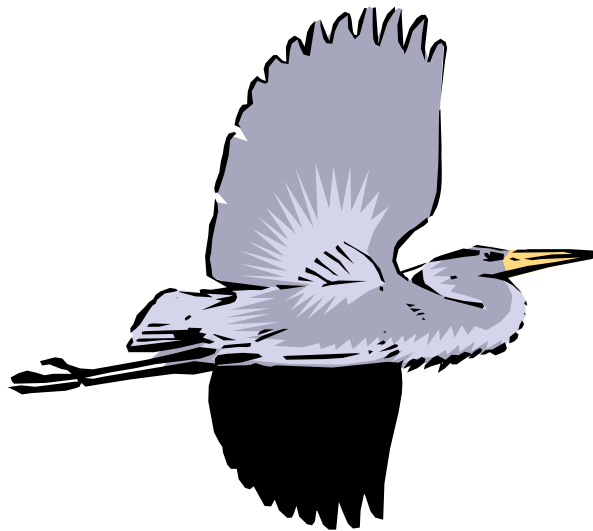


MAST ACADEMY OUTREACH

ELEMENTARY SCHOOL PROGRAM

Birds of Wakodahatchee

Pre-site Package



MAST Academy

Maritime and Science Technology High School

Miami-Dade County Public Schools

Miami, Florida

Birds of Wakodahatchee

Pre-Site Packet

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WAKODAHATCHEE WETLANDS SUNSHINE STATE STANDARDS FCAT BENCHMARKS – Grade 5
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Science Benchmarks Assessed at Grade 5

Strand F: Processes of Life

SC.F.1.2.3 The student knows that living things are different but share similar structures.

Strand G: How Living Things Interact with Their Environment
--

SC.G.1.2.2 The student knows that living things compete in a climatic region with other living things and that structural adaptations make them fit for an environment.

SC.G1.2.5 The student knows that animals eat plants or other animals to acquire the energy they need for survival.
--

SC.G1.2.7 The student knows that variations in light, water, temperature, and soil content are largely responsible for the existence of different kinds of organisms and population densities in an ecosystem.
--

SC.G.2.2.2 The student knows that the size of a population is dependent upon the available resources within its community.
--

SC.G.2.2.3 The student understands that changes in the habitat of an organism may be beneficial or harmful.

Strand H: The Nature of Science
--

SC. H.1.2.2 The student knows that a successful method to explore the natural world is to observe and record, and then analyze and communicate the results.

SC.H.1.2.3 The student knows that to work collaboratively, all team members should be free to reach, explain, and justify their own individual conclusions.

SC.H.1.2.4 The student knows that to compare and contrast observations and results is an essential skill in science.
--

SC.H.3.2.2 The student knows that data are collected and interpreted in order to explain an event or concept.

SC.H.3.2.4 The student knows that through the use of science processes and knowledge, people can solve problems, make decisions, and form new ideas.
--

Reading Benchmarks Assessed at Grade 5

Reporting Category 3: Literary Analysis – Fiction/Nonfiction
--

LA.5.2.2.1 The student will locate, explain and use information from text features (e.g., table of contents, glossary, index, transition words/phrases, headings, subheadings, charts, graphs, illustrations).
--

Reporting Category 4: Informational Text/Research Process

LA.5.6.1.1 The student will read informational text and text features (e.g. format, graphics, legends, illustrations, diagrams) to organize information for different purposes (e.g. being informed, following multi-step directions, creating a report, conducting interviews, preparing to take a test, performing a task).

LA.5.6.2.2 The student will read and record information systematically, evaluating the validity and reliability of information in text by examining several sources of information.



Teacher Instructions



View the “Birds of the Everglades/Wakodahatchee Wetlands DVD” with your class. Make a copy of the pre-site packet for each of your students. Before the field trip, review with your students the background information provided. Have students complete the in-class activity. Make additional copies of the bird watching field notes sheet if you wish to expand this activity to more than two birds. If you have field guides and colored pencils available, you may also have the students color in the pictures.

Make a copy of the on-site packet for each of your students. You may make additional copies of the field notes pages if you desire.



The MAST Outreach Instructor will meet you at your school site and ride with you to Wakodahatchee Wetlands. The wetlands are located at 13026 Jog Road, between Atlantic Avenue and Woolbright Road in Delray Beach. From North Miami-Dade, it will take approximately 45 minutes to reach the wetlands.

Directions: Take the Florida Turnpike north. Exit at Atlantic Avenue. Drive east 1.5 miles to Jog Road. Turn left. Drive north about one mile. The wetlands are on the right.



Facilities for lunch are not available at Wakodahatchee Wetlands. You may eat at a nearby park (Morikami Park, on Jog Road south of Linton Blvd.), or at a nearby fast food restaurant (Burger King, call 561-499-1650 for reservations). Insure that each student brings with them on this trip: headgear, sunscreen, insect repellent, a lunch, and plenty of drinking water.

Destination: Wakodahatchee Wetlands

Wakodahatchee Wetlands is located in Delray Beach, on Jog Road about one mile north of Atlantic Avenue. Created by the Palm Beach County Water Utilities Department, and located adjacent to the county's Southern Region Water Reclamation Facility, Wakodahatchee (which means "created waters" in the Seminole Indian language) is an excellent example of people giving something back to nature.

Fifty acres of unused utilities land have been transformed into a wetlands ecosystem. Every day, approximately two million gallons of highly treated water is pumped into the wetlands. By acting as a natural filter for nutrients that remain, the wetlands work to further cleanse the water.

A three-quarter mile boardwalk (with covered gazebos at various stops) winds through the wetlands, giving you the opportunity to read interpretive signs and learn about water purification, wetlands ecology, natural history, and the interdependence of people and their environment. The wetlands have attracted an abundant variety of wildlife, including turtles, frogs, rabbits, otters, alligators, and over 140 species of birds.



The Birds of Wakodahatchee Wetlands

Birds are some of the most colorful and interesting creatures that share our world. South Florida has always been associated with birds. The warm, shallow, and vast Everglades "river" attracted mainly wading birds to this region for thousands of years. In the 1800's, the well-known naturalist and artist, John James Audubon, wrote during a visit to south Florida, "We observed great flocks of wading birds flying overhead toward their evening roosts. They appeared in such numbers to actually block out the light from the sun for some time."

At Wakodahatchee Wetlands, over 140 different species of birds have been sighted. There are many different ways to identify one group of birds from another. In this packet, the terms wading birds, land birds, and birds of prey will be used.

Wading Birds

Sixteen different species of wading birds live in South Florida. All have long legs for wading into the water to catch their food. The White Ibis is the most common wading bird found here. Unlike many wading birds that prefer to eat fish, the ibis dines mostly on crayfish. This attractive white bird has a long, slender, curved beak, which it uses to probe the mud in search of food.



