

Lesson 2: Using Guides and Animal Size to Teach Species Recognition

Introduce students to field guides and species identification.

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Field guides provide comprehensive information about different animal and plant species in a condensed form. In this lesson, you'll introduce the basics of using field guides for species identification. You'll teach students how to use measurements to deduce animal size, then build relevance through an activity in which students choose their nature names. Future lessons elaborate on Field Guide usage.

Field Guides and Measurements

Pre-Lesson Preparation: Set up a few different demonstrations, including models or pictures of animals, their scat, and eggs. Deer and elk make good examples.

Teach students how to take proper measurements. This will help them differentiate species by size. Follow these steps:

1. Ask students to complete the date and time portions of the NM data-collection form using the skills they learned in the last lesson.
2. Explain the part of the data-collection form that asks for the species name and description.
3. Explain what a species is and how each one has a scientific name (the binomen), such as *Canis lupus*, and a common name, such as wolf.
4. Go over ways that scientists categorize closely related animals. For example, looking at an animal's morphology can explain why the great horned owl and western screech owl are considered closely related owl species. (They both have horns.) Teach students about taxonomic groupings (from kingdom to species).
5. Explain different classes in the animal kingdom, such as amphibians, mammals, and reptiles.

LESSON OBJECTIVES AND MATERIALS

OBJECTIVES

- » Understand field guides
- » Be able to measure objects in different units
- » Learn about different animal species and sizes
- » Build observation skills

MATERIALS

- » Field guides or animal fact sheets
- » NM data-collection form
- » Models or pictures of animals, animal scat, and animal eggs
- » Tape (such as masking or carpenter's tape)
- » Rulers, measuring tape, calipers
- » Graph paper
- » Field journals (bound scientific notebooks)

Field Guides and Measurements (continued)

6. Show the students a field guide and the information it contains, including data on animal size and habitat. (We will discuss habitat in greater detail in the next lesson.) Using the two owls as an example, relay how images in the field guide don't reveal an animal's true size. As an example, use your hand or arm to show the difference between the great horned owl, which is the size of your arm (Fig. A) and the screech owl, which is the size of your hand (Fig. B).
7. Explain how to measure things in both the standard and metric system.
8. Ask students to look at the demonstrations of scat, eggs, and other models or pictures you've set up, taking note of each item's size (in standard and metric notations), shape, color, and other specific characteristics.
9. Have students compare their observations—especially measurements—with information in the field guide.
10. Teach students how to identify animals by tracks. Follow the instructions on the (depts.washington.edu/natmap/education/protocols/7_animal_signs.html) NM Animal Signs Activity page to create the tracks of different types of animals. Then demonstrate how to take measurements of the tracks using various tools, such as rulers, measuring tape, and calipers. Ask students which tools work best for big tracks and which work best for small tracks, contrasting the advantages and disadvantages of each.

