

Name: _____

Date: _____

Teacher Sheet: What makes a bird a bird? Nestlings Fledglings

Comparing Feathers

After examining the two feathers, draw them in the provided space and fill in the following information.

Contour Feather

Where are the contour feathers on the bird's body? *Wing, tail, and body.*

What is the function of this feather? *Aid in bird flight and attracting mates.*

Down Feather

Where are the down feathers on the bird's body? *Located under contour feathers along the body.*

What is the function of this feather? *Help insulate a bird and keep warm.*

Name: _____

Date: _____

Teacher Sheet: What makes a bird a bird? ✓Fledglings

Bird Feather Observations

How many different colors of feathers do you see? Which colors do you see the most?

I saw a blue bird with gray on its belly, a little yellow birds with a black cap, a larger black bird. There was also a tiny hummingbird with brightly colored wing and throat feathers. I saw a lot of black and brown colored birds.

Describe the plumage of one or two birds you observed (Examples: One bird had a bright blue back and gray belly. I noticed white outer tail feathers while the bird was flying).

Write 2-3 sentences. *The hummingbird had a bright red throat with a green back and flight wings. As it moved the colors on its feathers seemed to change. There were also some black streaks along the side of its belly.*

How were birds using their plumage or feathers? *I saw a lot of birds using their feathers to fly and jump from branch to branch.*

Draw or sketch one bird you saw:

Name: _____

Date: _____

Teacher Sheet: Bird Olympics

✓Nestlings
✓Fledglings

How do you match up with the Bird Olympic Champions? Move through the stations and find out!



Station 1: Bald Eagle

A Bald Eagle has a wingspan of 7-9 feet.

I have a wingspan of _____ feet and _____ inches.



Station 2: Great Blue Heron

A Great Blue Heron can stand on one leg for hours.

I can stand on one leg for _____ minutes and _____ seconds.



Station 3: Great Horned Owl

A Great Horned Owl can stare for hours while hunting.

I can stare for _____ minutes and _____ seconds without blinking.



Station 4: Anna's Hummingbird

In 10 seconds, an Anna's Hummingbird can beat its wings 700 times,

I can flap my wings _____ times in 10 seconds.



Station 5: Peregrine Falcon

A Peregrine Falcon can fly up to 200 miles per hour in pursuit of prey.

I can run _____ miles per hour.

Name: _____

Date: _____

Teacher Sheet: Bird Olympics ^{✓Fledglings}

Fill out the following information about bird adaptations.

What is an adaptation? *An adaptation is a modification, or change, by which a species improves its condition in relationship to its environment over generations. Essentially, an adaptation is a physical or behavioral characteristic that helps a bird survive in its habitat.*

What are two examples of a physical adaptation? *Size, coloration, bill shape, and feet shape.*

What are two examples of a behavioral adaptation? *Migration, reproduction, communication, nest-type strategy, reproduction, migration, and food-finding (foraging).*

What is an adaptation of a bird that feeds on flowers? *Ability to flap wings 700 times in 10 seconds!*

What is an adaptation of a bird that hunts at night? *Ability to stare for hours.*

Name: _____

Date: _____

Teacher Sheet: Migration Obstacles ✓Fledglings

Answer the following questions about bird migration.

What is migration? *Migration is when a living thing travels from one place to another, usually to find food, shelter, or find mate and a place to nest.*

Birds migrate by using the sun as a guide. Can you name 3 other ways birds migrate?

Birds also observe the stars at night, use features such as mountains, coastlines, and rivers, and use the earth's magnetic fields.

What are five obstacles face during migration?

- *Predators such as cats*
- *Pollution*
- *Pesticides*
- *City buildings*
- *Windows*

How could you reduce the dangers to birds? *Create bird friendly habitat in your schoolyard or backyard; Put up bird feeders or bird baths; put up silhouettes on windows to help birds avoid flying into windows.*

Why do you think it is important to protect birds? *Birds play an important role in the ecosystem balancing out insect populations serving as natural insecticides and help pollinate native plants. They are also great indicators of the quality of the environment and can help scientist learn about the nature world. Besides opening*

Name: _____

Date: _____

Teacher Sheet: BRBT Habitats ✓ Fledglings

Research information about your focus bird species and answer the following questions.

Focus Bird Species: *Great Blue Heron*

Habitat Components:

Food (What does your bird eat?):

Fish, aquatic insects.

Water (What kind of water does your bird need and why?):

Needs lots of water to find fish and other food items.

Shelter (What kind of shelter does your bird need?):

Needs brushy water banks.

Space: (How much space does your bird need? A little or a lot?):

Needs plenty of space to find food and shelter.

Habitat Link:

On our field trip we are going to a site with *sagebrush-steppe* & *wetland* habitat types. Predict if you think your bird could live in one of these habitats. Explain why or why not?

My focus bird could live in the wetland habitat because there is lots of water to find fish and brushy banks for shelter.

Name: _____

Date: _____

Teacher Sheet: BRBT Habitats ✓Fledglings

Provide information about the habitats and habitat components found at the this site.

