17 The Spice of Life

SUBJECTS

language arts, science, social studies (ethics)

SKILLS

organizing (prioritizing), analyzing (discussing), presenting (articulating), citizenship (debating, evaluating a position, taking a position, defending a position)

FRAMEWORK LINKS

37, 40, 59, 60

VOCABULARY

ecological processes, insect, economics, **extinct, pollination**

TIME

one session

MATERIALS

chalkboard or pieces of flip chart paper, thick markers

CONNECTIONS

This activity works best once the students have become fairly familiar with biodiversity issues. It is a good culminating activity for a biodiversity unit.

AT A GLANCE

Explore beliefs and values about why biodiversity is important and why it should be protected.

OBJECTIVES

Explain personal beliefs and values about protecting biodiversity. List several reasons why people believe it is important to protect biodiversity.

People's feelings about biodiversity issues, including the importance people place on wild species and spaces and whether they think biodiversity should be protected, do not depend on just their knowledge of these issues and the sciences that relate to them (ecology, biology, sociology, political science, economics, and so on). People's feelings also depend on personal belief systems and values. This activity is designed to give your students a chance to examine their values and to sharpen their own thinking by sharing their opinions and feelings with their peers. The students first discuss their points of view in small groups and then talk about biodiversity conservation as a group. We've provided a series of numbered questions to get the students thinking about a range of biodiversity-related concerns, as well as additional guiding questions to help direct the discussions (see pages 209–210). Some groups may need a lot of prodding to carry on the group discussion; others may need only occasional questions or statements for direction. You may want to add your own questions to these lists and think about other ways to engage your group.

Before You Begin

Write each of the six "Why Care About Biodiversity?" statements (page 211) on separate pieces of flip chart paper. (You can adapt, shorten, add, or combine as needed.) Also write the word "other" on a seventh piece of flip chart paper. Use thick markers and write large enough so the students can read the statements from all areas of the room. Be sure to read through and familiarize yourself with the "Valuing Biodiversity" questions on pages 209–210. When you get to step 5, your knowledge and understanding of these questions will help you to guide the students' discussion.

What to Do

1. Ask your students whether protecting biodiversity is important and why they feel the way they do.

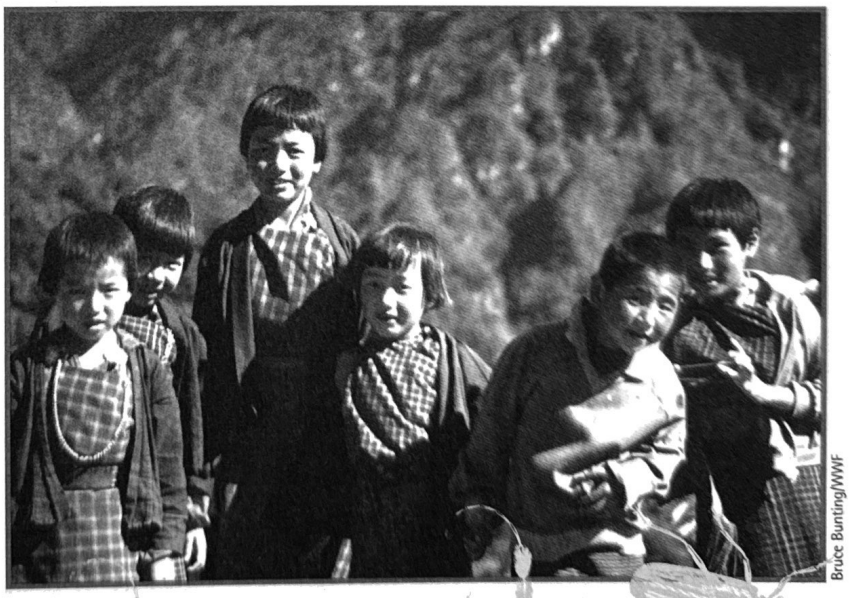
Explain that many people feel that it's important to protect biodiversity and that they have diverse reasons for thinking so. Ask your students how *they* feel. What reasons can they give to protect biodiversity? (These may be reasons they have read, reasons they have heard others express, or their own, personal views.) Write their ideas on a chalkboard or piece of flip chart paper. (It might also help to give them a few minutes to write their ideas before talking.)

2. Put up the statements and read each one out loud.

Using a different location for each one, tape the seven statements you copied earlier around the room. Place each one high enough for everyone to see. (Or you can put up the papers before class, folding each bottom half up and taping it in place so the students can't read the words until you uncover them.) Explain that the statements represent many of the key reasons people have given for why it is important to protect biodiversity. As a group, go over each of the statements. Compare the ideas represented in the statements with the lists that the students generated.

3. Students choose a statement to stand near.

Ask your students to carefully consider all of the statements. Have each of the students pick one of the statements and then go and stand near it. Explain that the statement the students choose should be one that they feel strongly about—either because they think it is an important reason to protect biodiversity or because they disagree with it. If they don't see a sign that reflects their viewpoint, they can stand at the sign marked "other." Explain that there is no correct answer and that it's OK to stand either alone or with a group.



