

1. Darwin's theory of evolution, which he introduced in *On the Origin of Species*, is based on the concept of natural selection. It explains how species evolve over time through the survival and reproduction of individuals that have traits best suited for their environment. These advantageous traits are passed down to the next generation, and over many generations, this can lead to the formation of new species. Natural selection involves variation within a species, competition for resources, and the survival of the fittest, meaning the individuals with the best traits have a better chance of survival and reproduction. This process is what leads to the vast biodiversity we see today.