BRBT Site:

Modoc National Wildlife Refuge

Habitat Type I: *Wetland*

Habitat Components found at this site:

Food: *Insects, seeds, plants, and fish*

Water: *Marsh and lake*

Shelter: *Brushy water banks*

Space: *Lots of space and brushy areas*

Check off the bird species found at this site.

Waterfowl

- Canada Goose
- Mallard
- Northern Shoveler
- Wood Duck

Raptors

- Northern Harrier
- Sharp-Shinned Hawk
- Red-Tailed Hawk
- Bald Eagle
- American Kestrel
- Great Horned Owl

Jays/Crows

- Western Scrub Jay
- American Crow
- Clark's Nutcracker

Chickadees/Finches

- Lesser Goldfinch
- Mountain Chickadee
- House Finch
- Northern Flicker

Others

- Mourning Dove

Sparrows/Thrushes

- White-Crowned Sparrow
- Golden-Crowned Sparrow
- American Robin

Warblers/Swallows

- Common Yellowthroat
- Tree Swallow
- Yellow-rumped Warbler

Blackbirds

- Western Meadowlark
- Red-winged Blackbird

Shorebirds/Waders

- Great Egret
- Great Blue Heron
- Killdeer
- Sandhill Crane

Hummingbirds

- Anna's Hummingbird
- Rufous Hummingbird

Woodpeckers

- Acorn Woodpecker
- Downy Woodpecker
- Northern Flicker

Name: _____

Date: _____

Teacher Sheet: BRBT Habitats ✓Fledglings

Provide information about the habitats and habitat components found at the this site.

BRBT Site:

Modoc National Wildlife Refuge

Habitat Type II: *Sagebrush-steppe*

Habitat Components found at this site:

Food: *Insects, seeds, plants, small mammals*

Water: *None*

Shelter: *Very little; low growing shrubs*

Space: *Lots of open space*

Check off the bird species found at this site.

Waterfowl

- Canada Goose
- Mallard
- Northern Shoveler
- Wood Duck

Raptors

- Northern Harriers
- Sharp-Shinned Hawk
- Red-Tailed Hawk
- Bald Eagle
- American Kestrel
- Great Horned Owl

Jays/Crows

- Western Scrub Jay
- American Crow
- Clark's Nutcracker

Chickadees/Finches

- Lesser Goldfinch
- Mountain Chickadee
- House Finch
- Northern Flicker

Others

- Mourning Dove

Sparrows/Thrushes

- White-Crowned Sparrow
- Golden-Crowned Sparrow
- American Robin

Warblers/Swallows

- Common Yellowthroat
- Tree Swallow
- Yellow-rumped Warbler

Blackbirds

- Western Meadowlark
- Red-winged Blackbirds

Shorebirds/Waders

- Great Egret
- Great Blue Heron
- Killdeer
- Sandhill Crane

Hummingbirds

- Anna's Hummingbird
- Rufous Hummingbird

Woodpeckers

- Acorn Woodpecker
- Downy Woodpecker
- Northern Flicker

Name: _____

Date: _____

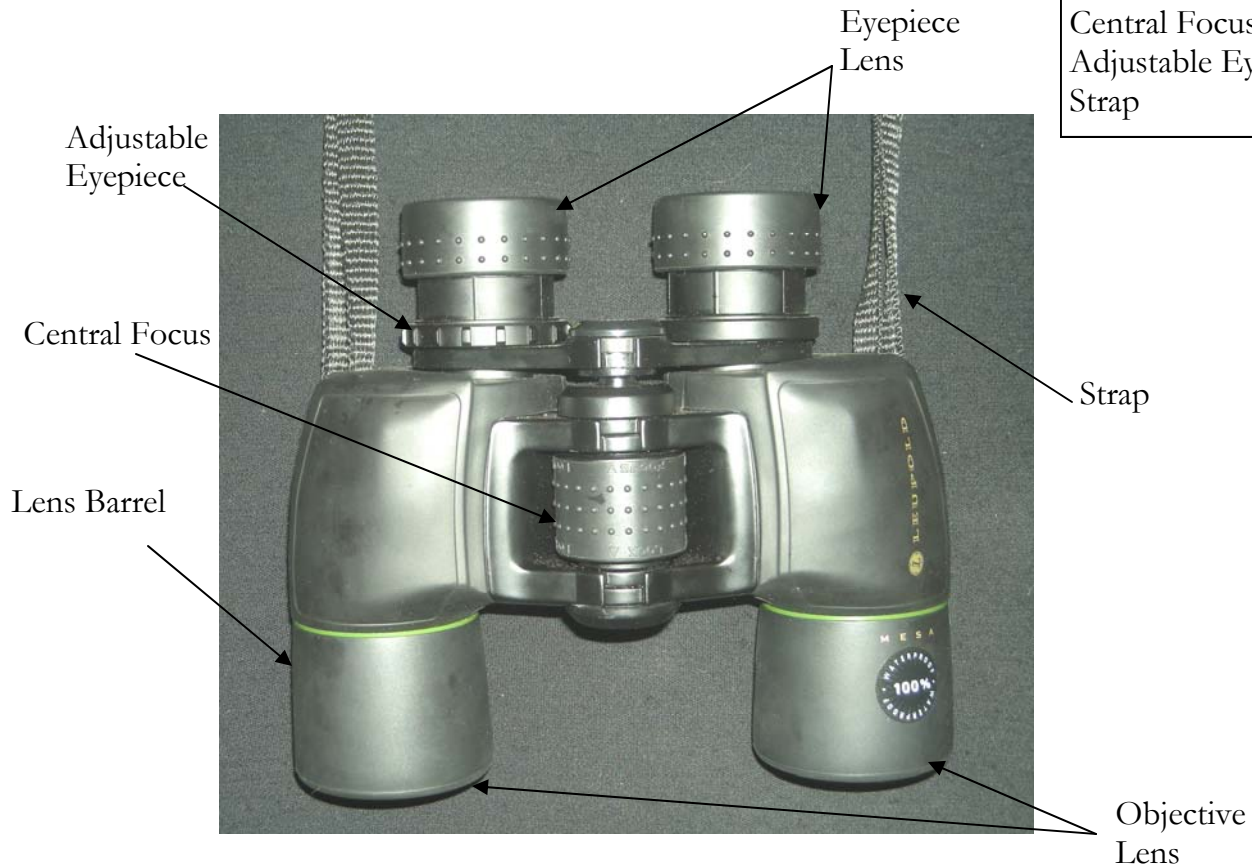
Teacher Sheet: Binoculars Bonanza! ✓Fledglings

