

~ **Observing, Studying, and Drawing Birds** ~
by Gretchen Kai Halpert

Scientific illustration is a cross-disciplinary field that combines art and science. Similar skills are used in both art and science: observation, attention to detail, and creativity. By studying natural history/science through drawing, the student is encouraged to closely observe their subject. Learning to document their observations aids in both their art-rendering skills and their scientific discoveries.

- Middle school activity
- Three 40-minute classroom sessions
- These lessons can be adapted for both grade- and high-school.

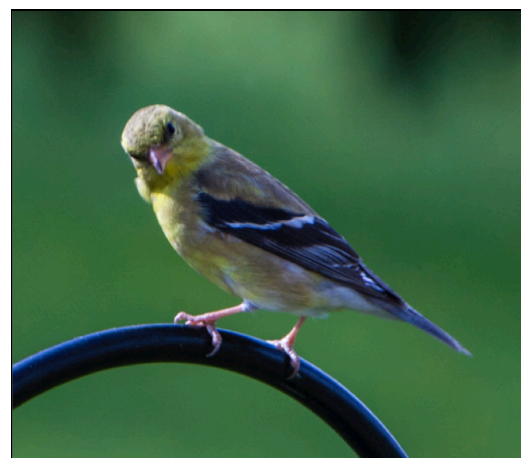


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Purpose and Skills:

- Become familiar with characteristics of scientific illustration
- Engage in research
- Engage in observation
- Draw accurately from life and/or reference material, which helps to retain information.

Ties to the Next Generation Science Standards

- **Disciplinary Core Ideas** (Variation of Traits):
 - plumage (feathers): consider colors, markings — do they differentiate gender? attract opposite sex? camouflage?
 - wing traits/flight — soaring vs. flapping? useful for attracting a mate?
- **Crosscutting Concepts** (Structure & Function):
 - variation of bird plumage: flight vs. insulating
 - beaks: specialized for which foods? seeds? insects? fish?
 - feet: perching? hunting?

Ties to the National Core Art Standards

- Develop a work of art based on observations of surroundings
- Apply formal and conceptual vocabularies of art and design in new ways through art-making
- Utilize inquiry methods of observation, research, and experimentation to explore unfamiliar subjects through art-making
- Use observation and investigation in preparation for making a work of art

Materials:

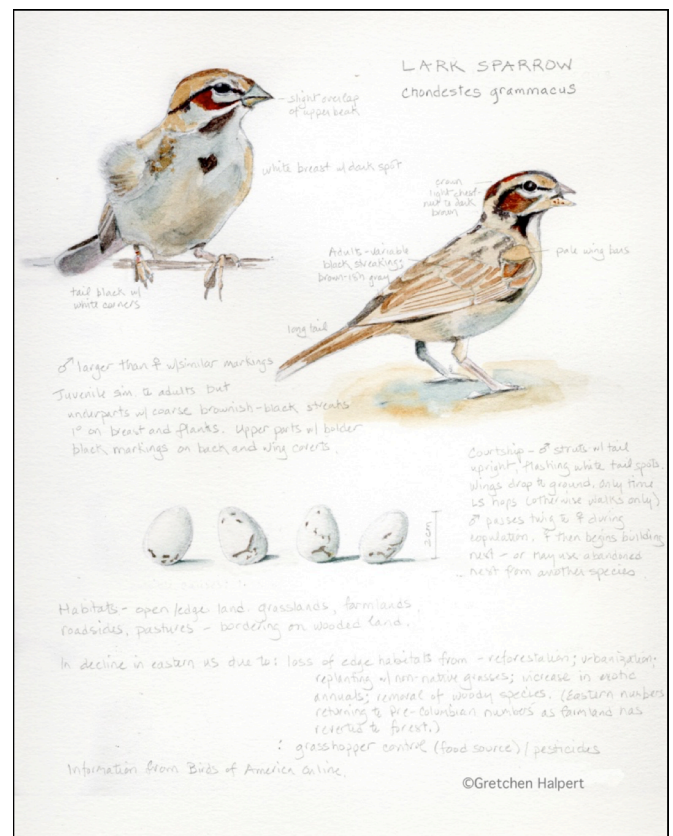
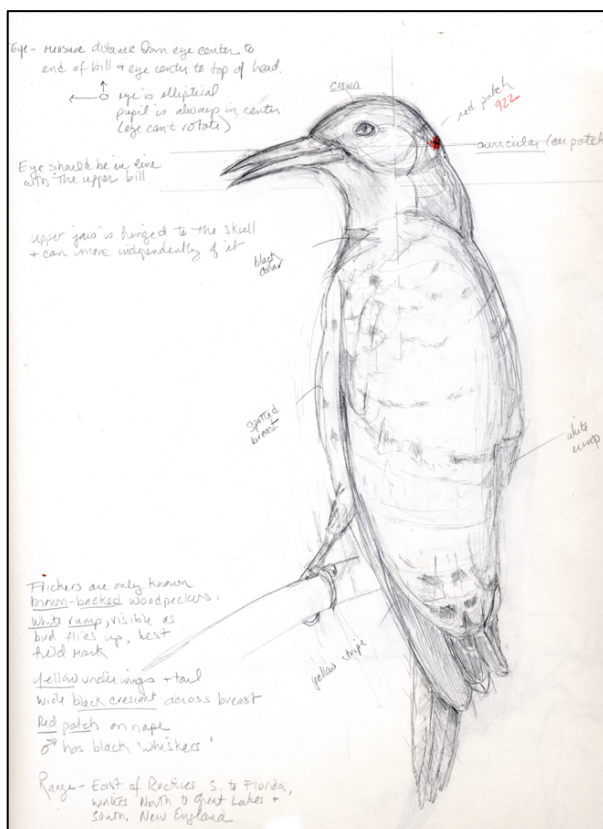
- Paper, pencils (2H, HB, and B), colored pencils or watercolor
- Field guides or computer
- Live birds, if possible
- Feathers

