

Activity 4-1 Future Worlds

AT A GLANCE

Build a pyramid to reflect personal priorities for the future. Investigate the way humans affect the natural world and discover how people are working to protect the environment and improve the quality of life in Illinois and on earth.

OBJECTIVES

Express personal values by creating a personal vision for the future, especially as it relates to biodiversity. Reach group consensus using negotiation and conflict resolution skills. Discuss ways to arrive at the envisioned future. Analyze various approaches people in Illinois and around the world are taking to arrive at those futures.

SUBJECTS

English language arts, social science, physical development and health

SKILLS

gathering (brainstorming), organizing (prioritizing), analyzing (comparing and contrasting, discussing), interpreting (relating), presenting (articulating), citizenship (debating, evaluating the result of citizen action, planning citizen action, seeking consensus, working in a group)

LINKS TO *ILLINOIS BIODIVERSITY BASICS* CONCEPTUAL FRAMEWORK

values and beliefs; human values

VOCABULARY

conflict management, consensus, cultural diversity, global warming, invasive species, legislation, lichens, pollinating, racial justice, recycling, smart growth, stewardship, sustainable

TIME

two class periods

MATERIALS

copies of "Future Blocks," "Priority Pyramid" and "Making It Happen" for each student and for each group; scissors; glue or tape

CORRELATION TO ILLINOIS LEARNING STANDARDS

English language arts 4.B.2a, 4.B.2d, 4.B.3d, 5.A.2a, 5.A.2b, 5.A.3a, 5.A.3b, 5.C.2b

social science 16.E.2c, 16.E.3b, 16.E.3c, 17.C.2c physical development and health 22.C.2, 22.C.3a, 22.C.3b

Some people look into our future and see a gloomy, inhospitable picture: a world that is less healthy, less safe, less diverse, more crowded and more polluted. While such portraits of doom may scare some people into action, they often have the opposite effect. Negative forecasts can become self-fulfilling prophecies, making people—especially young people—resigned and hopeless. This activity doesn't take a doom and gloom approach. Instead, it is designed to get your students to begin envisioning the future they want to inhabit and to learn about some real-life examples of how people in Illinois and around the world are working to make the future brighter.

CHICAGO PLANS FOR THE FUTURE

In 1909, the Commercial Club of Chicago released "Burnham's Chicago Plan of 1909," one of the most influential and famous city plans in world history. Among its many provisions, that plan envisioned that the shore of Lake Michigan and a regional network of natural landscapes be protected as public parklands. Because of this foresight the Chicago region is ecologically healthier and more beautiful than it might have been. The air is cleaner, the water purer, there are more lakeside, parkland and forest preserves than if previous generations had not thought of the future. Therefore, what we do today helps determine what will happen in the future. Today the Northeastern Illinois Planning Commission, the City of Chicago and the Metropolis 2020 Project are working on projects to promote sustainable long-range planning for Chicago.

BEFORE YOU BEGIN Option #1

Make a copy of "Future Blocks," "Priority Pyramid" and "Making It Happen" for each student and for each group. Also provide scissors and glue or tape.

Option #2

Make a copy of the "Priority Pyramid" and "Making It Happen" for each student and for each group. Also provide scissors and glue or tape.



WHAT TO DO

Option #1

1. Make personal pyramids.

Give each student a pair of scissors and a copy of both the "Future Blocks" and the "Priority Pyramid." Explain to the students that the blocks list 15 different possible conditions or components of their future world. Have the students read through all the conditions. Make sure they understand all the words in the blocks. Then ask them to think about which of these conditions they most want to have as part of their world when they're 50 years old. Clean air? Cures for illnesses? Less crime?

Have the students rank all the components from the most important to the least important. Tell them to cut out the squares and arrange them in the pyramid. The most important component should be placed in the top box of the pyramid, the next two components on the next tier and so on. Once the students have arranged all the blocks, have them mark each block with the number that reflects the priority rating they gave it. (The priority rating numbers are one through five and correspond to the levels of the pyramid.)

2. Create group pyramids.

Arrange the group into teams of four or five students. Have the students work together to come up with a single pyramid that represents the team's priorities for the future. Everyone on the team should record the priority ratings each member of the group gave each block and compare them with his or her own personal pyramid.

