Green spaces are many different things to many different people. Some people have never heard or thought about green spaces. Others are working actively to protect or create green spaces because of their importance.

Green spaces include areas like urban parks, river buffers, prairies, greenways, trails, forests and open space. All green spaces, whether urban or rural, provide special habitats that serve areas far beyond their boundaries. Green spaces are important to plants, animals, humans, and the total environment.

Diverse wildlife requires quality habitat to survive. Green spaces provide habitat requirements such as food, space, water, and shelter. Wildlife species need to roam in order to breed and find food and water. They also need space to nest, rear their young, den, burrow, and overwinter.

The plant life of green spaces serves many important functions. Plants absorb nutrients from the environment and help cycle them through food webs. Through photosynthesis, for example, plants release oxygen to the atmosphere and provide food to other life forms. Plants also help keep nutrient concentrations from reaching toxic levels. They help

**OVERVIEW**

Students will develop an appreciation for and an understanding of green spaces through the power of “hands-on” metaphors, linking the characteristics and natural functions of green spaces to the familiar realm of everyday life.

**OBJECTIVES**

After participating in this activity, students will be able to:

- Describe the functions and characteristics of green spaces.
- Demonstrate their understanding of the importance of green spaces to wildlife and humans (necessities of life: food, space, shelter, water).
- Work in small groups to determine a metaphorical function of green spaces.

**BACKGROUND**

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protect and purify the surrounding environment by slowing down water flow, causing silt to settle out.

Of great importance to humans are the flood characteristics of lush green spaces near water and wetlands. When runoff from rains and spring thaws is high, wetland areas help to absorb excess water until it gradually drains through the soil or to nearby streams and rivers. Acting as buffers, healthy green spaces help to prevent flooding and erosion.

Many of the major attributes of green spaces can be explored through the use of metaphors. To use a metaphor is to apply a word or phrase to an object or concept that it does not literally denote in order to suggest a comparison between the two. A metaphor represents a concept or idea through another concept or idea. Two examples of metaphors are: “a tree is a home” and “books are windows of thought.” In this activity, a variety of everyday objects are used to represent the natural functions of green spaces. For example:

<table>
<thead>
<tr>
<th>OBJECT</th>
<th>METAPHORIC FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cereal or Rice</td>
<td>provides nutrient-rich foods</td>
</tr>
<tr>
<td>Soap</td>
<td>helps cleanse the environment</td>
</tr>
<tr>
<td>Game or ball</td>
<td>provides recreational opportunities (hiking, football, etc.)</td>
</tr>
<tr>
<td>House</td>
<td>provides shelter (game piece)</td>
</tr>
<tr>
<td>Zoo picture</td>
<td>promotes diversity in plant and animal life</td>
</tr>
<tr>
<td>Outer “Space” picture</td>
<td>provides enough space for plants and wildlife to roam</td>
</tr>
<tr>
<td>Sponge</td>
<td>absorbs excess water caused by runoff</td>
</tr>
<tr>
<td>Pillow or bed</td>
<td>is a resting place for migratory animals</td>
</tr>
<tr>
<td>Cradle</td>
<td>provides a nursery that shelters, protects, and feeds young wildlife</td>
</tr>
<tr>
<td>Sieve or strainer</td>
<td>strains silt, debris, etc. from open water and the water table</td>
</tr>
<tr>
<td>Filter</td>
<td>filters smaller impurities from open water and the water table</td>
</tr>
<tr>
<td>Antacid</td>
<td>neutralizes toxic substances</td>
</tr>
</tbody>
</table>

The major purpose of this activity is for students to develop an understanding and appreciation of green spaces through the power of metaphor, linking the characteristics and natural functions of green spaces to the familiar realm of everyday life.

**PROCEDURE**

1. Prepare a “Mystery Metaphor Container” (box or bag). It should be possible for a student to put his or her hand into the container and pull out an object. You may want to collect as many as one metaphoric object per student, but at least have enough for one per group of four students. Put the container aside to use later.

2. From the background information given, explain and discuss the types of green spaces found in your local area, state, country, etc with the students. Then invite the students to sit quietly and close their eyes. Ask them to picture a green space. Ask them to imagine what it looks like. Ask them to look carefully at the plants and animals, including insects and small creatures. Ask them to imagine walking through the green space, touching the things they see there. What does the air feel like? How does it smell? OPTIONAL: Play a tape recording of natural sounds (birds, wind, etc.) during this exercise. Some are available at libraries or commercially in record and nature stores.

3. Invite the students to tell what they imagined. Compile a list of their offerings. Encourage discussion and mutual sharing.

4. With their list as a point of reference, help the students identify which plants and animals are actually most likely to be found in green spaces. If possible, have them classify the plants and animals according to the kind of green space in which they would be found. Help students to expand their understanding of the types of green spaces beyond those with which they have personal experience. Also help them expand their understanding of the variety of life forms present in different types of green spaces. State or federal wildlife officials and representatives of private conservation or nature-related organizations can be helpful. The series of golden nature guides from Western Publishing Company, Inc. may be useful.

