This “Amazing Bird Diversity” lesson will give your middle school students a new understanding of biodiversity through hands-on activities related to bird identification and the opportunity to explore the evolutionary history of birds through the Cornell Lab’s “Wall of Birds” online interactive. You can access this and other online resources used in this lesson at birds.cornell.edu/k12/free-eBird-6-8.

This lesson is the third lesson in our new eBird Explorers: Biodiversity Detectives curriculum. If you’d like to teach this comprehensive curriculum and meet all the Next Generation Science Standards and Common Core State Standards listed in this resource, please plan to purchase the Biodiversity Detectives curriculum kit. Its six lessons help students explore the unique features and adaptations of birds developed, build bird identification skills through outdoor observation and hands-on activities, and support students in sharing their observations via the eBird citizen-science project. In addition to printed lessons and student handouts, the kit also contains supplies that make the unit easy to teach, such as:

- Life-size Bird images
- Bird ID Cards
- Clues to Bird ID poster
- Bird Beak Lab supplies

The kit is currently in production and will be available in by the end of 2019. Please watch for an email from us when our partners at Nasco offer it.

We’d love to hear what you think of the lesson! Please reach us at:
K-12 Education, Cornell Lab of Ornithology
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We would like to express our gratitude to the teachers who field tested these lessons, and our curriculum development partners from around the country.

*For additional background information, useful resources, and direct links to the videos and websites described within this unit, please visit*  
[birds.cornell.edu/k12/free-ebird-6-8](http://birds.cornell.edu/k12/free-ebird-6-8)

The Cornell Lab of Ornithology is a nonprofit membership institution whose mission is to interpret and conserve the earth’s biological diversity through research, education, and citizen science focused on birds.

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**Biodiversity Detectives**

By middle school, students crave the opportunity for science that is real and relevant. Participating in citizen science can help you bring science to life while inspiring a connection to your local environment with a global perspective. With citizen-science projects like eBird, you can develop your students’ science practice skills: from making observations, collecting, sharing, and exploring data, to asking and investigating scientific questions.

You can find birds wherever you are, any time of year. Whether you’re in the heart of the city or surrounded by farm fields, you and your middle school students can readily observe birds and submit your observations to the eBird citizen-science database. This makes science class truly relevant; your students’ data help scientists make conservation decisions. Whether you’re an expert birder or just getting started, *Biodiversity Detectives* will provide everything you need to teach confidently using material related to birds, no matter your setting. Aligned with both Next Generation Science Standards and Common Core State Standards, the lessons teach concepts as well as processes, ensuring that students develop key understandings and skills. The lessons are designed to be completed sequentially, with students building on previous knowledge.

The curriculum provides teacher-tested tips, tools, and activities for supporting students in identifying birds and submitting data to the eBird citizen-science project. One of the keys to enjoying bird identification and citizen science with your class is to embrace the unknown. Don’t worry if you don’t have all the answers. Learning with your students provides a great opportunity to model and encourage a curious mindset. You can purchase the entire kit at birds.cornell.edu/k12/nasco-science-kits.

The kit includes:
- Life-size Bird images
- Bird ID Cards
- Clues to Bird ID poster
- Bird Beak Lab supplies

**INTRODUCTION**

Kids and adults all over the world are following basic scientific protocols and submitting observations to databases that scientists use to answer real-world questions. From stars to flowers and bugs to birds, citizen science is people-powered science that helps us understand and connect with our world.

When participating in citizen science, students are scientists—making careful observations, following protocols, and collecting data—while taking pride in contributing to important research that reaches beyond the classroom or schoolyard. Participating in real, meaningful science is deeply engaging and will motivate your students to dig in and contribute more. Amid growing
K-12 Education:  Biodiversity Detectives

Concern about the children’s health and their access to nature, getting your students outside to carefully observe their local environment will have long-term benefits to health and well-being.

Finally, citizen science directly addresses the Next Generation Science Standards’ (NGSS) goal of having students develop science literacy through discovery, exploration, and real-world connections.

With more than 100 million bird sightings contributed each year by eBirders around the world, eBird is the world’s largest biodiversity-related citizen-science project. It harnesses the power of bird watchers in every country to document where birds are and when they are using different habitats. With eBird’s simple online tools and easy-to-use mobile app, you and your students can become part of a larger community of people helping scientists and birds.

“When I tell my kids that they are citizen scientists and assisting “real researchers”–they get super excited and proud. We’ve been doing bird counts lately–they take it very seriously and will correct each other to make sure the right counts get submitted. I’ve found that my kids try harder to get things right when they know the information is being sent to a “higher power!”

—Erin Wiley, middle school teacher, NY

Before using eBird with your students, we strongly recommend that you take the free eBird Essentials online course for an overview of how and why eBird works. From the course, you’ll learn how to use eBird: how to enter data through the website or app, and how the data are used for research and conservation. Access the course at academy.allaboutbirds.org/product/ebird-essentials.

To participate in eBird, you and your students need to be able to identify birds. This might seem daunting when you pick up a field guide and realize just how many bird species live in your area, but don’t worry. This curriculum provides engaging activities to teach bird ID while utilizing tools that make bird ID fun and intuitive for middle schoolers.

Merlin Bird ID is a free bird identification app from the Cornell Lab of Ornithology that will help you and your students narrow down any “mystery bird” to a few most likely possibilities based on your location and date. Even the most novice birders can be successful from the start! If you have access to smartphones or tablets, download the Merlin Bird ID app (available for iOS and Android devices) and have it available for students to use. Practice going through the five identification questions in the classroom before heading outside. Alternatively you can use Merlin Bird ID on your computer by visiting merlinweb.allaboutbirds.org/home. Investigation two and three of this curriculum will provide you and your students the opportunity to build your bird identification skills using Merlin.

“I think encouraging the teacher to spend a few minutes surveying the birds on campus every day for a few days before starting the curriculum would be beneficial. Before I birded with my students, I expected maybe 4 species on campus. We’re currently at 90 and
add 1 to 2 more each quarter. I remember being caught off guard and feeling overwhelmed when I started because I hadn’t picked any birds to focus on, because I didn’t know what was there.”

—Kiandra, middle school teacher, CA

We encourage you to keep track of student questions during these activities. Consider creating an “I Wonder” Board in your classroom where students can post their questions. At the end of this unit, turn to the “I Wonder” Board to help your class jump into additional scientific inquiry projects.

For more information about the “I Wonder” Board and support for guiding students through the inquiry process, download the free Investigating Evidence curriculum from Cornell Lab K-12 at birds.cornell.edu/k12/investigating_evidence.

STANDARDS

NEXT GENERATION SCIENCE STANDARDS

A Framework for K-12 Science Education (NRC, 2012) envisions that students will learn about science by integrating content knowledge with experience in the practices of scientific inquiry. Students should engage with fundamental questions about the natural world and about how scientists investigate and seek answers to these questions. Below are the specific performance expectations that the curriculum meets.

LS1.B: Growth and Development of Organisms

MS-LS1-4 Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.

LS2.C: Ecosystem Dynamics, Functioning, and Resilience

MS-LS2-4 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

MS-LS2-5 Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

LS4.A: Evidence of Common Ancestry and Diversity

MS-LS4-2 Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.

LS4.B: Natural Selection

MS-LS4-4 Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals’ probability of surviving and reproducing in a specific environment.
ESS3.C: Human Impacts on Earth Systems
MS-ESS3-3 Apply scientific principles to design a method for monitoring and minimizing human impact on the environment.

COMMON CORE STATE STANDARDS

Mathematics
Within these activities and extensions, students collect data for the eBird citizen-science project. They use eBird’s data outputs to explore patterns and trends. You will meet standards across grades 6–8 such as:

Ratios and Proportional Relationships (grade 6)
CCSS.MATH.CONTENT.6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.

Statistics and Probability (grades 6–7)
CCSS.MATH.CONTENT.6.SP.B.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
CCSS.MATH.CONTENT.6.SP.B.5.A Summarize numerical data sets in relation to their context, such as by reporting the number of observations.
CCSS.MATH.CONTENT.7.SP.B.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.

Functions (grade 8)
CCSS.MATH.CONTENT.8.F.B.5 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

English Language Arts
Students have many opportunities to read, write, and develop vocabulary. They are asked to read multiple resources and draw conclusions. They take notes on videos and read informative articles. They also work collaboratively and present and defend positions in group work.

Each lesson includes questions for discussion and reflection, offering many opportunities to meet the ELA standards. Specifically, these activities meet the standards related to:

Reading Informational Text
CCSS.ELA-Literacy.RI.6.7: Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

Writing
CCSS.ELA-Literacy.W.6.1, W.7.1, W.8.1 Write arguments to support claims with clear reasons and relevant evidence.
CCSS.ELA-Literacy.W.6.2, W.7.2, W.8.2 Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

Speaking and Listening
CCSS.ELA-Literacy.SL.6-8.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6-8 topics, texts, and issues, building on others’ ideas and expressing their own clearly.
CCSS.ELA-Literacy.SL.6.2 Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.
CCSS.ELA-Literacy.SL.7.2 Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.
CCSS.ELA-Literacy.SL.6.4 Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.

CCSS.ELA-Literacy.SL.7.4 Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.

CCSS.ELA-Literacy.SL.8.4 Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.

CCSS.ELA-Literacy.SL.6.5 Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.

CCSS.ELA-Literacy.SL.7.5 Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.

CCSS.ELA-Literacy.SL.8.5 Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.

**Science and Technical Subjects**

CCSS.ELA-LITERACY.RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts.

CCSS.ELA-LITERACY.RST.6-8.2 Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

CCSS.ELA-LITERACY.RST.6-8.3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

CCSS.ELA-LITERACY.RST.6-8.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.

CCSS.ELA-LITERACY.RST.6-8.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

CCSS.ELA-LITERACY.RST.6-8.9 Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

CCSS.ELA-LITERACY.RST.6-8.10 By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.
**BIG IDEA** Birds have evolved into a diverse class of animals. We can use a bird’s color pattern to help distinguish it from other species.

**LEARNING OBJECTIVES**

Students will be able to:
- name the parts of a bird;
- define field mark and name three field marks of the Mourning Dove;
- describe the evolutionary history of birds;
- explain anatomical similarities and differences among modern birds and between birds and their prehistoric relatives;
- name at least three functions of feathers.

**MATERIALS**

- **Common Classroom Materials**
  - Projector or interactive whiteboard with computer
  - Computers with Internet access
  - Blank paper (1/student plus extra)
  - Clipboards (1/group of 2)
  - Pencils (1/group of 2)
  - Markers or colored pencils
  - Smart devices with Merlin Bird ID app (1/group of 2)
  - Field guides (optional)

- **Curriculum Resources**
  - Focus Bird Sketch Sheet, (1/student)
  - Are Birds Really Dinosaurs? article (1/student)
  - eBird Data Sheets (1/group of 3)

- **Kit Materials**
  - Life-size Bird images
  - Bird ID Cards

- On the Web:
  - [birds.cornell.edu/k12/free-ebird-6-8](http://birds.cornell.edu/k12/free-ebird-6-8)
  - Wall of Birds interactive
  - All About Bird Anatomy interactive
  - Inside Birding: Color Pattern video
  - Mourning Dove mystery bird videos
  - All About Birds website
  - Merlin Bird ID video

**GETTING READY**

- Print handouts and gather supplies.
- Prepare to facilitate student exploration of the Wall of Birds online interactive (Activity 1). It will work best if each student can access the website individually or in pairs on a laptop or tablet.
- Watch and prepare to show the Inside Birding: Color Pattern video, Mourning Dove mystery bird videos, and Merlin Bird ID video.
- If you have access to mobile devices, download the Merlin Bird ID app to them. If not, download the app on a smart device you can use in class.
- In Activity 4, students will receive their focus bird, a local species they will continue to learn about throughout the unit. Select a list of the most common local birds in your area, equal to the number of students you have, so each student can receive their own unique local species.

**BACKGROUND INFORMATION**

From their dinosaur ancestors, birds have evolved into an amazingly diverse group. Understanding general bird anatomy can help birders describe color pattern, plumage details, and field marks. Noticing these features helps birders use field guides or the Merlin Bird ID app to identify an unknown species. In this lesson, students will
identify a mystery bird: the Mourning Dove. This bird is common throughout the United States and found in many schoolyards.

Many students who have not yet been exposed to evolutionary biology may think that all scientists in this field study fossils. While fossils are undoubtedly useful to many evolutionary biologists, they are not necessary (or even possible) to use in all research studies. More commonly, scientists use genetic analyses to study evolution. Be sure to point out, especially if you notice that your students have a narrow concept of evolutionary biology, that this is a very broad field that utilizes different tools and can be investigated in a variety of ways.

This lesson incorporates an online Wall of Birds interactive. This mural, entitled “From So Simple a Beginning,” is painted on a large wall at the Cornell Lab of Ornithology. It showcases biodiversity and evolutionary change, featuring species from all 243 living bird families. These colorful birds are found alongside several extinct ancestors. The timeline begins with ancient amphibious fishapods, moves through a diverse crowd of feathered dinosaurs, and ends with progressively more bird-like creatures, such as a giant owl. These extinct ancestors are painted in black and white. Also pictured (in color) is a crocodilian—marking it as the closest living relative to birds. The interactive map allows you to click on any of the birds or their ancestors to get to know them better.