The Wood Stork is a larger wading bird; however, very few remain. They are an endangered species. The Wood Stork has an unusual way of feeding. With its beak held in the water, the Wood Stork shuffles its feet. As a frightened fish swims away from its feet, it bumps into the bird's beak. The sensitive beak can feel the fish, and it clamps down on it within a fraction of a second. Some believe this movement to be the fastest of any organism in South Florida.

One of the most common herons you would encounter on a visit to the park would be the Green Heron. A relatively small wading bird, the antics of this fisherman are fun to watch. Slowly stalking in shallow water, or hanging from a low tree branch, its dart-like jab at a fish is rarely off target.

Other wading birds you may encounter on a visit include the Great Blue Heron, Great White Heron (a form of Great Blue Heron), Great Egret, Snowy Egret, Tricolored Heron, Little Blue Heron, Cattle Egret, Reddish Egret, Black-crowned Night Heron, Yellow-crowned Night Heron, Least Bittern, American Bittern, Glossy Ibis, and the very colorful Roseate Spoonbill.

Land Birds

Of the more than 350 birds that have been sighted in South Florida, about 200 are migratory. That is, they spend most of their lives north or south of the Everglades, and visit here when conditions of food and/or climate dictate.

Land birds spend most of their lives in drier areas of the park, like the tree islands (hammocks) or the pineland areas. During winter months, migratory warblers are often seen. These very colorful birds are named warblers for their often beautiful singing. Cardinals, Blue Jays, Meadowlarks, Bobwhites, and Red-bellied Woodpeckers are common on dry ground in the Everglades and reside there year round.

Birds of Prey

The term "birds of prey" describes birds that catch their food by using a hooked beak and claws. Hawks, owls, eagles, kites, and falcons are all considered birds of prey.

Some birds of prey of South Florida include the most common hawk - the Red-shouldered Hawk. This very vocal bird swoops down to feed on lizards and snakes. The most common owl is the Barred Owl. If you hear an owl hooting late at night in the Everglades, most likely it is a barred owl. "Who cooks for you -- who cooks for you all" is one common "English" translation of its call.



Along the mangrove island areas in South Florida, you are likely to see an Osprey dive into the water to catch a fish. About fifty pair of Bald Eagles, who also feed on fish, nest in South Florida.

Perhaps the most interesting, and one of the most threatened birds in South Florida, is the Snail Kite. This bird does not have a varied diet. In fact, it feeds almost exclusively on the meat of the large, brown, aquatic apple snail. Skillfully plucking the snail from the water, the Snail Kite will use its specially adapted beak to pry the snail loose from its shell and then devour it. This attractive bird is an endangered species today due to a "human-caused" decrease in apple snail populations. Draining of prime snail habitat kills off adult snails. Improper flooding of areas drowns the pearl-like snail eggs before they hatch from their grassy perch.

South Florida's Birds: Yesterday and Today

In the 1930's approximately 250,000 wading birds nested in the Florida Everglades. In the spring of 1990, scientists estimated as few as 2,200 wading birds nested in Everglades National Park. Ninety percent of our nesting wading bird population is gone. Many will return if water managers and park staff are able to return the flow of fresh water through Everglades National Park to its original condition (and keep it there).

Two main reasons have accounted for this dramatic decrease in the members of the wading bird community: fashion and the draining of the wetlands.

In the late 1800's, fashionable ladies' hats were adorned with lacy feathers called plumes. These were taken mostly from herons and egrets. Plume hunters would often shoot the water birds during nesting and leave the helpless young chicks to die. Plume-hunting has been illegal for many years, but by the year 1900, only a few thousand herons and egrets remained. Many merchants made their early fortunes by buying and selling bird feathers.



The Everglades wetland has been reduced to a small fraction of its original size. All creatures, including birds, need food, water, shelter, and space to survive. Without these essential requirements, birds were unable to survive in altered areas of the Everglades. Each bird relies on a certain type of food and has a special adaptation enabling it to catch its prey. The wood stork is an endangered species today, not solely because of habitat destruction of the wetlands, but also due to irregular water flow into the park. Over the last three decades water managers have, on occasion, dumped too much water into Everglades National Park, flooding out small pools rich in fish, and making it harder for the wood stork to find food to feed its young.

There is hope for the future that more wetland areas will be protected from "development.", or that other areas like Wakodahatchee Wetlands can be created. Water managers and scientists will then be able to recreate the natural flow of the last remaining natural section of the Everglades river.

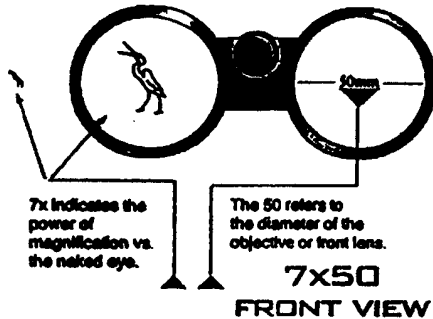
If you have never visited places like Wakodahatchee Wetlands during the winter bird-watching season, you are missing one of nature's finest shows! Seeing close-up the beautiful rainbow colors of the purple gallinule, or the fishing tactics of the anhinga as it spears its prey and swallows it whole, is much better than watching a tape on the TV set.

Experiencing the beauty and ingenuity of birds has inspired people for centuries. Despite the dramatic decline in the population of wading birds, residents of south Florida still live near one of the world's best bird areas. Take advantage of it!

Birdwatching Equipment

Binoculars

When you go birdwatching, you'll be using BINOCULARS to get up-close looks at the birds you see. Binoculars come in many sizes, such as 7x35, 7x50, and 10x50. What do these numbers mean? Let's use 7x50 as an example.



The first number, in this case the "7," is the magnification. That means this particular binocular magnifies the image seven times, or makes objects look seven times closer. For instance, if you are looking at something 700 yards away, the view through the binoculars will be as if it was only 100 yards away. If you prefer, you can think of the image as seven times larger. Models which have an eight or ten as the first number are eight and ten "power" binoculars. Magnification often is written as an "X," as in 7X.

The second number of the combination is the diameter in millimeters of the objective lens, the lens closer to the object being viewed. The larger the diameter of the objective lens, the more light is allowed into the binoculars. MAST Academy has 7x35 binoculars, with 35 millimeter objective lenses.

A Field Guide

You will be using this "Birds of South Florida" FIELD GUIDE to help you identify the birds you see. Each bird pictured has a brief description of its field marks (features of the bird, see page 10), as well as what time of year it can be seen in South Florida.



Field Notes

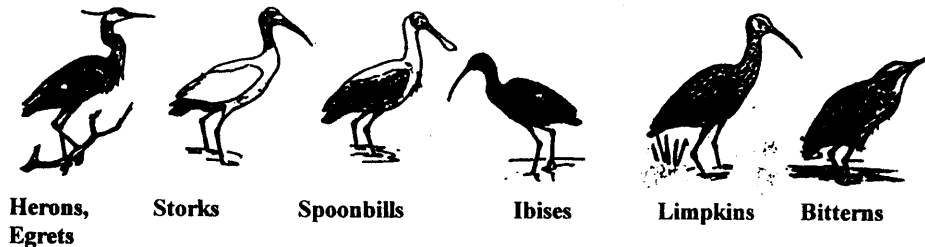
If you are a beginning birdwatcher, you will probably not recognize every bird that you see. By taking careful FIELD NOTES, you will more closely observe the shapes, sizes, colors, and behaviors of the birds you see, as well as the habitat where you saw them; this will make identification of the birds easier. It will also provide a record of your birdwatching adventure.