Bruce Bunting/WWF

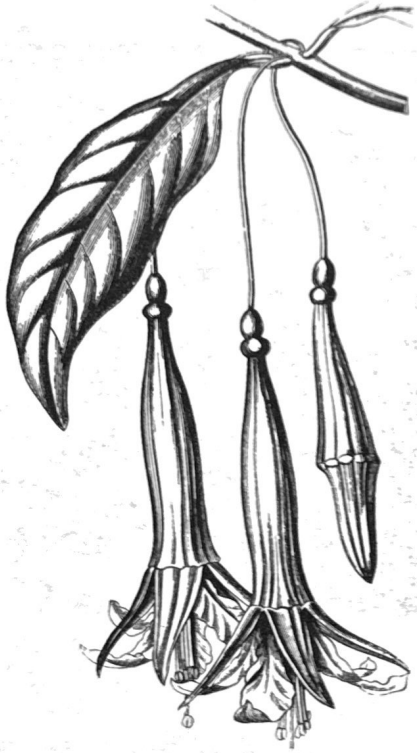
4. Discuss the choices that students made.

After everyone has made a selection, have the students at each statement discuss among themselves why they chose that particular statement. Remind them that each person will have personal reasons for making the choice he or she made and that they should explore some of those reasons.

Give the students about five minutes to discuss their thoughts before asking one person from each group to summarize the discussion. You might want to record each group's points on a chalkboard or piece of flip chart paper.

5. Open up the discussion to the entire class.

After all the groups have given their summaries, use the questions on pages 209–210 to spur a group discussion of some of the arguments that biologists, conservationists, ecologists, economists, and others have put forth for protecting biodiversity. Read one of the numbered questions and have the students react to it. You can use the guiding questions to challenge the students' thinking and to help direct their discussion as needed. Refer to the background information (pages 30–37) for more help in leading the discussion.



You do not need to ask the class all the guiding questions, and the students do not need to discuss each of the numbered questions in turn. The discussion may naturally flow from one topic to another. However, during the course of the discussion, make sure that the students confront the issues highlighted by each numbered question and that they explain why they feel the way they do. Have them give examples whenever they can, and be sure to challenge their ideas—especially when the students reach answers quickly or all of them seem to be agreeing with each other. Allow enough time for the students to fully discuss their points of view. Also give them an opportunity to research issues that come up.

Valuing Biodiversity

1. Is it important to conserve the diversity of life for medical and economic reasons?

Guiding Questions

- Do people actually need wild plants and animals for either medicinal or economic reasons?
- Can't people synthesize in a laboratory all the medicines they need?
- If genetic material is what's important, wouldn't it be sufficient if people froze wild plant and animal tissue samples, didn't worry about the actual organisms, and then used the samples when needed?
- If a plant or animal species is not known to have any medical or economic benefit to people, is it then OK to let the species die out?

2. Is the argument a good one that it's important to protect the diversity of life because biodiversity helps maintain important ecological processes that help support life on Earth?

Guiding Questions

- What sorts of ecological processes does biodiversity help maintain?
- People have developed an amazing array of technologies to deal with particular problems—everything from water treatment plants that purify sewage water to scrubbers that can take pollutants out of the air from factory smokestacks. Isn't it fair to assume that people will be able to develop technologies that can perform essential ecological processes in place of biodiversity?
- Are there any down sides to technological solutions?

3. Would your life be affected in any way if we lost species such as ladybugs, bears, tigers, and eagles?

Guiding Questions

- Is there anything about these species that makes them special?
- Would you feel the same way if the species we lost were venomous snakes, biting insects, and other species that are harmful to people?
- Are there species that you think are more important to protect than others? Which ones? Why?

4. Do all species have a right to exist?

Guiding Questions

- Do people have the right to use any of the world's resources as they see fit? Why or why not?
- Does the right to exist apply to ugly, obscure species that are of no use to people?
- Some species have been around for millions of years—and have survived incredible periods of destruction and change on the planet. Should that influence whether we decide to protect a species?
- Do people have any responsibilities to other living things?
- Do people have the right to drive species to extinction?

Valuing Biodiversity (Cont'd.)

5. Some people argue that no generation has the right to destroy the environment and resources that future generations will depend on. Do you agree or disagree with this idea?

Guiding Questions

- Why should people today do without things they want when we don't even know what future generations will need or want?
- How do you feel about the state of the world? Do you feel that past generations have left you with the environment and resources you need to live?
- There used to be millions of passenger pigeons in the United States. Today these birds are extinct. Has your life been affected in any way by the lack of passenger pigeons in the world? Will future generations really care about species that disappeared before they were born?

6. Is the diversity of life important for inspiring inventors and artists and for spurring curiosity and imagination?

Guiding Questions

- What human pursuits look to nature for inspiration?
- What inventions, stories, or works of art can you think of that were inspired by living things? Could these have been produced without the inspiration of nature?
- Isn't it reasonable to assume that all the photographs and films that have been made of wild plants and animals can provide inspiration to future writers and artists?

