

***Dedicated
to Reducing
Pesticides***

Unit 6 Lesson 1: The Choice is Yours

Focus Areas: Environmental Action, Science, Language Arts, Social Studies

Focus Skills: critical thinking, problem solving, comparing and contrasting, determining cause and effect, developing a survey, analyzing and interpreting data

Objectives

- To identify environmental problems that impact people, plants, and wildlife
- To distinguish between actions that are harmful and beneficial to the environment
- To understand how all living things are affected by damage to natural habitats and ecosystems
- To identify ways to reduce the “Ecological Footprint” humans leave on the Earth
- To evaluate the possibility of making changes in behaviors related to the environment

Essential Questions

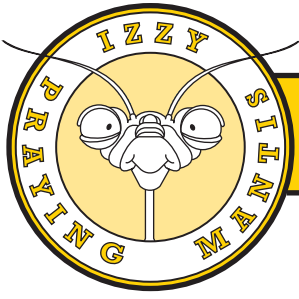
- What are some of the environmental issues that impact people, plants, and wildlife?
- How do children’s daily human activities contribute to stressing the resources of the planet?
- How can the growing human population lessen the environmental impact on the planet?

Essential Understandings

- The Earth and all of its species are threatened by habitat loss, introduced species, pollution, population growth, and over-consumption of the planet’s resources.
- Daily activities that contribute to planet stress include: use of water, use of electricity from fossil fuels, the effects caused by



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Unit 6 Lesson 1: The Choice is Yours

the production and manufacture of food and clothing, and the environmental consequences of recreation and entertainment.

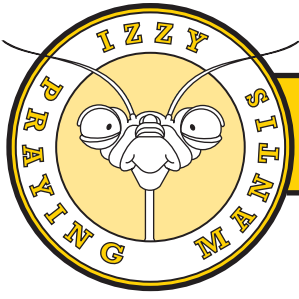
- To reduce the stress on the planet, we can conserve electricity and water, create less waste, reduce car use by walking, riding a bike or using public transportation, eat foods that are grown using Integrated Pest Management (IPM) methods, bring bags to the store, and join community groups that conserve, reduce, reuse, and recycle Earth's once abundant resources.

Background

All living creatures share the same basic needs. The health and well-being of people, pets, plants, and wildlife is dependent upon an environment that has enough available food, water, shelter, and space. Due to habitat loss and degradation, record numbers of species are becoming extinct and endangered. Not since the mass extinction of the dinosaurs 65 million years ago has there been such an accelerated loss of species. Scientists estimate the rate to be 3 creatures per hour!



Invasive species of plants and animals are also seriously disrupting the environment. Cane toads are a native species that are found in South, Central, and North America. In 1935, farmers in Australia imported the toads so that they would control the cane beetles that fed on sugar cane and severely damaged the crop. Toads are very effective insect eaters under the right conditions. However, the farmers never considered the fact that the toads had to be able to reach up and catch the beetles as they feasted on the sugar cane. The toads, however, were too big and hefty and couldn't jump high enough to attack and eat the beetles on the tall stalks of the cane. The toads, however, did find other things to eat. They survived and flourished. Populations continued to multiply, and farmers had no idea how to stop them from reproducing.



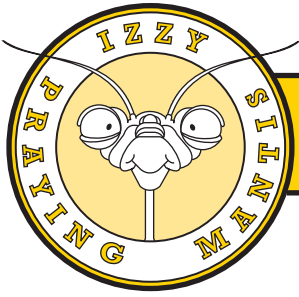
Unit 6 Lesson 1: The Choice is Yours

Overpopulation and its subsequent pollution are taking a toll that many scientists feel is irreversible. We depend on technology to produce everything from running shoes to computers. Cars take us where we want to go whenever we like. Fertilizers and pesticides make a wide variety of appealing foods readily available at reasonable prices. Factories produce an abundant array of material products to make our lives more comfortable and convenient. All of these activities pollute our environment.

People in the United States tend to enjoy convenience. We are in the habit of throwing things away and creating mountains of waste. How many of us carry a lunch packed with materials that must be dumped? How many people wash and reuse containers and water bottles to save the environment, or do they reach for handy disposable packaging? We continue to pollute because we depend on technology that creates huge amounts of waste from the containers that products are shipped in to the way they are packaged. The current health kick that promotes “drinking plenty of water” has also created mountains of plastic water bottles strewn along highways and crowding landfills across America. We don’t want to pay to clean up after ourselves. Protecting the environment takes time, thought, and human energy.