Bird identification begins by being able to recognize the BASIC BIRD GROUP to which each bird belongs. The birds in each Basic Bird Group are all similar in appearance. Below are sketches of birds in some of the Basic Bird Groups you may see on your field trip. Become familiar with the names of these bird groups.

WADING BIRDS

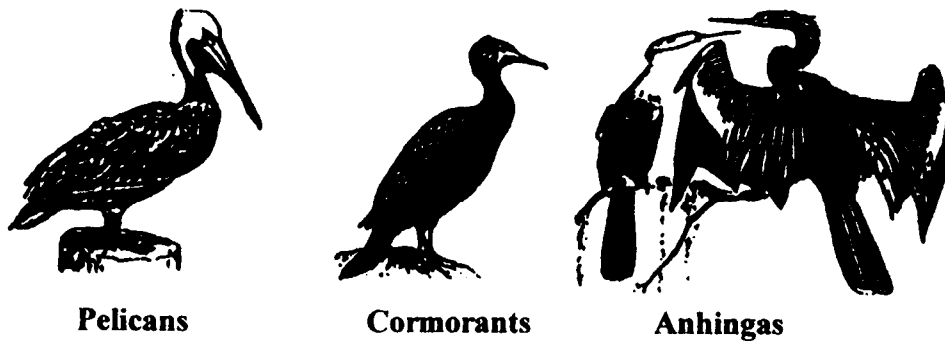
LONG-LEGGED WADERS

Medium to large waterbirds. Long neck and bill. Eat aquatic life in shallow water.



UPRIGHT-PERCHING WATERBIRDS

Large aquatic fisheaters. Feet far back on the body. Toes webbed.



WATERFOWL Duck-like birds.



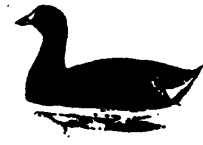
Ducks



Mergansers



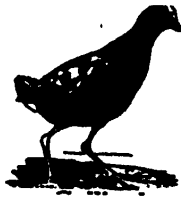
Grebes



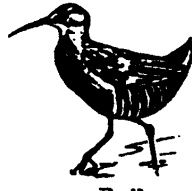
Coots

CHICKEN-LIKE MARSHBIRDS

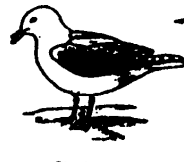
Small to medium-sized wading birds with short necks, long legs and long toes.



Gallinules



Rails



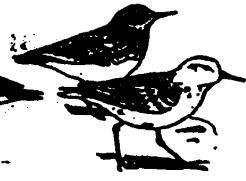
Gulls



Terns



Plovers



Sandpipers

BIRDS OF PREY

Sharply hooked bills for tearing meat. Often soar high in the air. Some take live prey, some scavenge.



Hawks



Kites



Eagles



Ospreys



Falcons



Vultures

LAND BIRDS

PIGEONS, DOVES

Small to medium sized birds.
Small headed.
Walks on the ground.
Pointed wings.



SWALLOWS

Long, pointed wings
Very fast flyers.



WOODPECKERS

Tree-clinging birds.
eats insects hidden in bark



PERCHING BIRDS

Medium to small landbirds. Feet adapted for perching.
Three toes in front, one behind.



Warblers



Vireos



Cardinals



Sparrows



Flycatchers



Meadowlarks



Mockingbirds



Shrikes



Jays



Kingfishers



Gnatcatchers



Cuckoos



Hummingbirds



Crows



Wrens



Blackbirds

Once you have recognized the Basic Bird Group to which a certain bird belongs, you can use **FIELD MARKS** to identify the bird. Field marks are any feature of the bird that helps to distinguish it from other birds. Field marks could include the size and shape of the bird, patterns in markings, or patterns in behavior. In many cases, experienced birdwatchers are able to identify a bird based upon only a few of these field marks. Below are some field marks you could use to help you identify the birds you see:

SIZE AND SHAPE

Compare Size



Jay (7")



Pigeons, Doves (11")



Crows (15")

Tail Shapes



Forked



Square



Notched



Pointed



Rounded

Bill Shapes



Wide, flat



Short, thin, pointed



Short, thick



Short, hooked



Long, thin



Short, stout



Sharp, chisel-like



Long, spear-like

Feet Shapes



Scratching



Climbing



Swimming



Perching



Wading



Catching prey

Legs



Short



Long

Head



Crest



Plain

Wings



Long, thin



Short, wide



Long, wide

PATTERNS IN MARKINGS

On The Tail (tail patches)