3. Suggest methods of reaching consensus.

It might not be easy for teams to reach consensus regarding their group pyramid. The students may discuss their reasons for various choices, prioritize options or try other methods of reaching a group decision. But if they get stuck or seem to be struggling to achieve a fair process, you may want to interrupt and share the following negotiation suggestions:



- a. Make a list of all the possibilities for the top spot. Are there more than three? If not, would everyone accept having his or her first choice listed among the top three? If that's the case, students may have an easier time resolving the question of order.
- b. Give everyone a chance to present his or her choice for the top square of the pyramid and explain why it was chosen. The other students should listen closely to these explanations. A student who lists bees as a top priority, for example, may explain that she's concerned with how bee pollination is critical for food production. Then other students who have pushed to place "enough food for all people" in the top spot may realize that they share the same concern as the "bees" proponent. This strategy may help narrow choices or change the nature of the discussion.
- c. If the students are still struggling to reach a resolution, have them take a time-out to reflect on the process. Are certain views being overlooked because some students are quieter or less stubborn than others? Is the group uncomfortable with anyone's way of working out the problem? By reflecting on the dynamics of their discussion, the students may be able to isolate the obstacles to group consensus.



- d. Encourage each student to offer a solution that involves concessions on all sides. Afterward, the students should vote on which compromise package they prefer. If there are ties, hold a tie-breaking vote.
- e. Another consensus-building technique that could be used by the students is the "Nominal Group Technique" (see "Resources" for World Wide Web site).

4. Discuss the consensus process.

Bring the class back together and ask a representative from each team to present the team's top three priorities to the class. Students can also summarize some of the conflicts the group experienced, as well as how the conflicts were resolved.

After each team has made a presentation, ask your students to reflect on the process of reaching consensus. Were they surprised by the disagreement among the members of the group about future visions? Did any of the students change their own views by talking with other group members? How do they think their team's decision-making process might reflect some of the challenges that communities and societies face in working toward a positive future? (Make sure the students think about how hard it is to make positive changes for their community or the world, especially if people have different ideas about what they want and what they feel is important or right.) How much harder would it have been if the students had only enough time or money to ensure that their top two or three priorities would be achieved? (Again, you might want to point out the difficulties encountered by governments and organizations that are struggling to improve Illinois or the world when their resources are limited.)

5. Discuss solutions.

Ask the students if they have ever thought much about how they want the world to look in 50 years. Is simply thinking about dreams for the future enough to make them come true? If not, is it valuable? Why or why not? Ask students to look over the blocks in their pyramids. Can they think of anything they or other people are doing to ensure that these things will happen in the future? Are there other things they would add to the pyramid?

6. Hand out "Making It Happen" sheets.

Tell the students that they now have a two-part assignment. First, they should compare their personal pyramid to the pyramid their group created. How do they explain the similarities and differences? How do they feel about the process they went through? How do they feel about the result?

Next, hand out copies of "Making It Happen." Ask the students to read about each of the projects and choose three approaches that they think best achieved the top three priorities set by their team's pyramid. (See "Making It Happen Answer Sheet.") They should write one or two sentences explaining how each of the projects they picked is working to achieve the specified objectives and what they think each project's strongest and weakest aspects are.

7. Have a wrap-up discussion.

After students have completed the assignment, make a list on the board of every priority square that made it onto a group's top-three list. Then ask the students to describe the projects they matched to those squares. Did people pick different projects to achieve the same goal? Why? Do they think any of the actions address more than one objective?

Discuss possible strengths and weaknesses of the approaches listed. Do students think local projects are more effective than passing national legislation? Do they prefer preventive approaches (like education) or fix-ups (like pollution-cleaning technology)? Point out that there are a lot of ways to bring change to the world—such as educating people, passing legislation and developing innovative technologies or strategies.



Option #2

1. Brainstorm about conditions for the future.

Ask the students to think about what they want the future to be like in Illinois. What things or conditions do they want when they're adults or when their own children are grown up? List their ideas on the chalkboard.