In 2000, the United States had a population of 270 million, which increased to 300 million in 2006 and is expected to grow to 335 million by the year 2025. This is equivalent to adding a new New York City to the world every month of every year! The U.S. growth rate is 0.9 percent, well below the world growth rate of 1.5 percent. However, our use of resources is unprecedented. Although we make up less than 5% of the world’s population, Americans use nearly 25% of the world’s resources. We are responsible for 23% of the world’s carbon dioxide emissions, and we own 25% of the world’s cars.





Unit 6 Lesson 1: The Choice is Yours

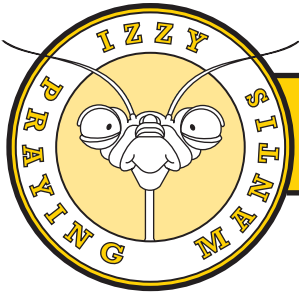
Scientists refer to all of the environmental problems above as the **HIPPO** dilemma. Each letter stands for a problem that needs to be addressed: **H=Habitat Loss I=Introduced Species P=Pollution P=Population Growth O=Over-consumption.** Unless these problems are addressed immediately, the Earth will not remain the rich and resilient planet it has always been.



Vocabulary

ecosystem	a special habitat where plants and animals share a unique relationship
ethics	beliefs derived from guiding moral principles influenced by age, gender, culture, family, and religion
herbicides	chemicals used to kill plants
lifestyle	the manner in which a person lives
pesticides	chemicals used to kill pests
pollution	waste products from industry and human activities that negatively affect the land, water, and atmosphere
population	a group of organisms of the same species that live in the same area
responsibility	to answer for one's own conduct and obligations





Unit 6 Lesson 1: The Choice is Yours



Logistics

Time: one or two 45-minute sessions, depending on the level of involvement

Group Size: 30

Space: an area with comfortable seating



Materials

Handout 1 “What Can You Do to Reduce Your Ecological Footprint?” *

collections of books, films, magazine articles, etc. dealing with current environmental issues

Silent Spring by Rachel Carson **

Assessment for an Editorial or Debate *

Assessment for a Persuasive Piece *

Assessment for a Position Paper *

* single copy provided

** available in the IPM Curriculum kit for grades 7&8 or from a public library



Preparation

1. Assemble the items from the **Materials** list.
2. Locate articles from current newspapers, magazines, and online resources that address current environmental concerns such as global warming, water pollution, etc.



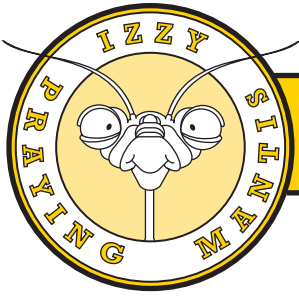
Activity

Challenge: Examine your effect on the environment.

(Display for group viewing)

Introduction

1. Explain to the participants that, as they age, they will find themselves in more and more situations where they have to make



Unit 6 Lesson 1: The Choice is Yours

their own decisions based on what they personally believe is right or wrong. These guiding beliefs, called ethics, are influenced by age, family, culture, religion, and gender. Ethical decisions extend to many areas of our lives, including how we treat the environment - all of the plants, animals, and other humans with whom we share the Earth's resources.

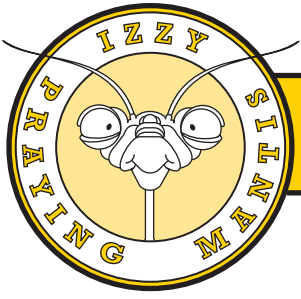
2. Show or explain Rachel Carson's book, *Silent Spring*.

Background: Rachel Carson was an environmentalist. Born in 1907, from an early age she began writing her own books. She never suspected that one day she would write a book that would change the way people looked at the world around them.

In the 1950's, DDT was being proclaimed to be a miracle chemical. This deadly pesticide was sprayed to kill insects that destroyed crops. Farmers used it to produce more undamaged crops that could be grown more cheaply. Rachel didn't believe it was a "miracle." Indeed, she observed that birds were dying near areas that were sprayed. In addition, DDT poisoned all of the insects, not just the ones that were ruining the crops. It disrupted the food chain and caused the near extinction of many larger birds that fed on creatures whose bodies contained high concentrations of the chemical.

Rachel Carson decided to do something to let people know about the danger of this powerful pesticide. In 1962 her book, *Silent Spring*, was published. It was immediately attacked by scientists, manufacturers, and even farmers who wanted to believe that the chemical was a simple cure for many insect problems. As the evidence mounted and more and more species were affected, it still took over 10 years before DDT was banned in the United States. Many more years passed, however, for its long-term devastating effects to be felt. Scientists believe that the serious decline of the songbird populations in New England is a result of DDT contamination that occurred over 55 years ago!





