

Genetics and the Evolution of Bird Beaks

Objective

Students learn about the role of genetics and mutations in natural selection and evolution.

Performance Task

Each student will be assigned one species of wading bird from the list below:
Great Blue Heron, Great Egret, Snowy Egret, Little Blue Heron, Green Heron
Wood Stork, White Ibis, Purple Gallinule

Play the role of a scientist that has been studying a wild population of wading bird (from the list above) for your doctoral research. You have completed many years of field work examining their feeding habits and genetic analysis of both the ancestral and present day bird. You have examined how the wading bird's beak evolved from an ancestral beak that was like the wild-type beak used in the activity on the evolution of bird beaks.

Your research is completed. Now you must submit and present your finding to a scientific conference. Write an abstract to be submitted to the scientific conference and prepare a presentation of your findings.

Your abstract should include the following:

- The abstract should have a purpose statement, methods, results, and discussion.
- Using your knowledge of genetics and mutations, explain how the beaks of the present day population evolved from the ancestral beak (tongue depressor). Include information on feeding habits, genetics, mutations, translation of mutations, and explain the role of mutations in natural selection and evolution.
- Do not forget that you are presenting to skeptical scientists, therefore prepare an argument concerning ways that the ancestral beak may not have evolved to the present day form.
- Find out real life information about your species of wading bird from a minimum of 2 sources. Incorporate these facts into your explanation.
- Cite your sources on a bibliography page.

Your presentation should include the following:

- Presentations must include the information written in your abstract and on the bulleted list above. You may include visuals in your presentation.
- Presentations should be 2-3 minutes in length.
- Be prepared to answer questions about your research.

Grading

Performance Task is worth 40 pts.

Abstract = 30 pts

Presentation = 10 pts