



STEM Challenge: Feathers Story Book Science at Home Activity

What you need

- Paper: any color (wing feather and down feather) and brightly colored construction paper (contour feathers)
- String (down feather)
- Scissors (all feathers)
- Adhesive like tape or glue (all feathers)
- Optional: pencil or another writing utensil
- Optional: markers or other coloring utensils

Preparation

Follow instructions to build models to represent three different types of bird feathers. If you need assistance, use the images of the different feather types on the next page.

Wing Feather



Step 1. Gather materials to create a model of one wing feather.



Step 2. Draw the different parts of the wing feather onto a piece of paper and cut them out. Don't forget the tiny hooks on the barbules! Attach the parts of the feather in the correct order. Make sure to lock the hooks together!

Down Feather



Step 1. Gather materials to create a model of one down feather.



Step 2. Create the different parts of the down feather using paper and string. Attach the parts of the feather in the correct order.

Contour Feather



Step 1. Gather materials to create a model of several contour feathers.



Step 2. Create a model of contour feathers and arrange them in a way that indicates they are giving shape to a bird's body. Make them extra colorful to indicate that the bird stands out!

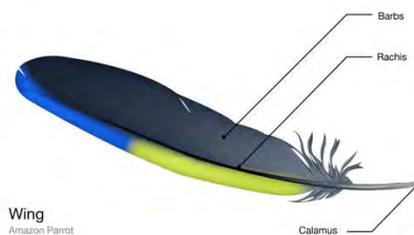
What to do

Use the models to demonstrate the characteristics of three different types of feathers.

What is happening?

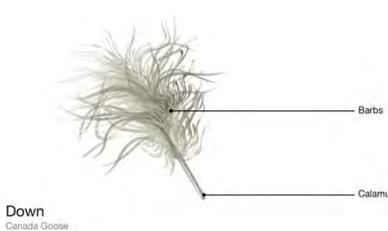
Birds have feathers. Different types of feathers can be found on a bird, and these different feathers have unique functions. This activity guide discusses three feather types: wing, down, and contour feathers. Other feather types include tail, semiplume, filoplume, and bristle feathers. Most feathers are made up of the same parts: the calamus, the rachis, barbs, and barbules. The calamus is the base of a feather. The rachis is the stem of the feather from where the barbs branch from. The barbs are the main branches of the feather. Lastly, the barbules are secondary branches of the feather. They branch from the barbs.

Wing Feather



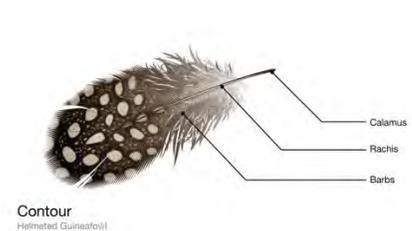
Wing feathers are pennaceous feathers. The barbules have tiny hooks on them, so the barbules lock together! This allows the feathers to block wind. Wing feathers are used for flight. Image from Andrew Leach, Jeff Szuc from Bird Academy (Cornell Lab of Ornithology).

Down Feather



Down feathers are plumulaceous feathers and contain barbs and barbules with a loose structure. The loose structure of the barbs and barbules allows down feathers to trap heat and keep the bird warm. Down feathers are found close to the bird's body. Image from Andrew Leach, Jeff Szuc from Bird Academy (Cornell Lab of Ornithology).

Contour Feather



Contour feathers can be found on a bird's body or on a bird's wings. If contour feathers cover a bird's body, they give the bird shape. Sometimes contour feathers are brightly colored and make the bird stand out! Why would a bird need to stand out? Image from Andrew Leach, Jeff Szuc from Bird Academy (Cornell Lab of Ornithology).