2. Make personal pyramids.

Give each student a copy of the "Priority Pyramid." Explain to the students that they need to fill in the pyramid with the conditions they want to see in Illinois in the future, ranking the conditions from the most to the least important. The most important condition should be placed in the top box of their pyramid, the next two conditions on the next tier, and so on. The students can use the ideas the group generated and add their own ideas.

3. Share personal pyramids and create group pyramids.

Arrange the class into groups of four or five students. Have the students share their pyramids with their team. Then have them work together to come up with a single pyramid that represents the team's priorities for the future. Everyone on the team should record the arrangement the group comes up with.

4. Suggest methods of reaching consensus. See step three in Option #1.

5. Discuss the class process.

Bring the group back together and ask a representative of each team to present the team's top three priorities to the class. Students can also summarize some of their group's conflicts and how the conflicts were resolved.

As the groups present their pyramids, discuss with them the implications of each of their top three priorities. What kinds of things are entailed in each of their conditions? For example, if they chose less conflict as a condition of the future, they should see that less conflict is more likely when people everywhere have the food, clean water and other resources they need for a satisfying and productive life. As the students discuss each condition, they should come to realize that everything they selected can be traced, at least in part, to a healthy environment.

When all the teams have presented their results, ask your students to reflect on the process of reaching consensus. See step 4 in Option #1.

6. Discuss solutions, hand out "Making It Happen" sheets and have a wrap-up discussion. See steps five through seven in Option #1. Adapt the discussion to fit the different groups' pyramids.

MAKING IT HAPPEN—Answer Sheet

Each of the pyramid "blocks" can be matched with at least one of the "Making It Happen" examples. Here is a quick reference sheet for your use, but your students might make other connections that also work.

Bee Good to Your Lips: bees Now, That's More Lichen It!: clean air Beautifying Neighborhoods: less crime A New Way of Doing Business: less trash City Sewer Savvy: clean water Ending the Conflict: less conflict Restoring the Tallgrass Prairies: natural lands/open spaces Concerned Citizens Unite: racial justice and diversity The Power of Plants: cures for illnesses Songbirds on the Net: environmental education

Planes, Trains & Automobiles: smart growth



Poached Eggs: healthy fish populations

A New Crop of Farmers: enough food for all people

- Stewardship Volunteers Hard at Work: fewer invasive species
- Populations at Risk: otters, bobcats and eagles

WRAPPING IT UP

Assessment

- Use both "Priority Pyramid" worksheets and observed student interaction for the assessment. Inform the students that they will be evaluated on these assignments.
- 2. Before constructing pyramids, ask your students to write about their top priority for the future and the reasons it is most important to them. Use the following journal starter: "When I imagine a sustainable future, I think of . . ."
- 3. Have each student write a newspaper article on an imaginary, but realistic, event that addresses the number one concern from his or her personal pyramid.

Portfolio

The personal "Priority Pyramid" can be used in the portfolio.

Extension

1. Future logs

Have the students keep a "future log" for a day. Explain that the point of the log is to focus on how their activities, behaviors and even their thoughts can affect the future. In the log they should simply write down what they do, think, say and so forthjust as they would in a diary. In the log, however, they should use "bullet style" instead of paragraphs. At the end of the day, they should think about and write down how each "bullet" affects the world around them, either positively or negatively, and what the ramifications could be for the future. For example, if a bullet reads, "Had a PBJ sandwich for lunch, with a bag of chips and ginger ale," the student might write down the fact that he or she recycled the soda can—a positive action for the future that saves natural resources and landfill space. But the student might also mention throwing away his or her lunch bag instead of using it again, or instead of bringing lunch to school in a heavyduty container that can be used over and over. Have the students add ways that they can do more to create a positive future by changing their daily actions.

2. Class action project

Determine the block that holds the highest priority for the class. Have students brainstorm a range of activities that might be appropriate related to this block. Do the consensus building activity/nominal group technique as a whole class to prioritize a class action that they would carry out. Then have students implement the goal by creating the "I Make a Difference Club."