ACTIVITY 1 Diverse Birds

1. Have students read the “Are Birds Really Dinosaurs?” article as a pre-class assignment or in class.

2. Individually or in pairs, encourage students to explore the Wall of Birds interactive, keeping in mind the “Are Birds Really Dinosaurs?” article. Explain that extinct species are painted in black and white, whereas living birds are painted in color. Reveal that there are 243 colorful birds in the mural, representing all 243 families of birds on the planet (below). Allow at least 15 minutes to explore. To help focus student work, write these categories on the board and encourage students to search for birds that they think are:

- The most unusual;
- The most colorful;
- The bird they would most want to see in the wild;
- The most interesting;
- The most dangerous;
- Most unique call.

From So Simple A Beginning, a mural by Jane Kim, features 243 living bird families alongside birds’ closest prehistoric relatives.
ACTIVITY 2 Bird Body Parts

1. Share that a bird’s plumage, or covering of feathers, can form a unique pattern of colors. This color pattern might help with camouflage or attracting a mate. This pattern can also help us identify the species.

2. Project the All About Bird Anatomy site and navigate to Feathers (right). Review the anatomy of the bird, focusing on as many of the 20 body parts listed within the interactive as possible. If you can’t focus on all 20 parts, begin with these key parts: belly, chest, crown, nape, rump, tail, and throat. Be sure to also point out these other parts, which are not distinctly listed in the anatomy interactive: beak, legs, and wings. As a class, identify body parts using the Life-size Bird images. Ask:
   - What color is the American Robin’s crown? (Black)
   - What color is the American Robin’s chest and belly? (Orange)
   - What color is the Canada Goose’s throat? (White near the beak, but most of its throat or neck is black.)
   - What color is the Canada Goose’s beak? (Black)
   - What color are ALL the American Crow’s body parts? (Black)

ACTIVITY 3 Practice Bird ID

1. Define field mark for students. (A field mark is a visible mark or characteristic that can be used to identify a bird or other animal in the field. It is often described by naming the part and the color pattern and/or shape of the part, for example, a “white eye-ring,” “reddish breast and belly,” or “two white bars on the wing.”)

2. Show the Inside Birding: Color Pattern video. To keep kids engaged, encourage them to list two or three field marks they notice in the video. After the video, share some of the field marks students discovered, and discuss how field marks are useful in bird ID.

3. Challenge students to identify a mystery bird using color pattern and field marks. Show one or more of the Mourning Dove videos without revealing the identity of the bird. As students watch the video, encourage them to sketch or list as many field marks as possible. Ask:
   - What is the overall color pattern of this mystery bird? (It has a tan/light brown head and belly and a dark brown/grey back and wings.)
1. Assign each student a focus bird that is common in your area (or let students select a common local bird). Each student’s challenge is to become an ID expert on this one bird. Give each student a copy of the Focus Bird Sketch Sheet. Referencing field guides, the Merlin Bird ID app, and the All About Birds website, give students 15–20 minutes to sketch their bird. You may wish to specify that students should not simply trace the bird but should try to make a scientifically accurate drawing. After sketching, have them label 3–5 identifying field marks and note the size of their bird using the Merlin size scale (robin-sized, between a crow and a goose, etc).

2. Have students listen to and try to remember the sounds of their bird.

3. Have students share their sketches, field marks, and sounds with the other students at their table or with the class. Encourage them to look for differences among the birds. Remind them that these differences—in color, shape, size, and sound—can be used to tell bird species apart.

4. Once students have shared their birds, either hang the drawings around the classroom or near a window, scan them to create a shared digital field guide, or put them in a binder to form a local field guide. As time allows, encourage students to edit their drawings or continue their scientific sketches at home.

**ACTIVITY 4 Focus Bird**

**ACTIVITY 5 Merlin Wizard Walk**

1. Take students on a 15-minute walk or stationary count to practice identifying mystery birds using the Merlin Bird ID app. If possible, take enough devices so that each pair of students has one. If you don’t have access to enough devices, consider using field guides or simply have students use their knowledge of their focus bird to help with bird identification. Regardless of the approach, each pair should also have a clipboard, paper, and pencil, and keep a tally of the species they identify on the eBird Data Sheet.

2. Back in the classroom, have the groups create a class list of the species they identified and how many they saw. Keep this list as an example for the next lesson. Discuss:
   - How useful was the Merlin app in identifying birds?
   - What was challenging, and how can we address these challenges next time?

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**TEACHER TIP**

**No Access To Technology?**

If you don’t have adequate access to technology, have students identify their mystery bird using field guides.

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- What field marks did you notice? *(Have students write down the field marks they think might be most useful, for example: blue eye-ring, black spot/line around part of the neck, long and pointy tail, and black spots on the wings.)*
REFLECT AND EVALUATE

1. Think about the functions of feathers. What might happen to a bird with a disease in which all of its feathers fell out? (Students should connect the functions of feathers with the problems that could result from not having feathers. For example, the diseased bird would be unable to fly and would have trouble staying warm and dry. Some birds might not be as camouflaged as they otherwise would be, or would not be able to swim or float, or might struggle to attract a mate.)