Understanding Binoculars

1. Please fill out the binoculars diagram with the appropriate vocabulary words located on the right.
2. Using your knowledge of binoculars, answer the questions.

Vocabulary words:

Objective Lens
Eyepiece Lens
Lens Barrel
Central Focus
Adjustable Eyepiece
Strap



1. When purchasing the above binoculars, you noticed a pair of numbers written on the back: 7x35. By how many times do your binoculars magnify the image you see? *Seven*
2. What are prisms and how do they work in binoculars? *Prisms are blocks of glass functioning as mirrors without reflecting back. Inside binoculars they function to turn the image right side up, and allow us to view it properly from left to right.*
3. Other than bird watching, what are some reasons you might use binoculars? *There are many possible answers. Some ideas are: deer watching, hunting, watching a baseball game in far off seats, watching a play from the back row, spying, or reading a far off sign.*

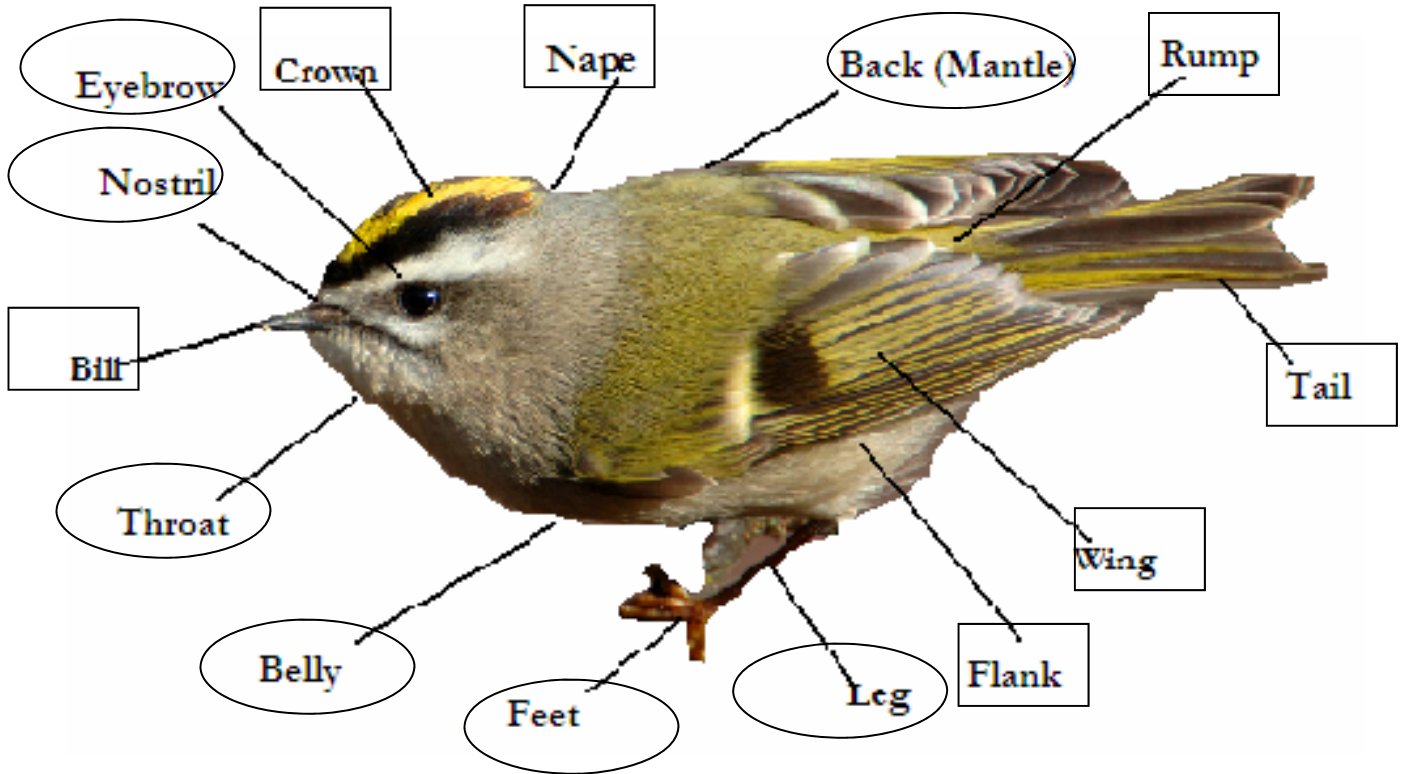
Name: _____

Date: _____

Teacher Sheet: Bird ID Experts! ✓Nestlings

Bird Body Parts

Circle the bird body part(s) similar to people.. Put a box around the bird body part(s) that are different than people.



Name: _____

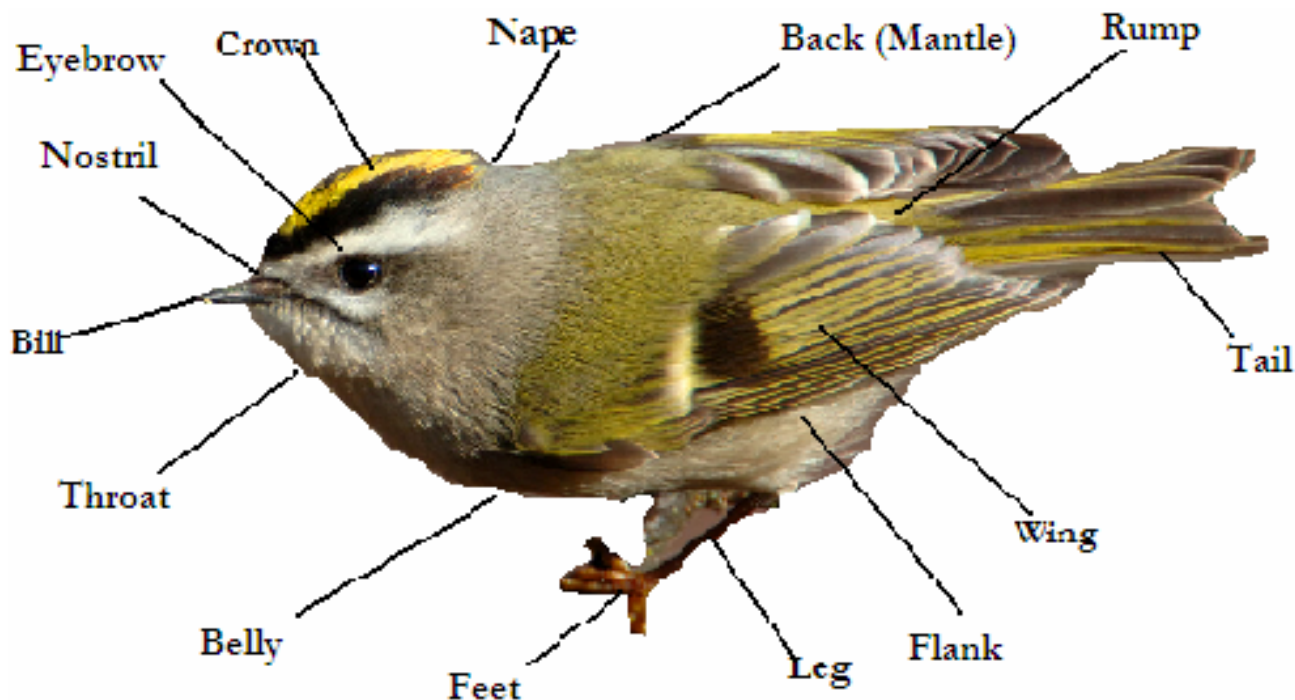
Date: _____

Teacher Sheet: Bird ID Experts!

✓Fledglings

Bird Body Parts

What are the names of the 15 bird body parts below? Are they the same as humans or are they different? Include your answers next to each line below (for example, eyebrow, leg, and throat). Prepare for discussion.



Name: _____

Date: _____

Teacher Sheet: Bird ID Experts!

✓Nestlings

Carefully examine your focus bird by identifying field marks such as coloration, size, shape, and other physical characteristics (feet, bill, wings, etc). Sketch your bird in the following space. Remember to include 4-5 field marks. These should include the name of the part of the bird and a descriptive adjective (for example, gold crown, straight bill, or spotted belly).

Name: _____

Date: _____

Teacher Sheet: Bird ID Experts!

✓ Fledglings

Carefully examine your focus bird by identifying field marks such as coloration, size, shape, and other physical characteristics (feet, bill, wings, etc). Fill in the table by using adjectives to describe the different parts of your focus bird.

	Color	Shape	Size
Beak	Gray	Pointy	Short
Tail	Gray with yellow streaks	Stumpy	Short
Wings	Yellowish-gray	Round	Short
Head	Grayish w/ golden crown	Round	Small

Sketch your bird in the following space. Remember to include 4-5 field marks by using the above information and the previous page as a guideline. These should include the name of the part of the bird and a descriptive adjective (for example, gold crown, straight bill, or spotted belly).

Name: _____

Date: _____

Teacher Sheet: Bird ID Experts!

✓Nestlings
✓Fledglings

Fill the following information during your birding adventure and scientific discovery.

Name: _____

Date: _____

Location: _____

Start Time:

End Time:

Habitat: (Where was the bird located?)

- Open field, meadow, or grassland
- Wetland or marsh
- Riparian Area (e.g. stream, river, or creek)
- Road or highway
- Mixed coniferous forests (e.g. pines, firs, junipers)
- Other: _____

Weather:

- Temperature _____
- Percent Clouds _____

Wind:

- None Light Strong

Behavior: (What was the bird doing?)

- Flying or Hovering: _____
- Perching: _____
- Flocking: _____
- Diving: _____
- Eating: _____
- Preening: _____
- Swimming: _____
- Singing: _____
- Other: _____

Rain

- None Light Strong

Draw your bird:

Field Marks (What did the bird look like?)

- Belly: _____
- Wings: _____
- Eye Ring: _____
- Rump: _____
- Tail: _____
- Feet: _____
- Head: _____
- Other: _____

Name of your bird: _____

Name: _____

Date: _____

Teacher Sheet: Using Field Guides ✓Fledglings

As you search through the field guide, answer the following questions.

On what pages would you find the following bird groups?

1. **Waterfowl:** 70-102

2. **Woodpeckers:** 227-238

3. **Wood-Warblers:** 311-321

What information is provided in the field guide for each species?

Bird picture, fun facts, range map, field identification, nesting, feeding, similar species, etc.

Summarize the following information found in the field guide about your focus bird.

Focus Bird

Species Name: *Great Blue Heron*

Page in Field Guide: 61

ID/Field Marks	<i>Large, blue-gray bird; long flexible neck; long, dark legs</i>
Size	<i>Length 50-54 in.; Wingspan 72 in.</i>
Habitat	<i>Freshwater and calm-water</i>
Nesting	<i>Colonial, tall bush or marsh vegetation</i>
Feeding	<i>Waits for prey to move within striking range or slowly stalks</i>
Voice	<i>Generally silent; when disturbed utters a deep, harsh "fraank, fraank" when taking flight.</i>

Name: _____

Date: _____

Teacher Sheet: Using Field Guides ✓Fledglings

As you search through the field guide, answer the following questions about range maps.

What does the range map tell us about birds?

When and where birds are found in Northern California.

What does each color indicate on a bird's range map (see key on page 35)?

1. **Purple:** *Winter*
2. **Blue:** *Year-round*
3. **Pink:** *Summer*
5. **No color:** *Rare or not found*

Fill the range map of your focus bird using the correct color symbols.



During what season do you find your focus bird in your area?

Name: _____

Date: _____

Teacher Sheet: Birding By Ear

✓Nestlings
✓Fledglings

Listening to Bird Songs:

Create Mnemonic phrases for the following bird songs.

Example:



Mountain Chickadee says.... "cheese..buger, cheeseee.....burger...chickadee..dee..dee..dee."

1.



Red-winged Blackbird says.....*konk-a-ree konk-a-ree!*

2.



Acorn Woodpecker says.....*wheka, wheak, RACK-up, RACK-up!*

3.



American Crow says...*caaw, caaw, caaww caaaw!*

4.



Western Meadowlark says....*chuck chupp!*

5.



Canada Goose says...*bronk, bronk, bronk!*

6.



Sandhill Crane says.....*gu-rrroo gu-rrroo gurrrooo!*

Name: _____

Date: _____

Teacher Sheet: Birding By Ear ✓Fledglings

Record your bird song observations below.

Location: *Schoolyard*

Time: *1:00-2:00pm*



How many different kinds of birds do you hear? *About 4-5 birds (varies)*

Do you recognize any of these? If so, what kind? *I think I heard a Canada Goose flying by and a Sandhill Crane in the field.*

What other kinds of sounds do you hear? *I hear cars driving by on the road in front of the school, dog parking, school bell, grass moving in the wind, etc.*

Write one reason why you think a particular bird was singing. Explain why you came to this conclusion. *I think the Western Scrub Jay was singing to attract a mate because it was singing an open branch and was making an elaborate display with its body and bobbing its head.*

Think about your experience listening for birds. Do the number of birds you hear surprise you? Why or why not? (Hint: Think about where you are and what time of day it is). Write 2 sentences. *The number of birds does not surprise me because there is a bird feeder in our schoolyard. Many birds are found at the birder feeder.*

Name: _____

Date: _____

Teacher Sheet: Birding By Ear ✓Nestlings

Mark an X where you hear birds singing or calling as compared to where you are.