End



Edges



Sides

On The Face



Eye stripes



Eye rings

On The Breast



Spots



Bars

On The Wings



Wing patches



Wing Bars

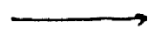
On The Rump



Patch

PATTERNS IN BEHAVIOR

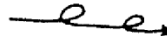
In The Air



Straight flight



Bouncing Flight



Gliding flight



Hovering flight

On The Ground



Walks



Hops

In The Water

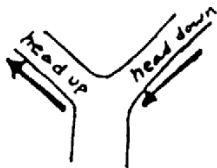


Wades



Swims

In Trees



Climbs up tree
trunks or branches

Climbs down tree
trunks or branches

Tail Position



Holds
tail up



Holds
tail down



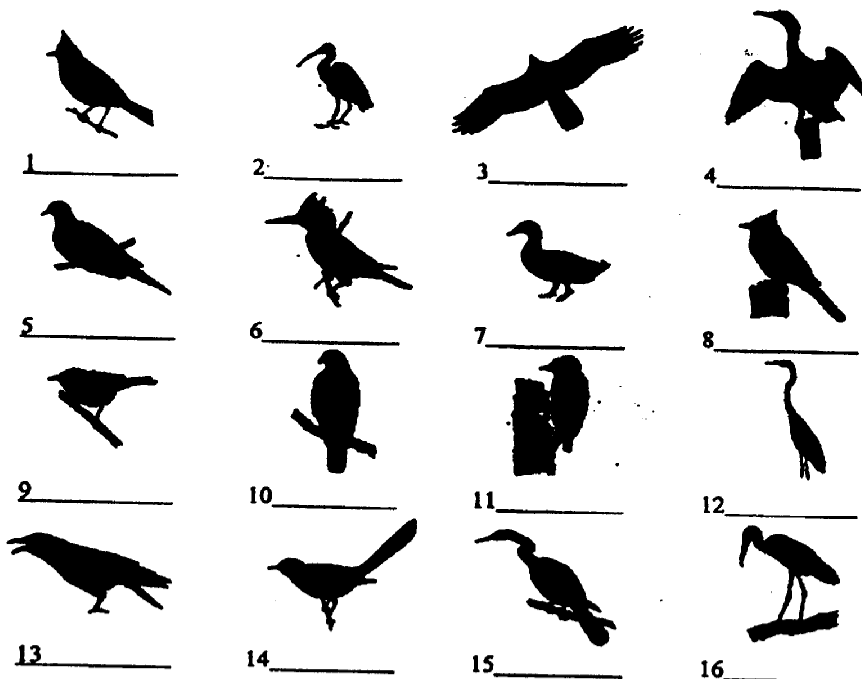
Wags
tail

Every time you see a new bird on your field trip, you will record field notes on a form such as the one on page 15. By observing the bird carefully, you should be able to determine and record its size and shape, patterns in markings and patterns in behavior. Space is provided to draw a sketch of each new bird you see. Try to determine the basic bird group to which each bird belongs. Remember, it is not so important to immediately identify each bird you see; instead, it is more important to observe the birds for at least as long as it takes to record field notes. This will allow you to use the notes and your field guide to try to identify the bird at a later time.

An In-Class Activity



Below are silhouettes of various birds. Identify each bird as either a WATER BIRD, a BIRD OF PREY, or a LAND BIRD.



Using the FIELD MARKS on pages 11-12, circle the correct answer to each of the following questions.

1. A bird with a long, spear-like bill is most likely a (a) long-legged wader, (b) bird of prey, (c) waterfowl, (d) land bird.
2. A bird with feet shaped for swimming is most likely a (a) long-legged wader, (b) bird of prey, (c) waterfowl, (d) land bird.
3. A bird with a short, hooked bill is most likely a (a) long-legged wader, (b) bird of prey, (c) waterfowl, (d) land bird.
4. A bird with feet shaped for climbing is most likely a (a) long-legged wader, (b) bird of prey, (c) waterfowl, (d) land bird.

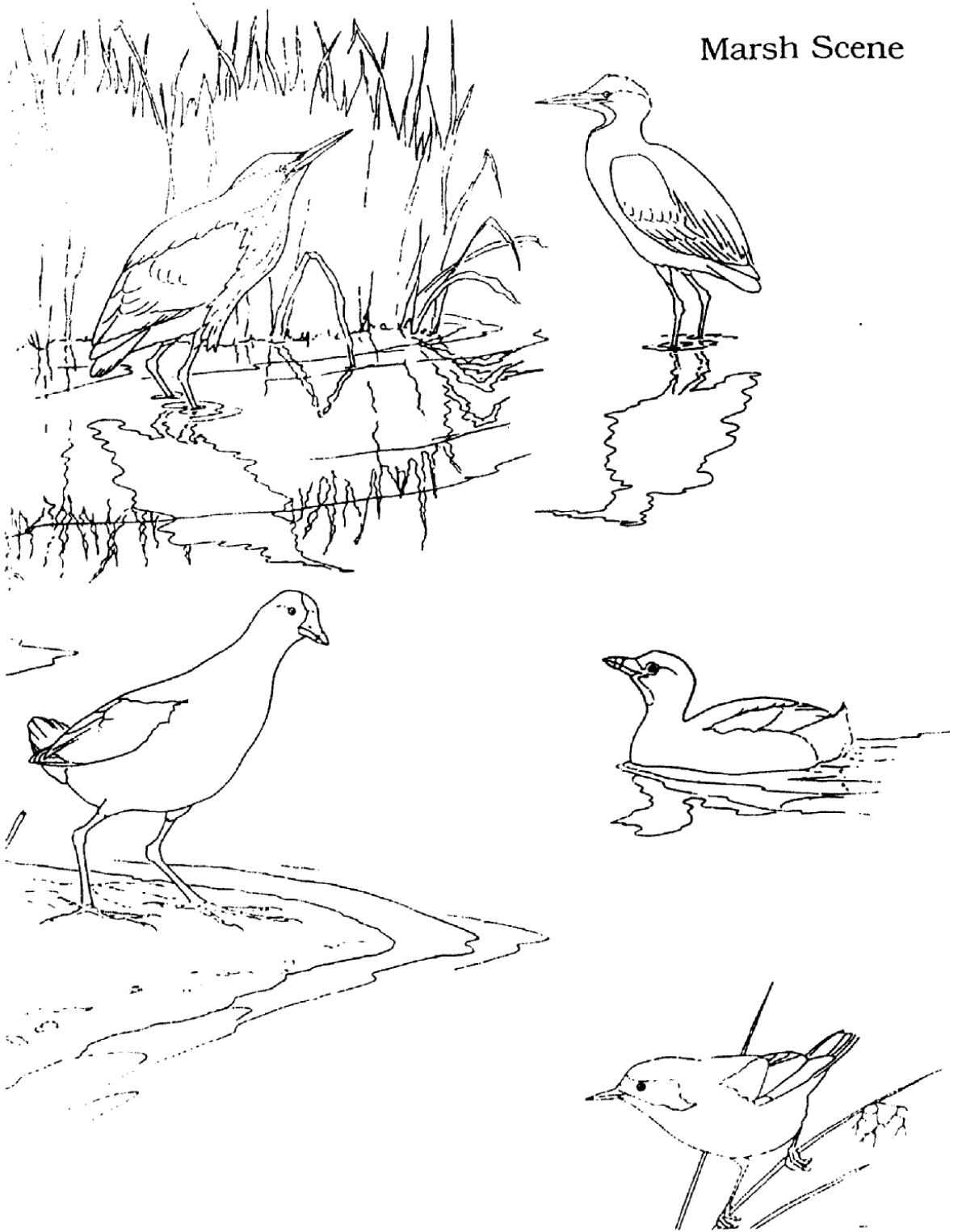


On the next two pages are scenes of birds in two habitats. Practice taking field notes by completing the field note sheets on pages 17-18 for two (2) of these birds, one from each habitat. Use the field note information on pages 8-12 to help you. Using all of the bird pictures, answer the questions below.

