

## **"Bird Field Marks"**

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Overview: Birds come in many shapes and sizes with adaptations in body parts that allow species to exploit niches (a particular area within a habitat occupied by a species) throughout the planet's ecosystems. Being able to identify a bird is the first step in understanding its role in the local ecosystem.

### Connection to the Curriculum:

- K-2.4 Compare individual examples of a particular type of plant or animal to determine that there are differences among individuals.
- 1-5.1 Identify the location of an object relative to another object.
- 2-2.2 Classify animals (including mammals, birds, amphibians, reptiles, fish, and insects) according to their physical characteristics.
- 3-2.2 Explain how physical and behavioral adaptations allow organisms to survive (including hibernation, defense, locomotion, movement, food obtainment, and camouflage for animals and seed dispersal, color, and response to light for plants).
- 4-2.1 Classify organisms into major groups (including plants or animals, flowering or nonflowering plants, and vertebrates [fish, amphibians, reptiles, birds, and mammals] or invertebrates) according to their physical characteristics.
- 5-2.4 Identify the roles of organisms as they interact and depend on one another through food chains and food webs in an ecosystem, considering producers and consumers (herbivores, carnivores, and omnivores), decomposers (microorganisms, termites, worms, and fungi), predators and prey, and parasites and hosts.
- 6-3.2 Summarize the basic functions of the structures of animals that allow them to defend themselves, to move, and to obtain resources.
- 7-4.2 Illustrate energy flow in food chains, food webs, and energy pyramids.
- 8-2.1 Explain how biological adaptations of populations enhance their survival in a particular environment.

Suggested Grade Range: K-8

Time: 45 minutes

### Materials Needed:

1. Markers, crayons, or colored pencils
2. Copies of Cornell Lab of Ornithology bird field marks drawing, one per student
3. *Optional:* Audubon at Francis Beidler Forest bird images at [http://sc.audubon.org/Centers\\_FBF\\_Educators\\_Species-Birds.html](http://sc.audubon.org/Centers_FBF_Educators_Species-Birds.html).

### Objectives:

1. SWBAT identify birds using the 6 Ss in order to further study birds and their role in an ecosystem.

### Procedures:

1. Birds come in many shapes and sizes with adaptations in body parts that allow species to exploit niches (a particular area within a habitat occupied by a species) throughout the planet's ecosystems. Birds have different shaped wings that allow for faster flight, more maneuverability, soaring, etc. However, birds also have different shaped bills, feet, visual abilities and color schemes. These different adaptations allow more bird species to exist in an ecosystem, since they will not be in direct competition for food items or nesting sites. For example, the different bill types of a hummingbird, a woodpecker and a duck allow each to occupy the same ecosystem while searching for separate food items (nectar, insects, or aquatic plants [see [http://sc.audubon.org/PDFs/fill\\_bill.pdf](http://sc.audubon.org/PDFs/fill_bill.pdf)]). Additionally, a duck's webbed feet are adapted to the aquatic habitat and a woodpecker's feet are adapted to hanging on a tree's trunk. Some birds nest in elaborately-constructed bowls, some nest in natural cavities, some make loose nest of sticks, some lay eggs directly on the ground, and some (cowbirds) lay their eggs in another species' nest for the other birds to raise the young.
2. Binoculars are not required to observe birds, but they do make identification easier, especially in denser habitats or poor light conditions. An inexpensive pair of binoculars in the 7 x 35 range is sufficient for a beginning birder. The first number refers to the number of times an object is magnified, while the second number refers to the diameter of the objective lens (farthest from the eye). The larger the second number, the larger the lens and the heavier the binoculars become. The binoculars can be adjusted to an individual's eyesight by following the instructions that come with the equipment.
3. A good field guide ([http://www.audubon.org/bird/at\\_home/bird\\_watching/guides.shtml](http://www.audubon.org/bird/at_home/bird_watching/guides.shtml)) will have a graphic showing the various bird parts and field markings, which can help with anatomical vocabulary and with identifying characteristics such as an eye-ring or wing bar ([http://www.birds.cornell.edu/AllAboutBirds/birding123/identify/field\\_marks](http://www.birds.cornell.edu/AllAboutBirds/birding123/identify/field_marks)). People recognize each other by field marks (hair style, eye color, height, ear size, etc.) and by voice, even if the person cannot be seen. Doing the same with birds simply takes practice. Have students write in their journal three of their own "field markings." (see [http://sc.audubon.org/PDFs/Decoupage\\_habitats.pdf](http://sc.audubon.org/PDFs/Decoupage_habitats.pdf))
4. Provide each student with coloring materials and a copy of the "Using Field Marks to Identify Birds" drawing at the Cornell Lab of Ornithology website, which is also attached to this lesson. As each bird anatomical vocabulary term is named, have the students color that area as they choose. In the end, each student should possess a basic understanding of bird field markings and have a unique bird as yet unknown to science.
5. When identifying a bird in the wild, one should look for as many of the following characteristics as possible, including the recently learned field markings. Using the "Beginning Birder's 6 Ss" will be of great help when later looking in a field guide to determine what bird was seen! Review the following with the students and ask volunteers to provide examples for each of the six Ss. Links to images of common backyard birds can be found on page [http://sc.audubon.org/Birds\\_BirdID\\_WhatBird.html](http://sc.audubon.org/Birds_BirdID_WhatBird.html).
  - a. SIZE:
    - i. Is the bird larger than a sparrow (6 inches)... a robin (10 inches)... a crow (20 inches)?
  - b. SHAPE:
    - i. Body shape (plump, thin, sleek, short and stubby, streamlined)
    - ii. Head and bill shape (bill is thin, thick, long, short, blunt, pointy, etc.)
    - iii. Wing shape (round, pointed, ragged)