2. Do you think that birds are living dinosaurs? Why or why not? Ask students to write a persuasive argument with evidence to support their answer.

3. Pick one colorful or unusual bird from the Wall of Birds and describe at least three field marks.

4. What are some similarities and differences between Archaeopteryx and modern birds? Between birds and crocodilians (or other reptiles)?

5. Think about the key characteristics of birds (such as feathers and beaks) and crocodiles (such as scales and teeth). How do these traits help each survive? (Feathers help birds fly and might be used for courtship and camouflage. They are very insulating so they help keep birds warm and dry. Scales help reptiles with movement, defense/predator protection, water retention, and camouflage. They help protect their bodies from abrasions as they scurry and climb.)

GOING FURTHER

Create a New Species. Invite students to work in groups or pairs and imagine that they have just discovered a new, never-before-seen bird species. Have them draw a picture of their bird, define its physical and behavioral characteristics, describe its habitat, and create a name for this species. Encourage students to use their imaginations when creating their new species—they may wish to combine aspects of several species, or come up with something entirely new. Consider:

- What about this new bird species makes it able to survive and thrive in its given habitat?
- Which living bird species might it be most closely related to, and why?

Explore feathers. Use the Feathers Through Time interactive at Bird Academy (below) to help students visualize the evolution of feathers, from hollow tubes (1), to clusters of tubes (2), that later developed hooks or barbules (3), and a center shaft (4), to modern feathers (5).

The Feathers Through Time interactive illustrates the evolution of feathers.
# eBird Data Sheet

1. **Where Did You Bird?**
   
   Name of Count Site: ____________________________________________

2. **Date and Effort**
   
   1. What type of count did you do?  ○ Stationary  ○ Traveling
   
   2. When did you bird?  Date: _______________  Start time: _______________ A.M./P.M.
   
   3. Birding group size: ____  4. Time and Distance:
      
      Duration (minutes) ____  Distance traveled ___________

3. **Checklist Information—What Did You See?**
   
   Are you reporting all the species you identified? (Check one)  ○ Yes  ○ No

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**Can’t identify a bird in the field?** Use the back to sketch or describe birds you couldn’t identify. Include as much information as possible (field marks, shape, size, behavior, colors, habitat) so you can identify it later.
Focus Bird Sketch Sheet

**Common Name** (write big so it is visible)

**Bird Size**
Draw an arrow next to the matching size on this size scale.

**Drawing and Field Marks**
Make a scientific drawing of your focus bird and label 3 or 4 field marks.
Are Birds Really Dinosaurs?

These are baby Great Blue Herons. They look a bit like a little dinosaurs, don’t they? That’s because birds are the modern descendants of dinosaurs—and it really shows!

Dinosaurs were reptiles that lived millions of years ago. Birds have a lot in common with both dinosaurs and today’s reptiles. If you look closely at a bird’s foot (right), you’ll notice that it has scales. A bird’s feathers are made up of the same material as reptile and dinosaur scales. Like dinosaurs and reptiles, birds also lay eggs. If you could look inside a bird, you would find that their internal anatomy—their muscles, brain, heart, lungs, and joints—is very similar to that of reptiles.

From the fossil record, we know that birds evolved from dinosaurs, some of which had feathers. But unlike modern birds, those first feathers had nothing to do with flight; instead, they likely helped dinosaurs show off, hide, and/or stay warm. By studying modern feathers and fossilized traces of ancient feathers, scientists recently developed a hypothesis to explain how complex flight feathers could have evolved. They probably began as simple tufts, called dino fuzz. Over time, this fuzz evolved into more complex feathers that helped with flight. The first major clue was *Archaeopteryx* (right), unearthed in Germany in 1860. This famous
specimen is from a bird-like dinosaur that lived 150 million years ago. It contains impressions of feathers that look like those of modern birds.

We often imagine dinosaurs as gigantic smooth-skinned reptiles, but recent research indicates they were actually covered in feathers. It’s hard to imagine a Tyrannosaurus Rex with dino fuzz, but recent evidence of the existence of feathers on some of our favorite dinosaurs provides key support for the evolutionary link between birds and dinosaurs. From these ancient dinosaur ancestors, an amazing diversity of birds has evolved. From a huge flightless ostrich on the African savanna, to the tiny, quick-flying Bee Hummingbird of Cuba, today’s birds all have one thing in common: feathers. And they got those feathers from their dinosaur relatives!