Backyard Scene



Marsh Scene



BIRDWATCHING FIELD NOTES

Step 1: Bird's Location/Patterns in Behavior
(circle all that apply)

Step 2: Compare Size
(circle one)

Step 3: Shape/Color of Bill
(circle one)

PATTERNS IN BEHAVIOR

In the Air: Straight flight, Bouncing flight, Gliding flight, Hovering flight

On the Ground: Walks, Hops, In Trees, Climbs up tree trunks or branches, Climbs down tree trunks or branches

In the Water: Walks, Swims

Color of bill: Wide, flat; Short, thin, pointed; Short, thick; Long, thin; Short, stout; Sharp, chisel-like; Long, spoon-like

Smaller than Jay (7")
Larger than Crow
Pigeons, Doves (11")
Crows (15")

Step 4: Shape of Top of Head (circle one)

Crest, Plain

Step 5: Markings on the Face (circle all that apply)

Eye stripes, Eye rings, Other

Step 6: Wing Shape (circle one)

Long, thin; Short, wide; Long, wide; Other

Step 7: Patterns on the Wings (circle all that apply)

Wing patches, Wing bars, Other

Step 8: Shape/Color of Legs (circle one)

Step 9: Feet Shape (circle one)

Step 10: Markings on the Breast (circle all that apply)

Color of legs: Short, Long

Step 11: Markings on the Rump (circle one)

Plain, Patch

Color of legs: Short, Long

Step 12: Tail Shape (circle one)

Notched, Pointed, Rounded, Forked, Other

Scratching, Climbing, Wading, Swimming, Cautious prey

Step 13: Markings on the Tail (circle all that apply)

End, Edges, Sides, Other

Step 14: Basic Bird Group (circle one)

Step 15: Draw the Bird

Land Bird, Water Bird, Bird of Prey

Name of Bird _____

BIRDWATCHING FIELD NOTES

Step 1: Bird's Location/Patterns in Behavior
(circle all that apply)

Step 2: Compare Size
(circle one)

Step 3: Shape/Color of Bill
(circle one)

PATTERNS IN BEHAVIOR

In the Air: Straight flight, Bouncing flight, Gliding flight, Hovering flight

On the Ground: Walks, Hops, In Trees, Climbs up tree trunks or branches, Climbs down tree trunks or branches

In the Water: Walks, Swims

Color of bill: Wide, flat; Short, thin, pointed; Short, thick; Long, thin; Short, stout; Sharp, chisel-like; Long, spoon-like

Smaller than Jay (7")
Larger than Crow
Pigeons, Doves (11")
Crows (15")

Step 4: Shape of Top of Head (circle one)

Crest, Plain

Step 5: Markings on the Face (circle all that apply)

Eye stripes, Eye rings, Other

Step 6: Wing Shape
(circle one)

Step 7: Patterns on the Wings
(circle all that apply)

Step 8: Shape/Color of Legs (circle one)

Color of legs: Short, Long

Long, thin; Short, wide; Long, wide; Other

Wing patches, Wing bar, Other

Long, thin; Short, wide; Long, wide; Other

Step 9: Feet Shape (circle one)

Scratching, Climbing, Wading, Swimming, Catching prey, Other

Color of legs: Short, Long

Step 10: Markings on the Breast (circle all that apply)

Spots, Bars, Other

Step 11: Markings on the Rump (circle one)

Step 12: Tail Shape (circle one)

Step 13: Markings on the Tail (circle all that apply)

End, Edges, Sides, Other

Step 14: Basic Bird Group
(circle one)

Step 15: Draw the Bird

Land Bird, Water Bird, Bird of Prey

Notched, Pointed, Rounded, Forked, Other

Name of Bird _____

Online Resources

The following elementary-level bird watching resources are available online:

All About Birds (Cornell Lab of Ornithology) <http://www.birds.cornell.edu/AllAboutBirds/>

Bird Resources for Elementary School Teachers Bibliography (California Academy of Sciences Library) <http://www.calacademy.org/research/library/biodiv/biblio/birdcur-update.htm>

Bird Watching Made Elementary (University of North Carolina at Chapel Hill School of Education) <http://www.learnnc.org/lp/pages/wildnb0701>

Elementary Education Resources: Science--Biology (Birds Resources)
<http://www.pitt.edu/~poole/eledscienceBioBirds.html>

Urban Bird Studies and **Bird Sleuth** (Cornell Lab of Ornithology) Students can become citizen scientists to collect data about birds living in their neighborhood!
<http://www.birds.cornell.edu/programs/urbanbirds/index.html>
<http://www.birds.cornell.edu/birdsleuth>

Zoom Birds (Enchanted Learning): <http://www.enchantedlearning.com/subjects/birds/>

Answer Key

Silhouettes

- | | |
|-----------------|------------------|
| 1. land bird | 9. land bird |
| 2. water bird | 10. bird of prey |
| 3. bird of prey | 11. land bird |
| 4. water bird | 12. water bird |
| 5. land bird | 13. land bird |
| 6. land bird | 14. land bird |
| 7. water bird | 15. water bird |
| 8. land bird | 16. water bird |

Field Marks

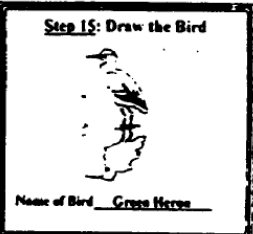
1. a
2. c
3. d
4. d

Field Notes


BIRDWATCHING FIELD NOTES

<p>Step 1: Bird's Location/Patterns in Behavior (circle all that apply)</p> <p style="text-align: center;">PATTERNS BY BEHAVIOR</p> <p>In the Air: Straight flight, Bounding flight, Gliding flight, Hovering flight</p> <p>On the Ground: Walks, Flaps</p> <p>In the Water: (circled) Flaps</p> <p>In Trees: Climb up one branch or branch, Climb down one branch or branch</p>	<p>Step 2: Compare Size (circle one)</p> <p>Smaller than Jay, Jay (7"), Pigeon, Dove (11")</p> <p>Other: (circled) Larger than Crow</p>	<p>Step 3: Shape/Color of Bill (circle one)</p> <p>White, flat, Short, thin, pointed, Short, thick, Short, hooked</p> <p>Long, thin, Short, stout, Sharp, almost like Long, spoon-like</p> <p>Other: _____</p> <p>Color of bill: yellow</p>	
<p>Step 4: Shape of Top of Head (circle one)</p> <p>Crest, (circled) Peak</p>	<p>Step 5: Markings on the Face (circle all that apply)</p> <p>Eye stripes, Eye shape</p> <p>Other: _____</p>	<p>Step 6: Wing Shape (circle one)</p> <p>Long, thin, (circled) Round, wide, Long, wide</p> <p>Other: _____</p>	<p>Step 7: Patterns on the Wings (circle all that apply)</p> <p>Wing bars, Wing bars</p> <p>Other: bicolored</p>
<p>Step 8: Shape/Color of Leg (circle one)</p> <p>Short, (circled) Long</p> <p>Color of leg: green</p>	<p>Step 9: Feet Shape (circle one)</p> <p>Long, thin, (circled) Long, thin, Long, wide</p> <p>Other: _____</p>	<p>Step 10: Markings on the Breast (circle all that apply)</p> <p>Dark, (circled) Dark</p> <p>Other: _____</p>	<p>Step 11: Markings on the Rump (circle one)</p> <p>Dark, (circled) Dark</p>
<p>Step 12: Tail Shape (circle one)</p> <p>Round, (circled) Square, Pointed, (circled) Pointed</p> <p>Other: _____</p>	<p>Step 13: Markings on the Tail (circle all that apply)</p> <p>Dark, (circled) Dark, Dark</p> <p>Other: plain</p>	<p>Step 14: Basic Bird Group (circle one)</p> <p>Land bird, (circled) Water bird, Bird of prey</p>	<p>Step 15: Draw the Bird</p>


