

Bird Feather & Wing Workshop

1. While birds are one of the most visible of the animal groups, naturally their feathers are one of the most common items that they leave behind as proof of their existence. So, let's start with the basic structure of a feather. Use your computer to define and identify these four parts of a feather. Then draw a sketch of a feather and label these parts.

a. Quill/Calamus: _____

b. Shaft/Rachis: _____

c. Vane: _____

d. Barbs: _____

2. Birds can have six different types of feathers. The type of feather also determines the purpose of the feather. Not every feather is designed for flight, nor is every feather designed for insulation. Below are the six different types of feathers. Use your computer to learn about each feather type and what they provide.

a. Down Feathers: _____

b. Vanned Feathers: _____

c. Contour Feathers: _____

d. Semi-Plume Feather: _____

e. Bristle Feather: _____

f. Filoplume Feather: _____

3. In your life, you have most likely played with a vanned wing feather. Pulling the barbs apart and then stroking the feather to reconnect the barbs. If you have access to a feather, go ahead and experiment. Birds care for their feathers through preening. They use their bill to rearrange feathers that become twisted or out of place or slide their bill along the feather to reconnect the barbs. Why must a bird take such good care of its feathers?

3b. What effect can pollutants such as oil have on bird feathers? Search the internet about oil spills and bird issues.

4. The vanned feathers are located on the bird's wings and tails. The wing is divided like your arm into three regions: the primaries, the secondaries, and the tertials. Search and explore the structure of a bird's wing online. Draw your own sketch of a wing and identify the three regions? What are the three equivalent parts when comparing your arm to the wing?

A: Primaries:_____ B: Secondaries:_____ C: Tertials:_____

5. Feathers from these three regions have different characteristics. If you did not look closely before. Look at the shapes of the feathers from each of the three sections of the wing. What differences exist between the primary, secondary and tertial feathers?

a. Primaries: _____

b. Secondaries: _____

c. Tertials: _____

6. Tail feathers can be very different in size and shape. But, there is one basic common feature. Try looking online at different tail feather, as well as the picture below. Can you see it and what is it?



7. A bird's tail helps tell you about the bird's flight behavior. Stiff, strong tails can indicate that the bird props against trees as a fulcrum. Rounded tails aid in flight maneuvers. Short tails can mean that the bird usually flies only short distances. Feel free to read about each of the bird species below. What assumptions can you make about each species when you look at their tails?



Great Horned Owl: _____



White-breasted Nuthatch: _____



Northern Flicker: _____



Cooper's Hawk: _____

8. In general, birds with long pointed wings fly longer distances and live in more open areas. The aerodynamics of long narrow wings enable birds to glide further by capturing and using air currents for the long-distance flights. Birds with short, rounded wings flap more and live in more wooded areas. Short rounded wings are better for maneuvering but must flap more for powered flight. What assumptions can you make about the following wings regarding flight, migration, and habitat?



Petrel: _____



Screech Owl: _____

9. Since feathers are not maintained by body nutrients, they require replacement when they are damaged or too worn. Sometimes this replacement occurs when a single feather needs to be replaced on a wing or tail. Sometimes a bird goes through this process to replace all its feathers. This process of losing and replacing feathers has a special name.

Do you know it? _____

Why might a bird replace all of its feathers? _____

What are some species that have two distinct plumages?

10. Feathers are often found while walking around outside and least when expected. How and when the feather(s) is/are found is often a clue as to what happened to the bird. Search the following: "Feathers on ground." What are some of the explanations that you can create to explain why these feathers were found?

A:

B:

C:
