

DISCOVER BIRDS curriculum guide for teachers

Introduction The scientific study of bird populations is a simple, efficient, and fun means to monitor and assess the environmental quality of our planet. Birds span all habitats and biomes. They feed from all possible food sources at various levels of the food chain exposing them to both direct and accumulated concentrations of environmental poisons. 10,000 species of birds have been identified worldwide with over 900 occurring in North America. Ranges continuously expand and contract due to habitat pressures. Much remains to be discovered regarding these factors.

Instructional Goals Program goals are to introduce students to scientific study of the diversity of bird life and increase awareness of needs for conservation.

Objectives aligned with state standards

- Recognize that living things have parts that work together.
- Recognize that animals are made up of smaller parts.
- Analyze physical and behavioral adaptations that enable organisms to survive in their environment
- Investigate physical characteristics associated with different groups of animals.
- Use tools to examine major body parts and structures.
- Use magnifiers to examine major body parts and structures.
- Investigate how animals can be grouped according to their habitats.
- Investigate the relationship between an animal's characteristics and the features of the environment where it lives.
- Analyze how structural, behavioral and physiological adaptations within a population enable it to survive in a given environment.
- Recognize that animals are living things that grow and change over time.
- Observe and illustrate the life cycle of animals.
- Identify the different life stages through which plants and animals pass.
- Recognize that plants and animals use food, water, and air to survive.
- Recognize that animals eat plants or other animals for food.
- Classify organisms as thriving, threatened, endangered, or extinct.
- Analyze the effects of changes in environment on the stability of an ecosystem.
- Establish connections between human activities or natural disasters and their impact on the environment.
- Explore different scientific phenomena by asking question, making logical predictions, planning investigations, and recording data.
- Organize data into appropriate tables, graphs, drawings, or diagrams.
- Identify and interpret simple patterns of evidence to communicate the findings of multiple investigations.
- Compare the results of an investigation with what scientists already accept.
- Depict data using bar graphs.
- Create art based on imagination, memory, and observation.

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Vocabulary words:

| | | | | | | | |
|--------------|--------------|-------------|----------|-----------|---------------|-----------------|---------------|
| resident | extinct | decline | feather | preen | habitat | conservation | insulation |
| hatch | talon | molt | refuge | pesticide | incubation | hatchling | migration |
| staging | roost | microscopic | nestling | instinct | flock | re-introduction | pores |
| fledge | thermals | down | lichen | oxygen | brood | soaring | endangered |
| warm-blooded | hard-shelled | suet | wetland | grassland | vocalizations | beak | ornithologist |

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ANSWER KEYS:

page:

2 feathers, hollow bones, hard shelled eggs; protect their skin, keep them warm and dry

3 hollow bones make birds light weight for flying; penguin, ostrich; hard shells allow incubation

4 1. down feather, 2 flight feather, 3 bristle, 4 contour feather

7 1. C, 2. D, 3. B, 4. F, 5. A, 6. E; bald eagle or eagle; screech owl or owl, the owl hunts at night

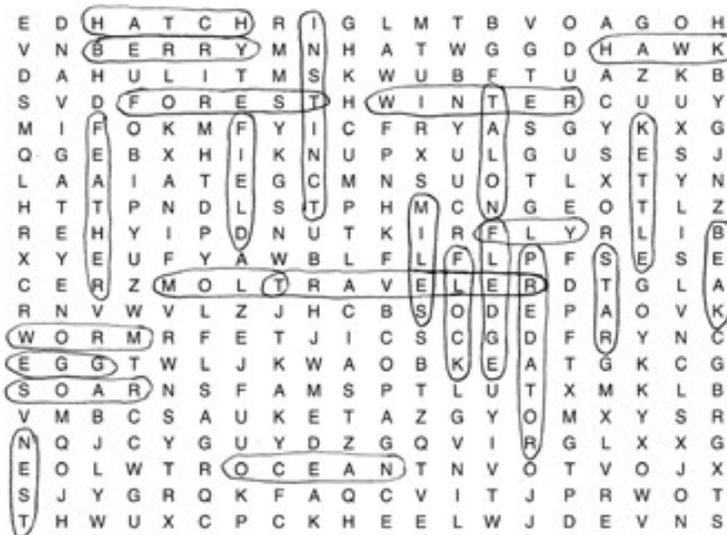
8 nesting, egg laying, hatching, fledging, begging, feeding

12 answers may vary

13 domestic cat, raccoon, fox, bear, hawk, chipmunk

17 more eyes to find food, to watch and warn of predators, for warmth on cold nights

20 Word Search Key

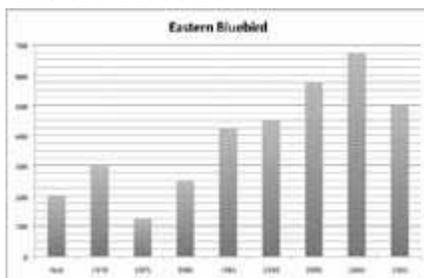


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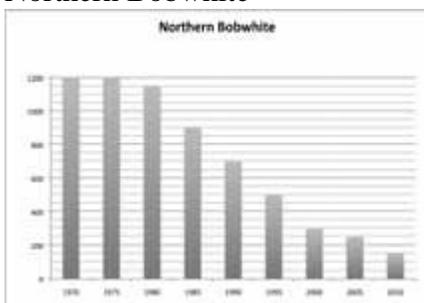
| | |
|------|-----|
| 1970 | 200 |
| 1975 | 300 |
| 1980 | 125 |
| 1985 | 250 |
| 1990 | 425 |
| 1995 | 450 |
| 2000 | 575 |
| 2005 | 675 |
| 2010 | 500 |

Eastern Bluebird



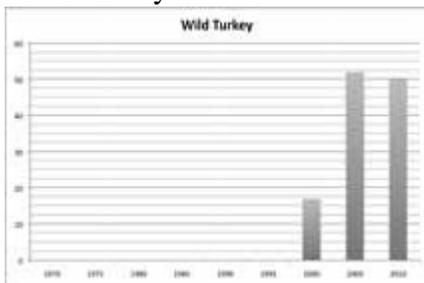
| | |
|------|------|
| 1970 | 1200 |
| 1975 | 1200 |
| 1980 | 1150 |
| 1985 | 900 |
| 1990 | 700 |
| 1995 | 500 |
| 2000 | 300 |
| 2005 | 250 |
| 2010 | 150 |

Northern Bobwhite



| | |
|------|----|
| 1970 | 0 |
| 1975 | 0 |
| 1980 | 0 |
| 1985 | 0 |
| 1990 | 0 |
| 1995 | 0 |
| 2000 | 17 |
| 2005 | 52 |
| 2010 | 50 |

Wild Turkey



Bluebirds decreased 1975-80. increased after 1980. manmade nest boxes
 Bobwhite decreased since 1975; Cleaner farming practices; increased predators
 Wild Turkey - increased since 2000, improved habitat and reintroduction

- 28 Peregrine Falcon stoop MPH pursuit of prey Tennessee
- Arctic Tern apple miles zig-zagging Antarctica
- California Condor endangered spanning feet pounds
- Calliope Hummingbird inches ounces mail postage stamp

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Whooping Crane feet tall Hiwassee Refuge Tennessee

Break the Code!

| LETTER | ANSWER THESE QUESTIONS TO FIND THE CODE | CODE |
|--------|---|------|
| A | $(15 \div 5) + (1 \times 2)$ | 5 |
| B | $(26 \div 2) - 1$ | 12 |
| C | $(2 \div 0.5) + 18$ | 22 |
| D | $9 + (7 \times 2) - 7$ | 16 |
| E | $(5 \times 3) - 4$ | 11 |
| F | $1 + 9 - 4$ | 6 |
| G | $(7 \times 4) - 7$ | 21 |
| H | 4×0.5 | 2 |
| I | $(9 \times 0) + 8$ | 8 |
| L | $(4 \times 4) - 1$ | 15 |
| M | $(7 + 7) - (14 \div 2)$ | 7 |
| N | $20 - 10 + 3$ | 13 |
| O | 16×0.25 | 4 |
| P | $(5 \times 4) - 1$ | 19 |
| R | $(3 + 4) \times 2$ | 14 |
| S | $(12 \div 3) \times 5$ | 20 |
| T | $(5 + 2) + (20 \div 2)$ | 17 |
| U | $(5 - 4) \times 1$ | 1 |
| V | $(16 \div 8) + 7$ | 9 |
| W | $3 \times 3 \times 2$ | 18 |
| Y | $(11 \times 2) - 12$ | 10 |
| Z | $(7 \times 2) - (11 \div 1)$ | 3 |

30 down: 1. air 2. bobwhite 3. conservation 4. mockingbird 5. staging 6. habitat 7. down
8. thermals 9. refuge

across: 1. roost 2. soaring 3. migration 4. wetland 5. bald eagle 6. wild turkey 7. titmouse
8. whooping crane 9. grassland

Developed by Gaynell Perry, May 3, 2014

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