Resources

Chicago Environmental Network. 2001. Internet site. http://www.cen.nidus.net Chicago Wilderness. 2001. Atlas for Biodiversity and Biodiversity Recovery Plan. Internet site. http://www.chiwild.org Ford Motor Company. 2001. Internet site. http://www.ford.com Illinois Department of Natural Resources. 2001. Internet site. http://dnr.state.il.us Illinois Department of Natural Resources. 2001. Division of Education Internet site. http://dnr.state.il.us/lands/education Illinois Department of Natural Resources. 2001. Illinois Natural History Survey Internet site. http://www.inhs.uiuc.edu Illinois Department of Natural Resources. 2001. Illinois State Geological Survey Internet site. http://www.isgs.uiuc.edu Illinois Department of Natural Resources. 2001. Illinois State Water Survey Internet site. http://www.sws.uiuc.edu Illinois State Board of Education. 2001. Illinois' Green Door Internet site. http://www.isbe.state.il.us/ ilgreendoor Kellert, Stephen. 1996. The value of life: biological diversity and human society. Island Press, Washington, D.C. 263 pp.

Metropolis 2020. 2001. Internet site. http://www.chicagometropolis2020.org (continued)

- Migration Information School Tracking Network. 2001. Internet site. http://www.gsenet.org/library/23wld/ mist-net.txt
- National Recycling Coalition. 2001. Internet site. http://www.nrc-recycle.org
- Nominal Group Technique. 2001. Internet site. http://www.institute.virginia.edu/services/csa/ nominal.htm

Northeastern Illinois Planning Commission. 2001. Internet site. http://www.nipc.cog.il.us

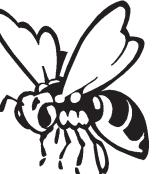
- Owen, Oliver. 1993. *Eco-solutions: it's in your hands*. Abdo and Daughters, Edina, Minnesota. 64 pp.
- Solid Waste Agency of Lake County, Illinois. 2001. Internet site. http://www.swalco.org
- Wilson, Edward O. 1992. *The diversity of life*. Belknap Press, Cambridge, Massachusetts. 424 pp.



MAKING IT HAPPEN

Bee Good to Your Lips

A company called Burts Bees purchases beeswax for the production and sale of lip balm. Thats good news for beekeepers across the United States who use the income from beeswax sales to



better manage their honey bees. Most people don't know it, but honey bee populations have declined in the last few years. If the trend continues, the cost to farmers could be billions of dollars a year. The reason? Bees are very important for pollinating crops. Saving bees will require changes on many fronts—from reducing pesticide use to saving bee habitats.

Now, That's More Lichen It!

Forest scientists need lots of high tech instruments to measure air quality, right? Well, traditionally, they have had to spend thousands of dollars a year to buy and operate electronic airmonitoring instruments. But now they have a new, more cost-effective instrument: lichens! Lichens are actually two organisms in one: a fungus and either an alga or a bacterium. Together these "partners," which grow on rocks and other surfaces, can live in some of the harshest environments on earth—including the frigid reaches of Antarctica. Tough as they are, though, lichens are very sensitive to air pollution. A botanist discovered how certain lichens respond to three different air pollutants—ozone, sulfur dioxide and nitrogen oxide. By monitoring where lichens are growing and how healthy they are, scientists can draw conclusions about the presence of these pollutants in an area. And many forest scientists are doing just that!

Beautifying Neighborhoods

Want to help be a crime buster in your community? Follow the "Clean and Green" program example, a very successful Chicago program of community cooperation. The Chicago Alternative Policing Strategy or as it is better known the "CAPS program" co-sponsors "Clean and Green" a citywide cooperative effort to clean up Chicago neighborhoods. The Chicago Police Department, the Streets and Sanitation Department and area communities work together to spruce up neighborhoods from April to October, by clearing debris, planting flowers and implementing creative strategies to beautify inner city neighborhoods. The City provides tools, materials and pick up of trash and debris while the neighborhoods supply the volunteers. All 25 policing districts in Chicago have encouraged adoption of the "Clean and Green" program because it helps communities work on cooperative projects which in turn helps cut down on crime. It brings area residents and city workers together to improve neighborhood conditions in many ways. By getting people to work together in programs like "Clean and Green," they learn to work for positive improvements and take pride in their neighborhoods.



MAKING IT HAPPEN

A New Way of Doing Business

Taking recycling to a new level is Ford Motor Company's goal for the next millennium. The company began recycling efforts in 1991, and the National Recycling Coalition has since awarded Ford the "Recycling Leadership Award" for efforts to recycle the company's own waste and for using recycled materials in auto production. During the 1990s, they used more than four billion pounds of recycled materials worldwide. Ford Motor Company uses plastic soda

bottles and computer casings in automobile grills, reprocessed carpet in fan shrouds, auto battery casings in new splash shields and used tires in brake pedals and floor mats. Active recycling programs are in place in their facilities, like their paper recycling and reduction effort. North Ameri-



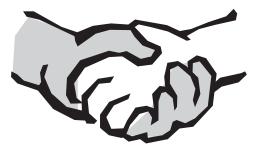
can plants alone are recycling 450 million pounds of waste each year, which has saved more than \$8 million annually for the company.

City Sewer Savvy

Kids around the country are spray painting messages on city streets. Are they breaking the law? No way! Working with local governments, they're helping to save their local rivers, streams and bays. By painting "DON'T DUMP: DRAINS TO LAKE OR STREAM" (or other waterway, depending on where they live) on city storm drains, they're reminding residents that pollutants dumped down these drains flow into local waterways. And those waterways are important habitats for wildlife—not to mention critical fishing spots and valued places for recreation.

Ending the Conflict

Throughout history, many wars have been fought over natural resources such as land, forests and water. While problems regarding resources still exist, a number of groups are trying a new approach, called conflict management, to end conflicts before they escalate into fighting. In conflict management, disagreeing groups get together with an impartial party to discuss their concerns. Each side is asked to listen closely to the other side. The impartial party helps to clarify what each side is asking for. In many cases, once groups get beyond their anger and frustration, they find that their needs can be met. One way conflict management has been used is to find workable solutions for the issue of recreational water use. Jet ski and speed-boat users often are in direct conflict with canoeists and fishermen. Zoning for use of time and space on water bodies is often an effective compromise.



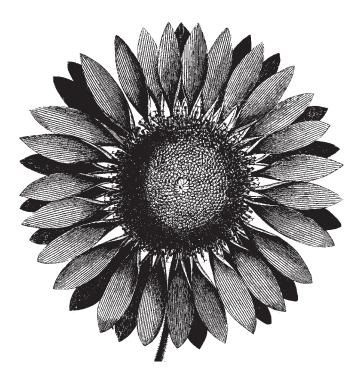


Student Page Future Worlds (continued)

MAKING IT HAPPEN

Restoring the Tallgrass Prairies

The Midewin lands (southwest of Chicago) are a piece of the 36 million acres of prairie that once existed in Illinois. Beginning in the 1830s, the rich prairie soils were plowed by settlers, who wanted to farm the land. Later, with World War II looming, the U.S. Army commandeered many thousands of acres in Midewin for use as an ammunition plant. That use continued for more than 50 years, until the Army abandoned the land and environmentalists succeeded in winning approval for an ambitious plan to restore Midewin. Much planning, cooperation and hard work have gone into restoring this prairie. As part of the plan, the U.S. Forest Service is growing acres of native plants on parts of the site. The seeds of those plants are harvested and planted to create this new "prairie forest."



Concerned Citizens Unite

Altgeld Gardens is a Chicago Housing Authority community of about 10,000 people on the southeast side of Chicago. It is located in the center of a toxic doughnut of heavy industry and waste dumps. A mammoth water treatment plant that contains acres of waste-drying areas is present as are more than 100 industrial plants and 50 active or closed waste dumps. The area contains 90 percent of Chicago's landfills. Altgeld Gardens, whose residents are virtually all African-American, was built on the edge of an old industrial dump. Today airborne pollutants from this industrial area cause a host of ailments: watery and burning eyes; skin rashes; conjunctivitis; asthma; and other respiratory illness. Residents suffer from high rates of bladder and lung cancer. A citizens group, People for Community Recovery, working with other environmental groups, like the Southeast Environmental Task Force, decided to fight the areas powerful industrial companies. They have won some key battles. In 1998, an incinerator was shut down, and plans to build another landfill were blocked.

