features would become more and more common in a species as it flourished, while creatures that were less well suited would die out.

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Some of Darwin's thoughts were based on his observations of finches from the Galápagos Islands, close to Ecuador. Some of the birds had beaks that were suitable for eating seeds, while others were suited to eating insects. Despite all of the birds being descendants of a single ancestor, the different bird species had adapted to eat the variety of foods across the different islands.



As Darwin continued to work on his theory, he experimented with pigeons. He used what was known as 'artificial selection' to crossbreed birds with particular characteristics, hoping to develop different offspring.

Darwin later published his now celebrated and influential book, *On the Origin of Species*, in 1859. It created some controversy and outrage as it contradicted many religious beliefs at the time. Some members of the Church of England objected strongly that it contradicted the idea of creation by God. Despite this, the book soon became a huge seller. During Darwin's lifetime, it was translated into German, Danish, Dutch, French, Hungarian, Italian, Polish, Russian, Serbian, Spanish and Swedish.

Darwin was also responsible for another theory that provoked much debate and controversy. The biologist claimed that humans had descended from apes – and also used the idea of a 'tree of life' to illustrate that all species on Earth had evolved from a common ancestor. An early illustration of his idea appears in a sketch in a notebook from 1837. The branches on the tree show evolutionary relationships between different species.

In 1889, Darwin passed away – but his legacy and ideas live on. Some of them have been developed over time by new findings, but they remain key to our understanding of the world and its living things. He is remembered today for his pioneering and revolutionary theories. The Natural History Museum, in London, England, is home to a vast collection of Darwin's work.