7. Is the diversity of life important for recreational activities?

Guiding Questions

- What kinds of recreational activities rely on wild spaces or species?
- Can well-tended golf courses and manicured parks provide the outdoor green space people need?
- Is it right to save an area so people can hike and fish if it means that other people lose their jobs?
- Does the fact that someone has done a particular job all his or her life—and perhaps his or her parent or grandparent also did the same job—give the person a right to keep doing that job even if it means wiping out a species or harming the environment?
- Should people be allowed to take part in any recreational activity (such as some off-road vehicle races) even if it harms the environment? How do we balance the rights of individuals and the rights of society as a whole?

WHY CARE ABOUT BIODIVERSITY?

It is important to conserve the diversity of life for medical and economic reasons. Plants and animals could provide us with additional foods, medicines, and other products that will save lives and benefit society.

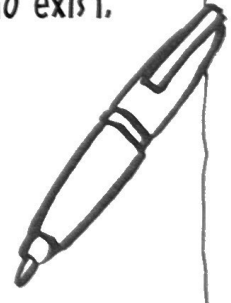
It is important to protect the diversity of life because biodiversity helps maintain important ecological processes such as oxygen production, pollination, and flood control that, in turn, help support all life on Earth.

Our lives would not be as rich if we lost species such as bears, beetles, hawks, frogs, lizards, and tigers, and the habitats where they live. The rich diversity of life also allows for important recreational activities such as hiking, fishing, camping, and birding.

It is important to protect the diversity of life because no generation has the right to destroy the environment and resources on which future generations depend. It is our responsibility to take care of the diversity of life.

It is important to protect the diversity of life because biodiversity provides inspiration and provokes curiosity and imagination. Art, music, and poetry are often inspired by the diversity of life. And many of our technological advances, such as flight, have been inspired by examples found in nature.

It is important to conserve the diversity of life because all species have a right to exist.



WRAPPING IT UP

Assessment

Have the students write a personal statement about the importance of protecting biodiversity. Explain that there is no right or wrong answer to this assignment—and that they don't even have to think protecting biodiversity is important at all. However, they should carefully consider everything they've learned about biodiversity as well as all of the points made during their discussion in order to make a well-reasoned and well-supported statement. Encourage the students to consider medical, economic, and ecological implications of biodiversity protection, as well as recreational activities, artistic inspiration, and any obligations of present generations to future ones. Tell them to use examples to illustrate their points.

Unsatisfactory—The student is unable to use examples to illustrate personal beliefs about protecting biodiversity. The student cannot make connections between the concepts discussed in the activity and personal beliefs in the statement.

Satisfactory—The student uses examples to support personal beliefs. The student makes connections between the concepts discussed in class and personal beliefs.

Excellent—The student uses examples to support personal beliefs. The student clarifies or challenges concepts from class using his or her individual belief system.

Portfolio

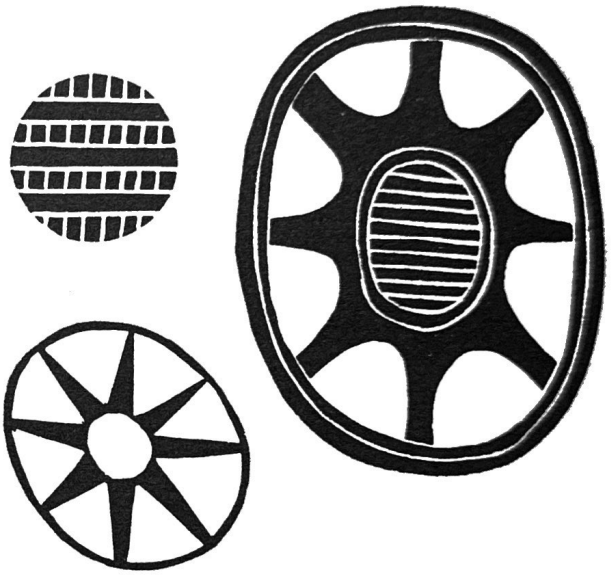
The student's biodiversity protection statement (created in the assessment) can be included in the portfolio.

Writing Ideas

- Have the students use the following as a journal starter: "Some ideas or thoughts I had before the activity are different now. They include . . . "
- Have the students write a dialogue between two people who have different viewpoints on protecting biodiversity.

Extension

Have each student or small group of students choose one of the "Why Care About Biodiversity?" statements on page 211 to use as a theme for a collage. Afterward have the students make a display of the collages under a title they've created.



Resources

The Diversity of Life by Edward O. Wilson (Harvard University Press, 1992).

The Idea of Biodiversity: Philosophies of Paradise by David Takacs (Johns Hopkins University Press, 1996).

The Value of Life: Biological Diversity and Human Society by Stephen Kellert (Island Press, 1997).

WWF Atlas of the Environment by Geoffrey Lean and Don Hinrichsen (World Wildlife Fund, 1996).