BIRDWATCHING FIELD NOTES

<p>Step 1: Bird's Location/Patterns in Behavior (circle all that apply)</p> <p style="text-align: center;">PATTERNS IN BEHAVIOR</p> <p>In the Air: Straight flight Swooping flight Gliding flight Flourishing flight</p> <p>On the Ground: Walks Hops</p> <p>In the Water: Wades Ducks</p> <p>In Trees: Climbs up tree (twigs or branches) Climbs down tree (twigs or branches)</p>	<p>Step 2: Compare Size (circle one)</p> <p>Smaller than Jay: Jay (17) Pigeon, Dove (117)</p> <p>Larger than Crow: Crow (17)</p>	<p>Step 3: Shape/Color of Bill (circle one)</p> <p>Wide, flat: Short, thin, pointed: Short, stout: Short, hooked: </p> <p>Long, thin: Short, stout: Sharp, almost like: Long, spear-like: </p> <p>Other: _____</p> <p>Color of bill: <u>yellow</u></p>	
<p>Step 4: Shape of Top of Head (circle one)</p> <p> Crest Plate</p>	<p>Step 5: Markings on the Face (circle all that apply)</p> <p> Eye stripe Eye stripe</p> <p>Other: <u>reddish</u></p>	<p>Step 6: Wing Shape (circle one)</p> <p>Long, thin: Short, wide: Long, wide: </p> <p>Other: _____</p>	<p>Step 7: Patterns on the Wings (circle all that apply)</p> <p> Wing pattern Wing bar</p> <p>Other: <u>no cross</u></p>
<p>Step 8: Shape/Color of Legs (circle one)</p> <p> Short Long</p> <p>Color of legs: <u>yellow</u></p>	<p>Step 9: Feet Shape (circle one)</p> <p> Foot shape Foot shape Foot shape</p> <p>Other: _____</p>	<p>Step 10: Markings on the Breast (circle all that apply)</p> <p> Spot Bar</p> <p>Other: <u>plain</u></p>	<p>Step 11: Markings on the Rump (circle one)</p> <p> Spot Plate</p>
<p>Step 12: Tail Shape (circle one)</p> <p> Square Rounded Pointed Forked</p> <p>Other: _____</p>	<p>Step 13: Markings on the Tail (circle all that apply)</p> <p> Bar Spot Blot</p> <p>Other: <u>plain</u></p>	<p>Step 14: Basic Bird Group (circle one)</p> <p> Land Bird Water Bird Bird of Prey</p>	<p>Step 15: Draw the Bird</p>  <p>Name of Bird: <u>Green Heron</u></p>


BIRDWATCHING FIELD NOTES

<p>Step 1: Bird's Location/Patterns in Behavior (circle all that apply)</p> <p style="text-align: center;">PATTERNS IN BEHAVIOR</p> <p>In the Air: Straight flight Swooping flight Gliding flight Flourishing flight</p> <p>On the Ground: Walks Hops</p> <p>In the Water: Wades Ducks</p> <p>In Trees: Climbs up tree (twigs or branches) Climbs down tree (twigs or branches)</p>	<p>Step 2: Compare Size (circle one)</p> <p>Smaller than Jay: Jay (17) Pigeon, Dove (117)</p> <p>Larger than Crow: Crow (17)</p>	<p>Step 3: Shape/Color of Bill (circle one)</p> <p>Wide, flat: Short, thin, pointed: Short, stout: Short, hooked: </p> <p>Long, thin: Short, stout: Sharp, almost like: Long, spear-like: </p> <p>Other: _____</p> <p>Color of bill: <u>red, with yellow tip</u></p>	
<p>Step 4: Shape of Top of Head (circle one)</p> <p> Crest Plate</p>	<p>Step 5: Markings on the Face (circle all that apply)</p> <p> Eye stripe Eye stripe</p> <p>Other: <u>blue forehead</u></p>	<p>Step 6: Wing Shape (circle one)</p> <p>Long, thin: Short, wide: Long, wide: </p> <p>Other: _____</p>	<p>Step 7: Patterns on the Wings (circle all that apply)</p> <p> Wing pattern Wing bar</p> <p>Other: <u>brownish</u></p>
<p>Step 8: Shape/Color of Legs (circle one)</p> <p> Short Long</p> <p>Color of legs: <u>yellow</u></p>	<p>Step 9: Feet Shape (circle one)</p> <p> Foot shape Foot shape Foot shape</p> <p>Other: _____</p>	<p>Step 10: Markings on the Breast (circle all that apply)</p> <p> Spot Bar</p> <p>Other: <u>plain</u></p>	<p>Step 11: Markings on the Rump (circle one)</p> <p> Spot Plate</p>
<p>Step 12: Tail Shape (circle one)</p> <p> Square Rounded Pointed Forked</p> <p>Other: _____</p>	<p>Step 13: Markings on the Tail (circle all that apply)</p> <p> Bar Spot Blot</p> <p>Other: <u>plain</u></p>	<p>Step 14: Basic Bird Group (circle one)</p> <p> Land Bird Water Bird Bird of Prey</p>	<p>Step 15: Draw the Bird</p>  <p>Name of Bird: <u>Purple Gallinule</u></p>

BIRDWATCHING FIELD NOTES

<p>Step 1: Bird's Location/Patterns in Behavior (circle all that apply)</p> <p style="text-align: center;">PATTERNS IN BEHAVIOR</p> <p>In the Air: Straight flight, Bouncing flight, Oblique flight, Hovering flight</p> <p>On the Ground: Walks, Hops</p> <p>In the Water: Walks, Swims</p> <p>In Trees: Climbs up tree trunk or branches, Climbs down tree trunk or branches</p>	<p>Step 2: Compare Size (circle one)</p> <p>Smaller than Jay Jay (77)</p> <p>Pigeons, Doves (117)</p> <p>Larger than Crow Crow (117)</p>	<p>Step 3: Shape/Color of Bill (circle one)</p> <p>Wide, flat Short, thin, pointed Short, stout Short, hooked</p> <p>Long, thin Short, stout Sharp, chisel-like Long, open-like</p> <p>Other: _____</p> <p>Color of bill <u>white, with black ring</u></p>	
<p>Step 4: Shape of Top of Head (circle one)</p> <p> Crest Flat</p> <p>Other: <u>black forehead, chin</u></p>	<p>Step 5: Markings on the Face (circle all that apply)</p> <p> Eye stripe Eye ring</p> <p>Other: <u>black forehead, chin</u></p>	<p>Step 6: Wing Shape (circle one)</p> <p>Long, thin Short, wide Long, wide</p> <p>Other: _____</p>	<p>Step 7: Patterns on the Wings (circle all that apply)</p> <p> White patch Wing bar</p> <p>Other: <u>solid</u></p>
<p>Step 8: Shape/Color of Legs (circle one)</p> <p> Blurred Long</p> <p>Color of legs <u>gray</u></p>	<p>Step 9: Feet Shape (circle one)</p> <p> Tarsus Clawed Footpad</p> <p>Other: _____</p>	<p>Step 10: Markings on the Breast (circle all that apply)</p> <p> Spot Bar</p> <p>Other: <u>solid</u></p>	<p>Step 11: Markings on the Rump (circle one)</p> <p> Patch Plain</p>
<p>Step 12: Tail Shape (circle one)</p> <p> Blurred Notched Pointed Rounded</p> <p>Pointed (Other: _____)</p>	<p>Step 13: Markings on the Tail (circle all that apply)</p> <p> Red Spot White</p> <p>Other: <u>white</u></p>	<p>Step 14: Basic Bird Group (circle one)</p> <p> Land Bird Water Bird Bird of Prey</p>	<p>Step 15: Draw the Bird</p> <div style="border: 2px solid black; padding: 5px; text-align: center;">  <p>Name of Bird <u>Pied-billed Grebe</u></p> </div>