In front of you



To your left



To your right

In back of you

Name: _____

Date: _____

Teacher Sheet: Counting Birds ✓ Fledglings

Type of Count: *Schoolyard Count*

Name of Count Site: *Alturas Elementary Schoolyard*

Habitat Type: *Lawn*

Duration: *10:00am-11:00*

Temperature: *70 F*

Weather: *Partly Cloudy*

Total # of Birds: 87

Bird Name	Max Number
<i>Dark-eyed Junco</i>	<i>12</i>
<i>House Sparrow</i>	<i>10</i>
<i>American Goldfinch</i>	<i>8</i>
<i>Pine Siskin</i>	<i>12</i>
<i>American Crow</i>	<i>10</i>
<i>Red-winged Blackbird</i>	<i>15</i>
<i>European Starling</i>	<i>20</i>

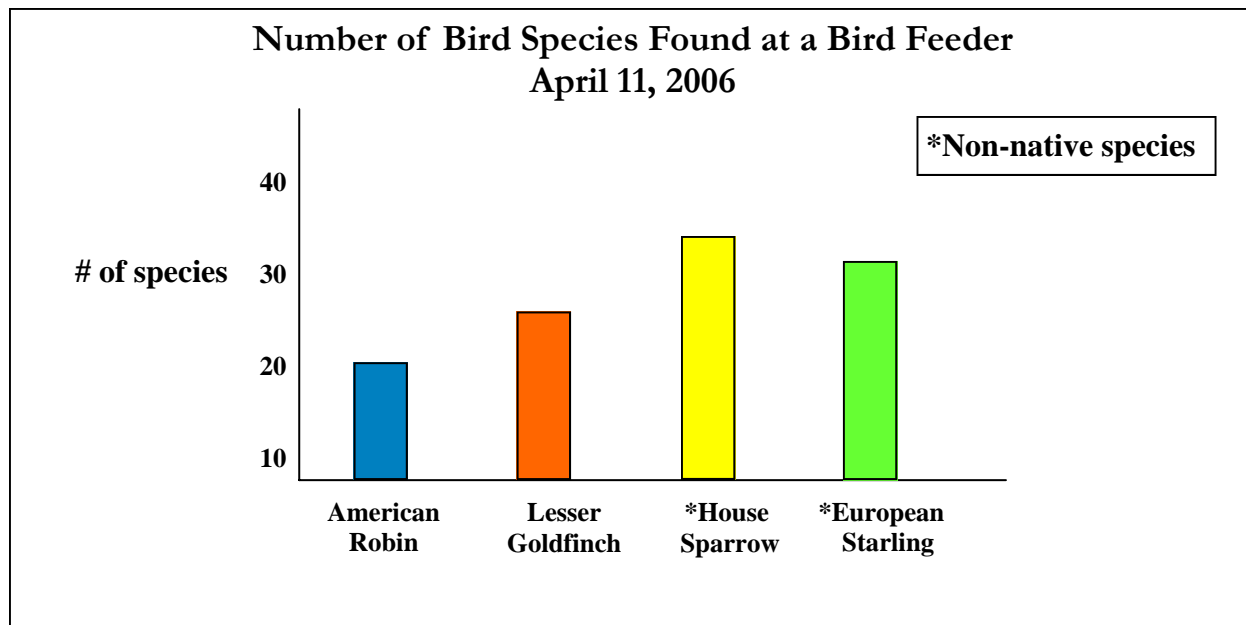
Name: _____

Date: _____

Teacher Sheet: Counting Birds

✓ Fledglings

Ornithologists or scientists who study birds, learn a lot about birds from the data recorded during bird counts. Answer the following questions using the graph.



1. Which species was seen the most? *House Sparrow*
2. How many American Robins were at the site? *20*
3. What was the total number of non-native species seen? *62*
4. How do you think the non-native species affect the native species? *They out-compete native species such as the American Robin and Lesser Goldfinch for food, shelter, and space.*

Name: _____

Date: _____

Teacher Sheet: Counting Birds

✓Fledglings

Use the information you have collected during the bird count to create a bar graph.



Further Discussion:

What conclusions can you draw from your graph? *There are many non-native species in the schoolyard.*

Did you enjoy counting birds? Why or why not? *It was a lot of fun watching the birds. Some were flying above us and some were perched in trees.*

Were there any problems during the bird count? If so, describe them. *At first it was difficult identify the birds, but after looking through the bird field guide it became easier.*

Name: _____

Date: _____

Teacher Sheet: Raptors Along the Road

✓Nestlings
✓Fledglings

While watching the slideshow sketch the following raptors in the spaces below. Make sure to include one of the three identification criteria.