The Power of Plants

How did people treat illness and disease before there were grocery stores and pharmacies? They looked to nature to treat their symptoms. Many native plants in Illinois were used for food and for their healing properties. Bloodroot, a spring woodland wildflower, can be used to treat respiratory illnesses, including bronchitis, asthma and laryngitis. The compound salicin, closely



Student Page Future Worlds (continued)

MAKING IT HAPPEN

related to aspirin, was discovered in the bark, leaves and buds of willow trees. Native medicinal plants, and the knowledge handed down by native cultures, is very valuable today, as we continue to find ways they can help control diseases.

Songbirds on the Net

A student in Illinois logs onto the Internet and enters her observation: yellow warbler spotted today! She's one of many students participating in an environmental education program called MISTNET (Migration Information Songbird Tracking NETwork). Participants track the migration of several songbird species between their winter habitats in the tropics and their summer habitats in the United States and Canada. The students are helping scientists monitor songbird populations, which are decreasing because of habitat loss. The students are learning a lot about birds and migration, and they're participating in a project that gives a whole new meaning to the phrase "web of life."

Planes, Trains and Automobiles

Smart growth is a new name for an old idea in Chicago. Before the automobile was available, people had to live near their work, shopping centers and schools. This large city was once a small trading town on the only water connection between Lake Michigan and the Mississippi River. When railroads came through the Midwest, the city began to grow. City planners like

Daniel H. Burnham and Frederick Law Olmstead developed ways to preserve the beauty of Chicago while planning for its transportation and business growth. For example, the Burnham Plan of 1909 addressed planning for roads and buildings in Chicago as well as parks and beaches along Lake Michigan. Today, balancing the population growth of Chicago with the expansion of buildings, roads, airports, sewers and utilities, has impacted our natural resources, resulting in air and water pollution, global warming and losing natural areas to development. A new movement called "Smart Growth" promotes ways of building and rebuilding neighborhoods and incorporates long-term planning practices to protect the areas natural resources.

Poached Eggs

Fossil records show that paddlefish have been swimming in Illinois waters since before dinosaurs ruled. Recent declines in the number and range of paddlefish have been caused by overharvesting, water pollution, sedimentation of gravel areas needed for spawning and the construction of dams, altering natural water flow, water levels and water temperature and blocking migration and access to spawning grounds. Poaching (illegal killing) of paddlefish for their eggs creates other problems. The eggs can be used for caviar, although they may contain chemical contaminants, making them unsafe to eat. All these factors have made survival very difficult for these ancient creatures.



Student Page Future Worlds (continued)

MAKING IT HAPPEN (continued)

Today, people throughout the Midwest are working hard to save the paddlefish. Since the fish travels great distances, fishermen and federal, state and tribal management agencies are cooperating to protect it. Commercial harvest and snag fishing of paddlefish is banned in most Illinois waters. Conservation police officers are working to catch poachers. Other projects that are helping paddlefish populations include stocking young paddlefish into water bodies, using radio transmitters to track the movement and habitat use of individual paddlefish and removal of some dams.

A New Crop of Farmers

Throughout Illinois farmers are working to protect and improve the quality of their land. Some have begun to practice "sustainable agriculture." Sustainable agriculture considers weather patterns, soil type, ecoregions and crop requirements when making decisions. This type of farming can reduce the need for pesticides and large farm machinery, while lowering fuel costs and conserving fuel. A variety of food types may still be grown. The practice also benefits wildlife and water quality. The U. S. Department of Agricultures Sustainable Agriculture Research and Education program and the Illinois Department of Agriculture also support and promote sustainable agriculture.

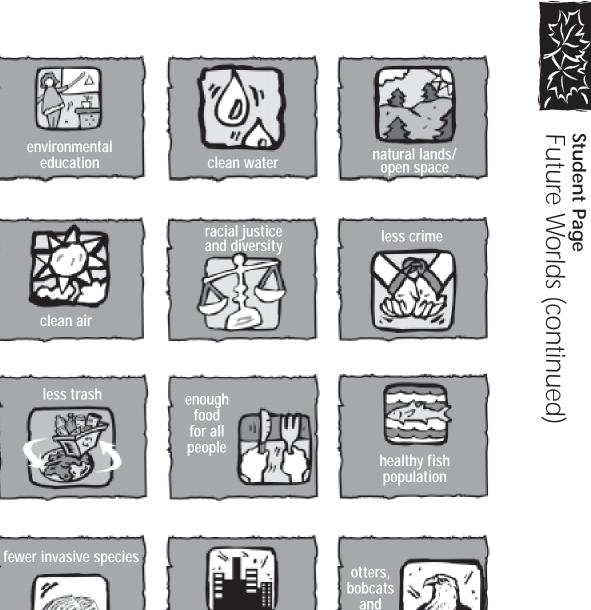
Stewardship Volunteers Hard at Work

Illinois has many plant and animal species that have been brought here from all over the world,