BIRDWATCHING FIELD NOTES

<p>Step 1: Bird's Location/Patterns in Behavior (circle all that apply)</p> <p style="text-align: center;">PATTERNS IN BEHAVIOR</p> <p>In the Air: Straight flight, Bouncing flight, Oblique flight, Hovering flight</p> <p>On the Ground: Walks, Hops</p> <p>In the Water: Walks, Swims</p> <p>In Trees: Climbs up tree trunk or branches, Climbs down tree trunk or branches</p>	<p>Step 2: Compare Size (circle one)</p> <p>Smaller than Jay Jay (77)</p> <p>Pigeons, Doves (117)</p> <p>Larger than Crow Crow (117)</p>	<p>Step 3: Shape/Color of Bill (circle one)</p> <p>Wide, flat Short, thin, pointed Short, stout Short, hooked</p> <p>Long, thin Short, stout Sharp, chisel-like Long, open-like</p> <p>Other: _____</p> <p>Color of bill <u>gray</u></p>	
<p>Step 4: Shape of Top of Head (circle one)</p> <p> Crest Flat</p> <p>Other: _____</p>	<p>Step 5: Markings on the Face (circle all that apply)</p> <p> Eye stripe Eye ring</p> <p>Other: <u>black mask</u></p>	<p>Step 6: Wing Shape (circle one)</p> <p>Long, thin Short, wide Long, wide</p> <p>Other: _____</p>	<p>Step 7: Patterns on the Wings (circle all that apply)</p> <p> White patch Wing bar</p> <p>Other: <u>brownish</u></p>
<p>Step 8: Shape/Color of Legs (circle one)</p> <p> Blurred Long</p> <p>Color of legs <u>pink</u></p>	<p>Step 9: Feet Shape (circle one)</p> <p> Tarsus Clawed Footpad</p> <p>Other: _____</p>	<p>Step 10: Markings on the Breast (circle all that apply)</p> <p> Spot Bar</p> <p>Other: <u>pale yellow</u></p>	<p>Step 11: Markings on the Rump (circle one)</p> <p> Patch Plain</p>
<p>Step 12: Tail Shape (circle one)</p> <p> Blurred Notched Pointed Rounded</p> <p>Pointed (Other: _____)</p>	<p>Step 13: Markings on the Tail (circle all that apply)</p> <p> Red Spot White</p> <p>Other: <u>plain</u></p>	<p>Step 14: Basic Bird Group (circle one)</p> <p> Land Bird Water Bird Bird of Prey</p>	<p>Step 15: Draw the Bird</p> <div style="border: 2px solid black; padding: 5px; text-align: center;">  <p>Name _____</p> </div>

BIRDWATCHING FIELD NOTES

Step 1: Bird's Location/Patterns in Behavior
(circle all that apply)

PATTERNS IN BEHAVIOR

In the Air: Straight flight, Bounding flight, Oblique flight, Hovering flight

On the Ground: Walks, Hops, In Trees, Clanks up tree trunks or branches, Clanks down tree trunks or branches

In the Water: Wades, Pokes

Step 2: Compare Size
(circle one)

Smaller than Jay, Jay (7), Pigeon, Dove (11), Larger than Crow, Crow (17)

Step 3: Shape/Color of Bill
(circle one)

Wide, flat, Short, thin, pointed, Short, thick, Short, hooked, Long, thin, Short, stout, Sharp, almost like, Long, spear-like

Other: _____
Color of bill: _____

Step 4: Shape of Top of Head
(circle one)

Crest, Plain

Step 5: Markings on the Face
(circle all that apply)

Eye stripes, Eye rings, Other: gray ear patch

Step 6: Wing Shape
(circle one)

Long, thin, Short, wide, Long, wide

Other: _____

Step 7: Patterns on the Wings
(circle all that apply)

Wing patches, Wing bars

Other: _____

Step 8: Shape/Color of Leg
(circle one)

Plumbeous, Long

Color of legs: gray

Step 9: Feet Shape
(circle one)

Scrambling, Clinging, Climbable, Walking, Climbable over

Other: _____

Step 10: Markings on the Breast
(circle all that apply)

Spot, Bar

Other: plain

Step 11: Markings on the Rump
(circle one)

Plain, Plain

Step 12: Tail Shape
(circle one)

Spurred, Notched, Pointed, Rounded

Other: _____

Step 13: Markings on the Tail
(circle all that apply)

Bar, Spot, Bar

Other: _____

Step 14: Basic Bird Group
(circle one)

Land Bird, Water Bird, Bird of Prey

Step 15: Draw the Bird

Name of Bird: Northern Mockingbird

BIRDWATCHING FIELD NOTES

Step 1: Bird's Location/Patterns in Behavior
(circle all that apply)

PATTERNS IN BEHAVIOR

In the Air: Straight flight, Bounding flight, Oblique flight, Hovering flight

On the Ground: Walks, Hops, In Trees, Clanks up tree trunks or branches, Clanks down tree trunks or branches

In the Water: Wades, Pokes

Step 2: Compare Size
(circle one)

Smaller than Jay, Jay (7), Pigeon, Dove (11), Larger than Crow, Crow (17)

Step 3: Shape/Color of Bill
(circle one)

Wide, flat, Short, thin, pointed, Short, thick, Short, hooked, Long, thin, Short, stout, Sharp, almost like, Long, spear-like

Other: _____
Color of bill: _____

Step 4: Shape of Top of Head
(circle one)

Crest, Plain

Step 5: Markings on the Face
(circle all that apply)

Eye stripes, Eye rings, Other: black collar

Step 6: Wing Shape
(circle one)

Long, thin, Short, wide, Long, wide

Other: _____

Step 7: Patterns on the Wings
(circle all that apply)

Wing patches, Wing bars

Other: _____

Step 8: Shape/Color of Leg
(circle one)

Plumbeous, Long

Color of legs: gray

Step 9: Feet Shape
(circle one)

Scrambling, Clinging, Climbable, Walking, Climbable over

Other: _____

Step 10: Markings on the Breast
(circle all that apply)

Spot, Bar

Other: plain

Step 11: Markings on the Rump
(circle one)

