

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 begins with how evolutionary biologists, including Darwin, use scientific study skins and gather data through Natural History collections, including contributions from zoos. Students then handle real scientific study skins to hypothesize the habitats these birds adapted for. Darwin's theory of adaptation is explained, covering descent with modification, natural selection, and survival of the fittest. We delve into variations, discussing continuous/discontinuous and genetic/environmental factors in relation to phenotype and genotype. The complexities of genotype are explored further, including Punnett squares. Finally, students compare current data for their species with historical averages to identify changes and develop hypotheses to explain how and why these species have evolved 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.