American Kestrel

Flight Pattern: *Flapping*

Body Shape: *Long tail and short pointed wings*

Field Mark: *Eye stripes*

Sketch

Sharp-Shinned Hawk

Flight Pattern: *Flapping & Gliding*

Field Mark: *Rounded wings and long thin tail*

Body Shape: *Brown speckles on belly*

Sketch

Name: _____

Date: _____

Teacher Sheet: Raptors Along the Road

✓Nestlings
✓Fledglings

Northern Harrier

Flight Pattern: *Coursing*

Body Shape: *Exaggerated hourglass*

Field Mark: *White rump*

Sketch



Red-Tailed Hawk

Flight Pattern: *Gliding*

Body Shape: *Large broad wings and chunky tail*

Field Mark: *Dark brown belly band and red tail*

Sketch



Name: _____

Date: _____

Teacher Sheet: Raptors Along the Road

✓Nestlings
✓Fledglings

Bald Eagle

Flight Pattern: *Soaring*

Body Shape: *Large body with long extended wings*

Field Mark: *White feathers on the head*

Sketch



Name: _____

Date: _____

Teacher Sheet: Raptors Along the Road

 ✓Nestlings
 ✓Fledglings

During the field trip, scan fences, telephone poles, trees, and the sky for raptors. Record your observations below.

Raptor Name	Road Name	Description (behavior, field marks, body shape)
American Kestrel	<i>Highway 155</i>	<i>Small raptor sitting a telephone wire</i>
Northern Harrier	<i>Highway 155</i>	<i>Coursing in the meadow next to the road</i>
Red-tailed Hawk	<i>Highway 155</i>	<i>Sitting on a telephone line post</i>
Bald Eagle	<i>Highway 155</i>	Soaring above

Use the space below to sketch any bird(s) that you observe. Include any observations you have about the wings, bills, feet, plumage (feather colors), and flight.

Name: _____

Date: _____

Teacher Sheet: Creating a Field Journal ^{✓Nestlings}

Include in your field journal the following information:

Name: *Mary Joe Bird*

Date: *May 12th*

Location: *Stough Reservoir*

Weather: *Partly Cloudy*

Habitat: *Conifer Forest & Alpine Lake*

Observations: *Observed many birds including Clark's Nutcracker, Golden-Crowned Sparrow, and even a Northern Goshawk. Black-Capped Chickadees were heard above in the tree canopy.*

Thoughts and/or Feelings: *The wind caused the trees to sway and the leaves crunched under my feet. We had to stay very quiet so we wouldn't disturb the birds. Staying quiet also helped us hear and locate the birds. I had a great time on the field trip and it was fun becoming real a scientist by creating a field journal.*

Sketches:

List questions generated from your observations:

Name: _____

Date: _____

Teacher Sheet: Creating a Field Journal

✓Fledglings

Creating a Grinnellian Field Journal

As you set up your journal, use this format as a guide.

Annotations:

- Date:** Points to the date entries (Jan 10, Jan 25, Feb 15).
- Your Name & Year:** Points to the name 'Matsumoto, Karen' and the year '1975'.
- Location (squiggly line):** Points to the underlined location descriptions: 'Jewel Lake, Tilden Nature Study Area, Tilden Park, Contra Costa Co., Ca.' and 'Briones Regional Park, Alhambra Valley Road Entrance, Contra Costa Co., Ca.'
- Species (straight line):** Points to the species names 'Brown Towhee' and 'Einsatzen'.
- Pictures:** Points to small hand-drawn sketches of a bird and a tree frog.

Name: _____

Date: _____

Teacher Sheet: Creating a Field Journal ^{✓Fledglings}

Field Journal Tips

Use the following information and bird vocabulary to help you when you write in your journal.

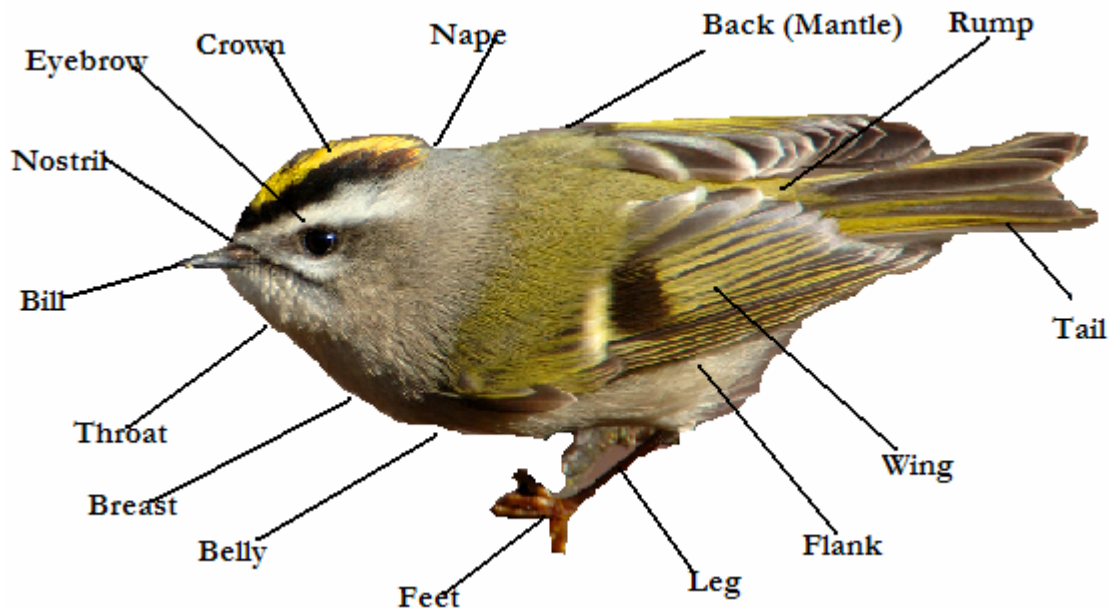
Bird Identification– What did the bird look like?