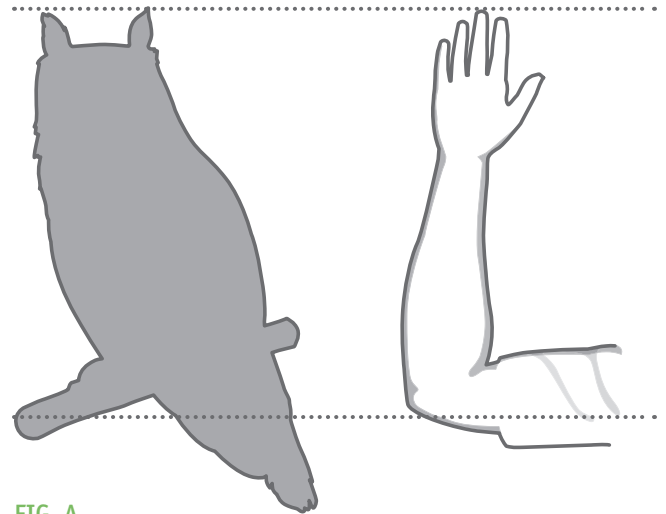


FIG. A

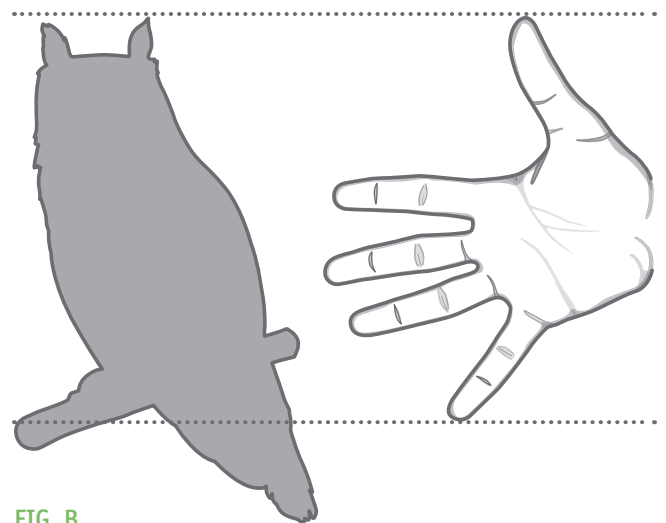


FIG. B

Selecting a Nature Name

Pre-Lesson Preparation: Develop a list of animals in your local area or in urban areas nationwide, or brainstorm with your students about which animals they think live close by. Put the animal names on separate strips of paper for students to draw at random.

Add greater relevance to species recognition by assigning students a nature name. They will use the names they choose throughout the curriculum. Follow these steps:

1. Ask students to draw an animal name from the hat and explain that the animal they draw will be that student's nature name.
2. Ask students to read the name of the animal they draw. Then have them take three minutes to exchange names if they wish with another classmate who also wants to make an exchange. (Have additional animal names available for students who aren't happy with their final animals.)
3. Instruct students to write their nature name (by scientific name and common name) on the NM data-collection form.
4. Give students class time to review the field guides to learn more about their animals. Then ask students to reference the field guides and list their animal's measurements in their field journals, including animal size, scat size, egg size, length of stride, size of paw, and so on.
5. Reinforce measurement skills by asking students to create a life-size replication of their animals to scale. Show your students how to use tape (such as masking or carpenter's tape, depending on the floor surface) to outline their animals on the floor.
6. Add an English-learning component to the lesson. Ask students to do one of the following:
 - » Create a field guide page about their animal
 - » Create a poem about their animal
 - » Write a descriptive paragraph about the animal
 - » Write a compare/contrast paper on their animal and a similar animal
 - » Write a fiction story based on the characteristics of their animal

CUSTOMIZATION TIP

Is the lesson too simple or advanced for your students? Here are some ways to customize the lesson based on grade level:

- » **Grades K-2:** Let students practice measurement techniques by measuring something more than twelve inches long with a ruler (such as a desk).
- » **Grades 3-5:** Ask students to choose any small animal (under twelve inches) from a list of local species, and reference the field guide for the animal's size. Then ask students to use rulers and grid paper to sketch the animal close to actual size. Or have them calculate the area of the animal.
- » **Grades 6 and up:** Introduce different types of measuring tools such as measuring tapes and calipers. Or ask students to use grids to draw the animal to scale.

Practical and Assessment

Practical

Test your students' accuracy in measuring objects. Assign students to make a life-size display or poster of an animal, scat, or egg. All objects should include measurements, labeled in standard or metric notation.

Student Assessment

How'd your students do? Here are some ways to assess your students' comprehension of the material, reflective of grade level. Assess students by point scale or qualitatively.

EXCEEDS STANDARD

» Student has completed all measurements accurately in both metric and standard notation.

MEETS STANDARD

» Student has completed measurements in either metric or standard notation, not both. There are up to two mistakes in measurements or labels.

BELOW STANDARD

» Student has completed measurements in either metric or standard notation, not both. There are more than two mistakes in measurements or labels.

Links to Related NatureMapping Activities

If you enjoyed this lesson, check out these links to additional NM materials.

Speaking Species Part I: An activity to help students learn to identify species:
depts.washington.edu/natmap/education/protocols/2_species_1.html

Speaking Species Part II: An activity to help students identify the animals common to their area:
depts.washington.edu/natmap/education/protocols/2_species_2.html

Animal Signs : An activity to help students develop observational skills recognizing common animal signs:
depts.washington.edu/natmap/education/protocols/7_animal_signs.html

COMMON TERMS

- » **Species:** A class of individuals having common attributes and designated by a common name
- » **Morphology:** The form and structure of an organism or any of its parts
- » **Binomen:** The scientific name of a species consisting of two parts. The first part is the genus name and the second part is the specific name, e.g., *Canis lupus*
- » **Common name:** The name for an animal species that is in general use within a community, e.g., wolf

KEY POINTS

Ask your school's custodian about the proper tape to use on the floor. Some tape can be difficult to clean up depending on the floor's surface. Duct tape is especially troublesome on slick surfaces.