Lesson 1 (40 minutes)

Method:

1. Teacher instructs students to observe and learn what birds live in their area. Allow each student to choose one bird to study.
2. Ask students to research their choice of bird using field guides or online resources such as “Birds in [your state]” or the Cornell Lab of Ornithology: <https://www.birds.cornell.edu/home> and <https://www.allaboutbirds.org>
3. Students sketch the bird using pencil, paying attention to outline, form, shape, location of feet, wings and beak. Here, the teacher can guide students to identify geometric shapes within the birds. Students can learn proportion (e.g., height vs. width) and use their measuring skills.
4. Instruct students to write down information about the bird:
 - a. physical characteristics (e.g., color, size, shape, type of beak, claws)
 - b. habits (e.g., what does it eat?)
 - c. home (e.g., where does it live: field, woods, water?)
5. Write down the common and Latin names for the bird. Students may do additional searches for information and images once they have the birds’ proper names.

Examples of sketches with notes:



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Lesson 2 (40 minutes)

Students and teacher discuss what they learned in **Lesson 1**:

Method:

1. Correlate beaks and claws with food sources and habitat.
2. Practice rendering textures by using different graphite pencils (2H, HB, B) and varying amounts of pressure.
3. Notice that the beak, eyes, and claws are shiny and smooth. The feathers are soft or stiff. The feet may be smooth or rough. Practice drawing a feather, noticing the stiff “rachis” (see illustration below).
4. Add color with watercolor or colored pencil, noticing which markings best make the bird recognizable.

Below: Example of different feathers from one bird. What purpose does each feather have?



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Lesson 3 (40 minutes)
~ Learning from Life ~

Option 1: Arrange a visit to or from a local bird handler. Audubon societies and nature centers often have birds they bring into classrooms for educational purposes. The handler will have a routine show-and-tell that fits into your class periods. Prepare your students with etiquette (no sudden movements) and questions they may want to ask. Mostly, let them quietly watch and listen to the handler and the bird.

Option 2: Take students outside where they may see birds flying, perching, feeding, and where they can listen to birdcalls.

Option 3: Watch birds flying and listen to their calls on the Cornell Lab of Ornithology website. Watch webcams of birds; have students write their observations and sketch from the webcams.

Share student drawings so everyone can learn about the birds their classmates have chosen to study. At the end of the project, ask students to review what they've learned.

Follow-up questions for students:

- What is scientific illustration?
- What did you learn by making your sketches?
- What do you think the purpose of the pencil sketch is?
- What did you learn by creating the painting?
- Do you now look at birds outside with greater observation or knowledge?

Example of 6th grade student response:

1. *A nature drawing is a very detailed and realistic drawing of something.*
2. *I learned that the Peregrine Falcon eats small songbirds. I also learned that getting the proportions right for the bird is very hard!*
3. *I think the purpose of a pencil sketch is to give us a chance to practice. Like practice getting the proportions, size, and angle right.*
4. *By creating the painting I learned that it's hard to make watercolors not drip down the paper while painting, so I should use less water.*
5. *I look at birds differently now, because I never knew birds were so diverse and amazing animals. By painting the bird I found out amazing facts.*