- iv. Leg shape (long or short, with long talons, webbed, perching feet)
- v. Tail shape (round, wedge, square, notched)
- c. SHADE:
  - i. What color or colors was the bird? Where were various colors located? (Variations in color at the throat, belly, wings, tail, and markings of feathers). While color is what most people key in on first that one must be careful about relying on this one characteristic. Color is highly dependent on light. On a sunny day an Eastern Bluebird may appear bright blue, while on a cloudy day they appear dark blue. The best way to learn how to identify birds is to learn how to recognize sizes and shapes.
- d. SURROUNDINGS:
  - i. In what habitat was the bird located? (treetop, wooded area, marsh, swimming or floating, fence post, side of tree trunk, etc.) Is the bird within its expected range? (one would not expect to find a penguin in the forest or an ostrich in South Carolina)
- e. SWEEP:
  - i. What are the flight characteristics? (jerky, darting, swooping, soaring, irregular)
- f. SONG:
  - i. What is the general sound quality? Are there any identifiable phonetic sounds such as “raspy, chip-chip”, or “peter-peter”, or a trill, or a squawk, or quack, or twitter, etc.?

#### Suggested Evaluation:

1. The first image is a male Painted Bunting.
  - a. What color is its crown? (blue)
  - b. What color is its back? (greenish-yellow)
  - c. What color is its throat? (red)
  - d. What color is its wing? (green)
  - e. What color is its belly? (orange)
2. The second image is an Eastern Towhee.
  - a. What color is its side? (rusty, red, orange; *previously known as a Rufus-sided Towhee*)
  - b. What color is its breast? (black)

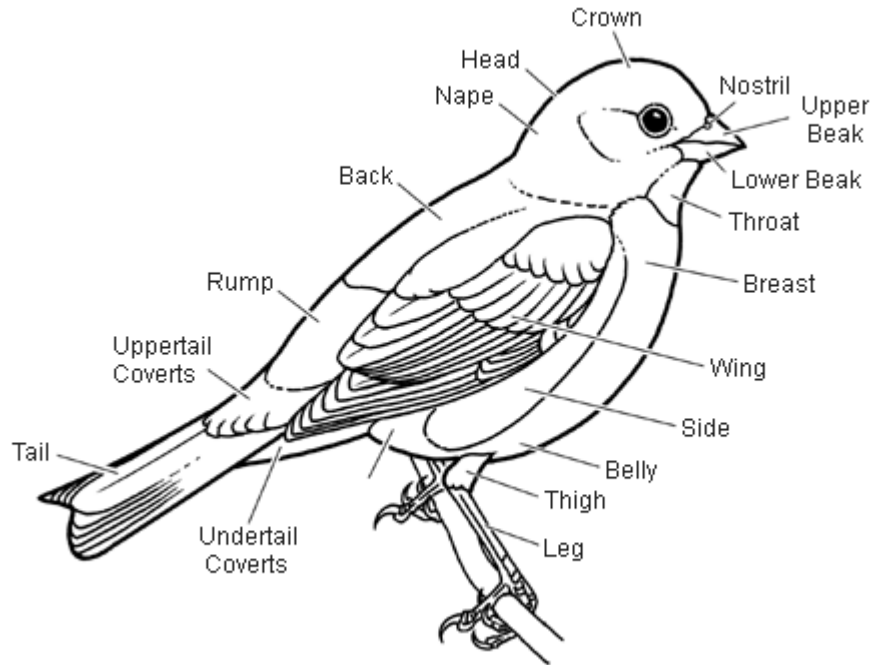
#### Extending the Lesson:

1. Fill the Bill lesson at [http://sc.audubon.org/PDFs/fill\\_bill.pdf](http://sc.audubon.org/PDFs/fill_bill.pdf). Students will experiment with different representations of bird bills and different representations of food to see how bills or beaks have evolved to obtain specific food items.
2. Swampy Science Names at [http://sc.audubon.org/PDFs/swampy\\_sci\\_names.pdf](http://sc.audubon.org/PDFs/swampy_sci_names.pdf). Students study how the plant and animal kingdom is subdivided into smaller groups. Using what they learned regarding taxonomy, students will assign a scientific name to their creation.

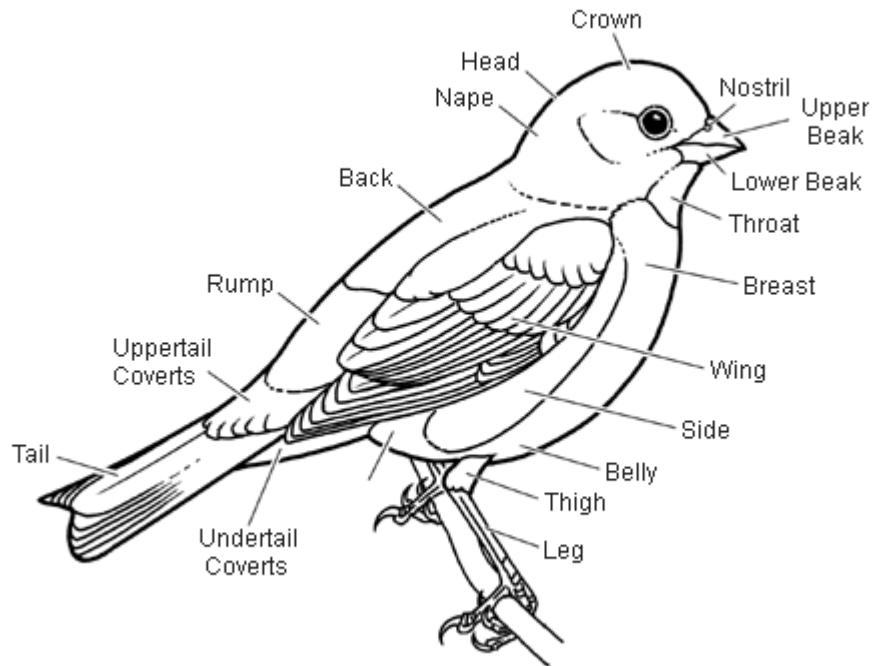
#### Resources:

1. Cornell Lab of Ornithology. “Using Field Marks to Identify Birds,” at [http://www.birds.cornell.edu/AllAboutBirds/birding123/identify/field\\_marks](http://www.birds.cornell.edu/AllAboutBirds/birding123/identify/field_marks)

2. Audubon South Carolina at [http://sc.audubon.org/Birds\\_BirdID.html](http://sc.audubon.org/Birds_BirdID.html)
3. Audubon at Francis Beidler Forest bird images at [http://sc.audubon.org/Centers\\_FBF\\_Educators\\_Species-Birds.html](http://sc.audubon.org/Centers_FBF_Educators_Species-Birds.html).



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*Photos by Don Wuori*