escaped from culitivation or captivity and now grow freely in the wild. These new residents are known as nonnative or exotic species. These organisms often grow and/or reproduce faster than native species and have few or no natural control methods, like predators. In many cases these organisms replace native species. Volunteers throughout the state are working to eliminate some nonnative species. They help restore natural areas that have been overburdened with nonnative species, such as kudzu and purple loosestrife.

Populations at Risk

When you think of a lifesaver, chances are good that you don't think about a law. But the Endangered Species Act, passed in 1973, is a law developed to protect all species in the United States from extinction. Each state has also adopted its own endangered species law to protect species that may be in trouble in the state but not throughout the nation. Using scientific information, federal and state agencies determine which species are threatened or endangered. Then they develop plans to help the species recover. According to the U.S. Fish and Wildlife Service, populations of more than half of the 1,177 plants and animals the Act protects in the United States are stable or growing. The most heralded success of the Act is the recovery of the bald eagle population with a tenfold increase in just 25 years. It also has aided the survival of the white fringed orchid, the peregrine falcon and the Illinois chorus frog.



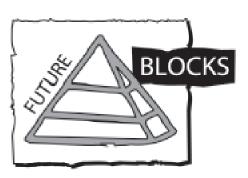
eagles

smart growth



clean air

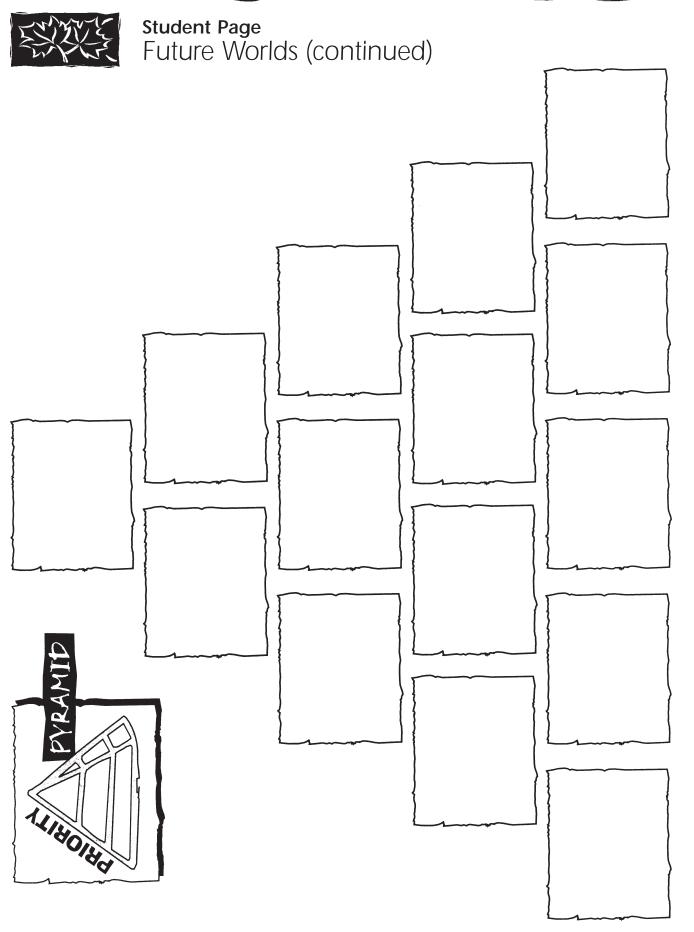
less trash



less conflict

cures

for illnesses



Illinois Biodiversity Basics Illinois Department of Natural Resources, Chicago Wilderness, World Wildlife Fund