



Activity: Functions of Feathers

Introduction

Through research, students will learn about the different types of feathers and their functions. The information they gather will help support the idea that feathers evolved before birds and serve functions other than flight.

Objectives

Students will:

- research and report on the functions of feathers in a particular bird.
- present their findings in a report to the class.

Time Frame

Approximately two periods (40 minutes each) in addition to outside research

Materials

- Library materials and computers for Internet research
- Several different types of feathers (optional)
- *Functions of Feathers* reproducible, duplicated for each student

Procedure

Prior Knowledge

1. Call on volunteers to name the body coverings of different animals and to describe the function of those body coverings (i.e. fur, scales, skin). Discuss with students the functions of feathers. Use the following questions to guide the discussion and write students' responses on the board:
 - Which animals have feathers?
 - What are the functions of feathers? (Answers: flight, insulation, defense, display, camouflage, waterproofing)
 - Are all feathers used for flight? Are there birds with feathers that cannot fly? How do their feathers function?



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Exploration

2. Tell students they are going to do research to learn more about the functions of feathers. Distribute the *Functions of Feathers* handout and read through it with students. If available, distribute feathers for students to examine.
3. Tell students they will work in small groups to research the functions of feathers in the particular bird they are assigned. Their research will include:
 - a detailed look at the bird's different feathers and how they function.
 - an examination of the bird's habitat and the role feathers play as an adaptation to that habitat.

Remind students that their groups will present reports to the class on their research and that they should be prepared to answer any questions their audience might have. Suggest groups use pictures and drawings to illustrate their reports.

4. Divide the class into groups and assign one of the following birds to each group: penguin, ostrich, peacock, duck, snowy owl, and robin. If possible, provide time for students to do computer and library research during class.

Wrap-Up

5. When groups have completed their research, have them make their presentations to the class. After the presentations, discuss with students what they have learned about feathers. Ask them to hypothesize what functions feathers may have served in the early feathered dinosaurs.

Functions of Feathers

Feathers are a prominent feature found in birds. They perform a number of functions, including:

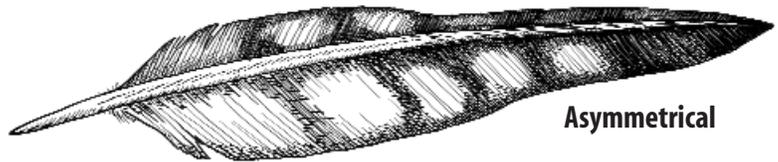
- insulation and protection from UV light
- flight
- camouflage
- display for attracting a mate
- display to deter predators
- waterproofing

1. Contour Feathers

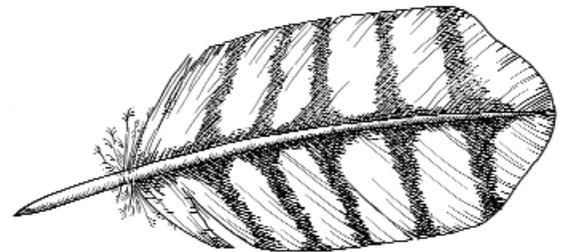
There are two kinds of contour feathers: asymmetrical and symmetrical.

These long, strong asymmetrical feathers are found on the tail and wings. They give the bird its shape and color and are used in flight.

These body contour feathers are symmetrical and give birds their round smooth shape. They provide protection against the Sun, rain, and wind.



Asymmetrical



Symmetrical

2. Down Feathers

These small, soft, fluffy feathers provide insulation.



3. Semiplumes

These feathers act as both a contour feather and a down feather. They provide insulation and give the bird shape.



4. Bristles:

These stiff feathers are found around the eyes and mouths of some birds. The bristles protect the mouths and eyes, for example, of birds that feed on the nests of bees and wasps.