5. Next provide the students with additional background information to serve as an overview of the basic ecological activities that characterize green space habitat. For example, you can include the following:
   - Habitat—provides food, water, space, and shelter
   - Diversity—hosts a wide variety of animals and plants
   - Sponge effect—absorbs excess water runoff
   - Filter effect—traps and neutralizes or absorbs silt, toxins, wastes, etc.
   - Nutrient control—absorbs nutrients from fertilizers and other sources that may cause contamination down-
ASSESSMENT OPTIONS

1. Observe and critique the students as they work in groups to explain the metaphors. Look for participation from each student and evaluate cooperation and group presentations.

2. Ask students to write their answers to the following questions and/or add your own questions:
   - Describe three functions or characteristics of green spaces and explain why they are important to people and/or wildlife.
   - Name three different kinds of green spaces and explain why each is important to people and/or wildlife.
   - Have the students select four (or any number you prefer) species of animals and describe how green spaces are important to each.

3. Have students draw a picture of a green space and explain the functions or characteristics they draw.

4. Ask students to explain how green spaces provide habitat (food, water, space, and shelter) and nutrients (air, minerals, and sunlight) required for life.

5. Have students answer the following question: Human activities can be good for green spaces, or they can harm them.

11. For additional fun, ask the students to think of additional everyday items that could be used as metaphors for green spaces. Make sure they explain their ideas.

TEACHER MEMOS

Sponge Effect

the condition of green spaces is dependent on the actions of each of us. Ask the students if their own attitudes about green spaces are different now. If yes, how? If not, why not?

6. Now bring out the “Mystery Metaphor Container.” Tell the students that everything in the container has something to do with a green space. Divide the students into groups of two to four. Announce that when it is their group’s turn, you want a representative of the group to select an object from the container. Then, as a group, they must figure out how the object could represent what a green space is or does.

7. Have the designated student reach into the container and withdraw one object. When each group has an object, ask the members to work as a team to describe the relationships between their metaphoric object and a green space. If students have difficulty with the abstraction of metaphors, review a few other simple examples or prompt them with the question “How is a green space like a _____?” Encourage the students to build on each other’s ideas. You can also assist by strengthening their connections. Note: Allow the students time to discuss their ideas within their group before discussing them with the entire class.

8. Ask each group to describe their ideas to the class.

9. Following discussion and review of the functions represented by each metaphor, ask the students to summarize the major roles that green spaces perform in contributing to habitat and the necessities of life for wildlife.

10. For the final part of the discussion, strengthen the students’ understanding of the connectedness that humans have to green spaces. Point out that humans value green spaces for their beauty, for their utilitarian uses, for the opportunities they provide for recreation and nature study, and for the service they perform in maintaining environmental quality. Point out that human wellbeing requires green space ecosystems. List the ways in which green spaces are important to humans. Why do humans convert green spaces to other uses? When should green spaces be protected or preserved? (Discuss a specific case in your community, if appropriate.) Develop the students’ understanding of how
Adaptations/Extensions
1. Conduct the lesson while sitting in a green space, or allow students to personally visit a green space to verify the appropriateness of the metaphors explored in the classroom. Have them expand their understanding of these metaphors and green spaces by:
   • Identifying and discussing any limitations to the appropriateness of these metaphors.
   • Identifying what seem to be the most compelling attributes of the metaphors in helping to understand the characteristics and nature of the green space. Which two or three metaphors describe the most important characteristics of the green space they see. (Note: answers will vary for different sites and value systems.)
   • Identifying new and appropriate metaphors!
2. Have the students identify, locate, and map the green spaces in their community. Require them to categorize and describe the different kinds of green spaces.

Computer Extensions

SOURCE

ADDITIONAL RESOURCES
Contacts:
American Planning Association (APA) or the Michigan Chapter of the APA
Ducks Unlimited
Great Lakes Information Network (GLIN)
Land Conservancy of West Michigan
Michigan Department of Environmental Quality
Michigan Department of Natural Resources
Michigan Land Use Institute
The Nature Conservancy
Tip of the Mitt Watershed Council
U.S. Environmental Protection Agency (EPA), Env. Ed. Program

References and Teacher Resources:

Additional Lessons
Viewfinders: A Visual Environmental Literacy Curriculum:
“A Natural Blend: Take One Part Nature and One Part Built...” Pg. 41-44.
Landscaping for Wildlife, by Wisconsin DNR. - Describes plants that provide habitat and food for a variety of bird and wildlife species. Students can use this resource to compare the amount of wildlife use that could be expected in a natural area vs. a built environment.
Project Learning Tree: “I’d Like to Visit a Place Where...” Pg. 188-190.

CONCEPTUAL FRAMEWORK REFERENCE
IIA2, IIC2, IID1, IV-A, IVB
What a Green Space Does

• **Habitat** - provides food, water, space, and shelter

• **Diversity** - hosts a wide variety of animals and plants

• **Sponge effect** - absorbs excess water runoff

• **Filter effect** - traps and neutralizes or absorbs silt, toxins, wastes, small impurities, etc.

• **Nutrient control** - absorbs nutrients from fertilizers and other sources that may cause contamination downstream

• **Natural nursery** - provides protection and nourishment for newborn and young wildlife
Wetlands Function as a Filter

Wetlands catch and filter pollutants: sediment becomes trapped among the plants or settles out of the water. Excess nutrients are taken up and used by the plants. Some toxic substances are caught and stored in the soil matrix.