

# Evolutionary Biology

A hands-on practical look at how species change over time

Year 10-11

## Learning Outcomes:

At the end of the session:

- ✓ **All pupils** will understand that species change and evolve over time
- ✓ **Most pupils** will begin to understand how variation (genetic and environmental) can make individuals more/less adapted and thus more/less likely to pass on their genes
- ✓ **Some pupils** will began to grasp the complexities of genotypes and how many different factors influence phenotype

## Session Outline:

The session starts with an explanation of how evolutionary biologists (including Darwin) use scientific study skins, including how data is collected through Natural History collections around the world and how zoos contribute to these collections. Students then get the chance to get hands-on with real scientific study skins to hypothesis which habitats these birds were adapted for. Darwin's theory of how these adaptations developed is explained, including descent of modification, natural selection and survival of the fittest leading to evolution. We then discuss variation in more depth, including continuous/discontinuous and genetic/environmental with reference to phenotype and genotype. The complexities of genotype are explore in more detail, including example Punnett squares. Students are then provided with average historical data from their scientific study skins' species. They are tasked with comparing their current species to its historical averages to determine if there are any changes, and then develop a hypothesis (based on the previous habitat activity) to explain how and why this species has changed over time.



## Curriculum Links

### Biology

**AQA:** 4.6 Inheritance, variation and evolution: 1.6; 2.1; 2.2.

**OCR:** B5.2 – Natural selection and evolution: B5.2 a, c, d, f.

**Edexcel:** Topic 3 – Genetics: 19; 20; 22; 23. Topic 4 - Natural selection and genetic modification: 1B; 2; 8.