Plain, Plain

Step 12: Tail Shape
(circle one)

Spurred, Notched, Pointed, Rounded

Other: _____

Step 13: Markings on the Tail
(circle all that apply)

Bar, Spot, Bar

Other: _____

Step 14: Basic Bird Group
(circle one)

Land Bird, Water Bird, Bird of Prey

Step 15: Draw the Bird

Name of Bird: Blue Jay

BIRD WATCHING FIELD NOTES

Step 1: Bird's Location/Patterns in Behavior
(circle all that apply)

PATTERNS IN BEHAVIOR

In the Air: Straight flight, Sounding flight, Gliding flight, Hovering flight

On the Ground: Walks, Flies

In Trees: Climb up tree trunk or branches, Climb down tree trunk or branches

In the Water: Water, Dives

Step 2: Compare Size
(circle one)

Smaller than Jay (17)
Pigeon, Dove (117)
Larger than Crow
Crow (117)

Step 3: Shape/Color of Bill
(circle one)

Wide, flat; Short, thick, pointed; Short, stout; Short, hooked; Long, thin; Short, cone; Sharp, slender-like; Long, spear-like

Other: _____

Color of bill: yellow

Step 4: Shape of Top of Head
(circle one)

Concave; Plane

Step 5: Markings on the Face
(circle all that apply)

Eye stripes; Eye spot

Other: plain

Step 6: Wing Shape
(circle one)

Long, thin; Short, wide; Long, wide

Other: _____

Step 7: Patterns on the Wings
(circle all that apply)

Wing patch; Wing bar

Other: plain

Step 8: Shape/Color of Legs
(circle one)

Short; Long

Color of legs: pink

Step 9: Feet Shape
(circle one)

Scissor-like; Chisel; Pincer; Tarsus

Other: _____

Step 10: Markings on the Breast
(circle all that apply)

Spot; Bar

Other: none in winter only

Step 11: Markings on the Rump
(circle one)

Spot; Plain

Step 12: Tail Shape
(circle one)

Pointed; Mottled; Fan-like; Rounded

Other: _____

Step 13: Markings on the Tail
(circle all that apply)


Bar; Spot; Bar

Other: plain

Step 14: Basic Bird Group
(circle one)

Land Bird; Water Bird; Bird of Prey

Step 15: Draw the Bird



Name of Bird: European Starling

BIRDWATCHING FIELD NOTES

Step 1: Bird's Location/Patterns in Behavior
(circle all that apply)

PATTERNS IN BEHAVIOR

In the Air: Straight flight, Sounding flight, Gliding flight, Hovering flight

On the Ground: Walks, Flies

In Trees: Climb up tree trunk or branches, Climb down tree trunk or branches

In the Water: Water, Dives

Step 2: Compare Size
(circle one)

Smaller than Jay (17)
Pigeon, Dove (117)
Larger than Crow
Crow (117)

Step 3: Shape/Color of Bill
(circle one)

Wide, flat; Short, thick, pointed; Short, stout; Short, hooked; Long, thin; Short, cone; Sharp, slender-like; Long, spear-like

Other: _____

Color of bill: red

Step 4: Shape of Top of Head
(circle one)

Concave; Plane

Step 5: Markings on the Face
(circle all that apply)

Eye stripes; Eye spot

Other: black mark

Step 6: Wing Shape
(circle one)

Long, thin; Short, wide; Long, wide

Other: _____

Step 7: Patterns on the Wings
(circle all that apply)

Wing patch; Wing bar

Other: _____

Step 8: Shape/Color of Legs
(circle one)

Short; Long

Color of legs: grey

Step 9: Feet Shape
(circle one)

Scissor-like; Chisel; Pincer; Tarsus

Other: _____

Step 10: Markings on the Breast
(circle all that apply)

Spot; Bar

Other: plain

Step 11: Markings on the Rump
(circle one)

Spot; Plain

Step 12: Tail Shape
(circle one)

Pointed; Mottled; Fan-like; Rounded

Other: _____

Step 13: Markings on the Tail
(circle all that apply)


Bar; Spot; Bar

Other: red

Step 14: Basic Bird Group
(circle one)

Land Bird; Water Bird; Bird of Prey

Step 15: Draw the Bird



Name of Bird: Northern Cardinal

BIRDWATCHING FIELD NOTES

<p>Step 1: Bird's Location/Patterns in Behavior (circle all that apply)</p> <p style="text-align: center;">PATTERNS IN BEHAVIOR</p> <p>In the Air: Straight flight, Sounding flight, Owling flight, Hovering flight</p> <p>On the Ground: Walk, Hop, In Trees, Climb up one branch or leaflet, Climb down one branch or leaflet</p> <p>In the Water: Walk, Swim</p>	<p>Step 2: Compare Size (circle one)</p> <p>Smaller than Jay Jay (7")</p> <p>Finches, Doves (11") </p> <p>Larger than Crow Crow (12")</p>	<p>Step 3: Shape/Color of Bill (circle one)</p> <p>Weak, flat Weak, thin, pointed Short, thick Short, hooked </p> <p>Long, thin Short, stout Sharp, curved like Long, serrated </p> <p>Other _____</p> <p>Color of bill <u>gray</u></p>	
<p>Step 4: Shape of Top of Head (circle one)</p> <p> Crest Flat</p>	<p>Step 5: Markings on the Face (circle all that apply)</p> <p> Eye stripe Eye stripe</p> <p>Other <u>Mask</u></p>	<p>Step 6: Wing Shape (circle one)</p> <p>Long, thin Short, wide Long, wide </p> <p>Other _____</p>	<p>Step 7: Patterns on the Wings (circle all that apply)</p> <p> Wing patch Wing bar</p> <p>Other _____</p>
<p>Step 8: Shape/Color of Legs (circle one)</p> <p> Thin Thick</p> <p>Color of legs <u>gray</u></p>	<p>Step 9: Foot Shape (circle one)</p> <p> Webbed Clawed Hooked</p> <p>Other <u>Chickadee</u></p>	<p>Step 10: Markings on the Breast (circle all that apply)</p> <p> Spot Bar</p> <p>Other <u>orange</u></p>	<p>Step 11: Markings on the Rump (circle one)</p> <p> Patch Bar</p>
<p>Step 12: Tail Shape (circle one)</p> <p> Square Pointed Rounded</p> <p>Other _____</p>	<p>Step 13: Markings on the Tail (circle all that apply)</p> <p> Bar Spot Bar</p> <p>Other _____</p>	<p>Step 14: Basic Bird Group (circle one)</p> <p> Land Bird Water Bird Bird of Prey</p>	<p>Step 15: Draw the Bird</p> <p>Name of Bird <u>Baltimore Oriole</u></p>

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Title VII of the Civil Rights Act of 1964, as amended - prohibits discrimination in employment on the basis of race, color, religion, gender, or national origin.

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Age Discrimination in Employment Act of 1967 (ADEA), as amended - prohibits discrimination on the basis of age with respect to individuals who are at least 40.

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