



Performance Expectations: Next Generation Science Standards:

MS-LS2-1.

Analyze and interpret data and provide evidence of the effects of resource availability on organisms and populations of organisms in an ecosystem.

MS-LS2-3.

Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.

<http://www.nextgenscience.org/msls2-ecosystems-interactions-energy-dynamics>

Key Understandings

Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors.

Lesson 6: Species Account

These projects will be combined into a class wide local field guide.

Grade Level: Middle School 6-8

Essential Question:

What can we learn about our local ecosystem by investigating individual species?

Objectives:

At the end of this lesson, students will:

- *Understand* that organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors.
- *Understand* that knowledge about individual species informs understanding of the entire system. The reverse is also true.

Assessment opportunities:

At the end of this lesson, you will be able to assess students through:

- The completion of the first part of their species account.

Background Information

The students will research and begin to develop a field guide entry for the organism they choose. They will need to understand:

- The difference between a common name and a scientific name.
- The concept of food chains, habitat, characteristic, life cycle, and threat.

Common Student Misconceptions or Challenges

Students will not realize that an organism with a common name in one area may have a different common name in another area, or that a common name for an organism may in fact be the name of an entirely different organism in another place. This determines the need for a scientific name for a particular species. Students can sometimes mix up the idea of food chain and life cycle. Students will have a limited view of what might threaten a particular species. This idea will need to be expanded for them.



Local Field Guide Creation

Students use previous lessons to create a field guide entry

Materials:

- Species Account sheet
- Resources for species identification and natural history—books, websites (WyoBio!), etc.

Time Commitment:

1-2 45 minute class period.

Preparation:

- Have materials available for student driven research.
- Have an extensive list of species in case there are overlapping species or students unable to choose one. Encourage students to select species other than mammals, to have a broad range of interactions.

Directions:

1. Each student will choose one species from his or her local study site survey (or the brainstorm of other possible species that were not observed but could possibly live there) to focus on and develop a field guide entry. All of the field guide entries will be combined into a class developed Local Field Guide by the end of the unit.

2. Develop a list of who will research what species. Every student must have a different organism. If the teacher has several sections of a particular class, the research papers can all be combined. Make sure not two students are assigned the same organism. The more organisms the students research, the better the product will be.

3. Have the students gather the following information for their organism: (find a pdf version on WyoBio).

Common Name of your organism:

Scientific Name of your organism:

Provide or create a picture of your organism. Your picture needs to be detailed enough to identify actual specimens in the field.

What eats your organism?

If your organism is an animal or a fungus, what does it eat? If it is a plant, how and where does it get energy and nutrients?

Name 3 characteristics that can help you identify your organism in the field and differentiate it from other organisms:

- a. _____
- b. _____
- c. _____

Describe your organism's life cycle. For each major stage of its life, provide a picture AND a description of the organism at that stage of its life. Is there anything currently threatening your organism's survival (the threat may directly affect your organism or may affect your organism's habitat)? If so, describe the cause of the threat and if any special attempts that are being made to help this organism survive.

References: List the websites and books you used to create this report.

- a. _____
- b. _____
- c. _____

Ecology Box from My Science Box, Lesson 6 Food Webs,
<http://www.mysciencebox.org/ecology>