1. *Silhouette*: Body and tail shape, length of bill, etc.
2. *Field marks*: Feather coloration, wing bars or patches (see below Bird Body Parts).
3. *Posture*: Was the bird sitting upright or vertical or perching horizontally?
4. *Size*: Was the bird small like a finch or large like a hawk?

Bird Behavior– What was the bird doing?

1. *Foraging*: Another word for feeding. Describe what it is feeding on.
2. *Flocking*: More than three birds together in a group. Describe flock size.
3. *Preening*: Cleaning their feathers with their bill.
4. *Flying*: Describe whether the bird is soaring, hovering, flapping, or gliding.
5. *Singing*: Long, complex musical notes sung only by male birds.
6. *Calling*: Short, simple notes sung by both males and female birds.

Bird Body Parts:



Name: _____

Date: _____

Teacher Sheet: Citizen Science

✓Fledglings

Citizen Science Project: eBird

What is “citizen science”? *Citizen science is a partnership between professional scientists and citizen groups including students, community, and educators. As a part of this partnership citizens share personal data, observations, and studies with scientists to help answer ecological questions about bird populations. Shared data becomes a part of a national database made available not only to the scientists, but to other interested citizen parties.*

Why did Cornell Lab of Ornithology begin this project? *CLO began eBird to help scientist document bird abundances and distribution in a particular area or region.*

How will this project help birds? *Monitoring bird populations using eBird helps scientist recognize bird population problems*

What data do you have to collect to participate? *Bird species and total number, elevation, distance covered, location, time of day, and habitat distribution..*

How will you collect this data? *Count birds, observe bird behavior, etc*

Name: _____

Date: _____

Teacher Sheet: Birding Economics

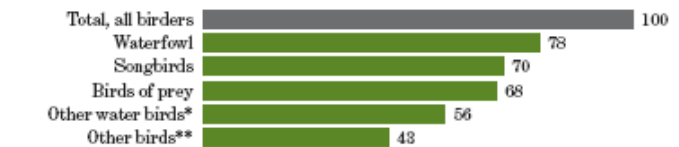
✓Fledglings

Answer the following questions about birding using the following graphs and tables.

Chart 1. Birders in the United States: 2001
(16 years of age and older)



Chart 10. Percent of Away-From-Home Birders — by Type of Birds Observed



*shorebirds, herons, etc.
**pheasants, turkeys, etc.

Table 10. Economic Impact of Birders: 2001*
(Population 16 years of age and older)

Retail Sales (expenditures)	\$31,686,673,000
Economic Output	\$84,931,020,000
Salaries and Wages	\$24,882,676,000
Jobs	863,406
State Income taxes	\$4,889,890,000
Federal Income taxes	\$7,703,308,000

* Amount that birders spent on all wildlife watching.

How many birders were there in 2001 in the United States? Where did most of them bird? *46 million.*

What was the most popular type of bird to travel away from home to see? What's an example of a bird species on the Basin and Range Birding Trail from this type of birds? *Waterfowl; Mallard*

How many jobs in the United States 2001 were a result of birders spending money? What types of jobs do you think these might include? *863, 406; wildlife biologists, teachers, naturalists, and outdoor shop staff.*

How many dollars were spent on retail sales to birders in the United States in 2001? If birders visit the Basin and Range Birding Trail what type of retail sales might be made in Modoc County? *\$31,686,673,000; restaurants, cafes, outdoor gear stores, The River Center gift shop etc.*

Name: _____

Date: _____

Teacher Sheet: Birding Economics

✓Fledglings

Birding Trail Research Project

Birding Trail: *Klamath Basin Birding Trail*

Location: *Klamath County, Oregon*

How many sites are there on this trail? How much land does it cover? *47 sites.*

List the *birds* that may be found at this Birding Trail.

Bald Eagle, White Pelican, Western and Clark's Grebe, American Dipper, and Ferruginous Hawk.

List the *habitat* types that may be found at this Birding Trail.

Sagebrush, wetland, grassland, riparian, and conifer forest.

What kind of activities for visitors are there at the Birding Trail?

Birding walks, education activities, Winter Wings Festival, and driving routes.

Make an advertisement or write two paragraphs to explain to tourists why they should visit this birding trail.