Unit 6 Lesson 1: The Choice is Yours

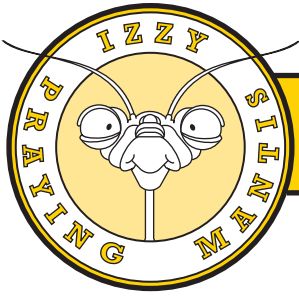
Rachel Carson took a courageous stand in the face of adversity. She died of cancer, one of the environmental hazards of DDT use, at the age of 56.



Involvement

Note: The purpose of this activity is to provide participants with an opportunity to explore their own lifestyles in light of their effects on the environment. Group discussions need to respect children's rights to privacy and nonparticipation. Presenting accurate information about human impact on the environment will help children develop more responsible decisions concerning wildlife and the environment on which all life depends.

1. Have the children brainstorm a list of the daily effects each of us has on the environment. (Consider the use of water, energy resources, burning fossil fuels, production and manufacturing of all of our material wants and needs from clothing to IPODS, recreation and entertainment, transportation, and food choices.)
2. Discuss how all living things impact the environment but how human impact is different than that caused by other living things. [Human impact is far-reaching (Example: trash in outer space), long-lasting (Example: effects of spraying DDT), and can destroy everything in its path (Example: nuclear bombs).]
3. Discuss how "ethics" can influence the type of impact humans can have on wildlife and the environment. Have participants identify organizations or individuals who have done something of benefit for the Earth. (This could be part of a home assignment and be shared as part of the lesson **Involvement**.) Ask them to identify what they think the personal beliefs and values of the person or organization are based on the work that they do. (Example: The Cetacean Society seeks to protect endangered whales and educate people to the beauty and wonder of these magnificent creatures.)



Unit 6 Lesson 1: The Choice is Yours

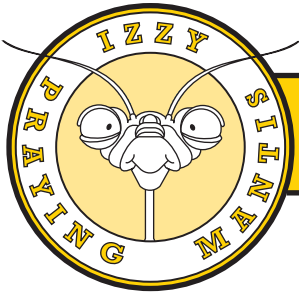


4. Have children identify something they have done personally, with their family, or with a community organization to help the environment. Ask why they were interested, volunteered their time, contributed money, etc. What does their action reveal about their own personal code of environmental ethics?
5. Distribute copies of Handout 1, “What Can You Do to Reduce Your Ecological Footprint?” Have the children check off the actions that they routinely do as part of being responsible stewards of the planet. Have them try calculating their school or group’s “Ecological Footprint” using the calculator found at www.kidsfootprint.org/whatcanyoudo.htm

Follow-Up

People and wildlife in nature share the same basic needs as well as environmental concerns. The health and well being of all living creatures depends on having sufficient food, water, shelter, and space.

1. Have the participants develop a survey - a set of questions - to use to interview people in the community to identify environmental problems. Have each participant sample 5 to 15 people. Combine the information gathered from the surveys or interviews and rank them. Categorize the concerns according to issues related to land, water, atmosphere, or living things. Have participants analyze the results and interpret their findings.
2. Analyze the problems to determine if they affect only humans, or only wildlife. This helps to illuminate the fact that problems that affect people frequently affect all living things.



Unit 6 Lesson 1: The Choice is Yours

Assessment

Have participants write an editorial for the local paper that summarizes what they have learned from this examination of their own environmental ethics and those of the community and their peers. Send the most persuasive pieces to the local newspaper for potential publication.

Use one of the following Assessments, depending on what type of written product the children reproduce:

Assessment for an Editorial or Debate

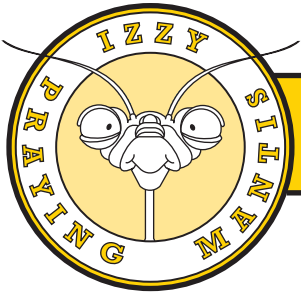
Assessment for a Persuasive Piece

Assessment for a Position Paper

Follow Through

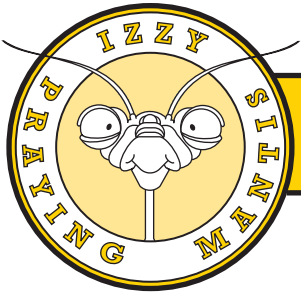
1. Publish a brochure that shows the results of the surveys and make it available through the offices of the Town Hall.
2. Create a video regarding these local concerns to be broadcast on a local TV channel.





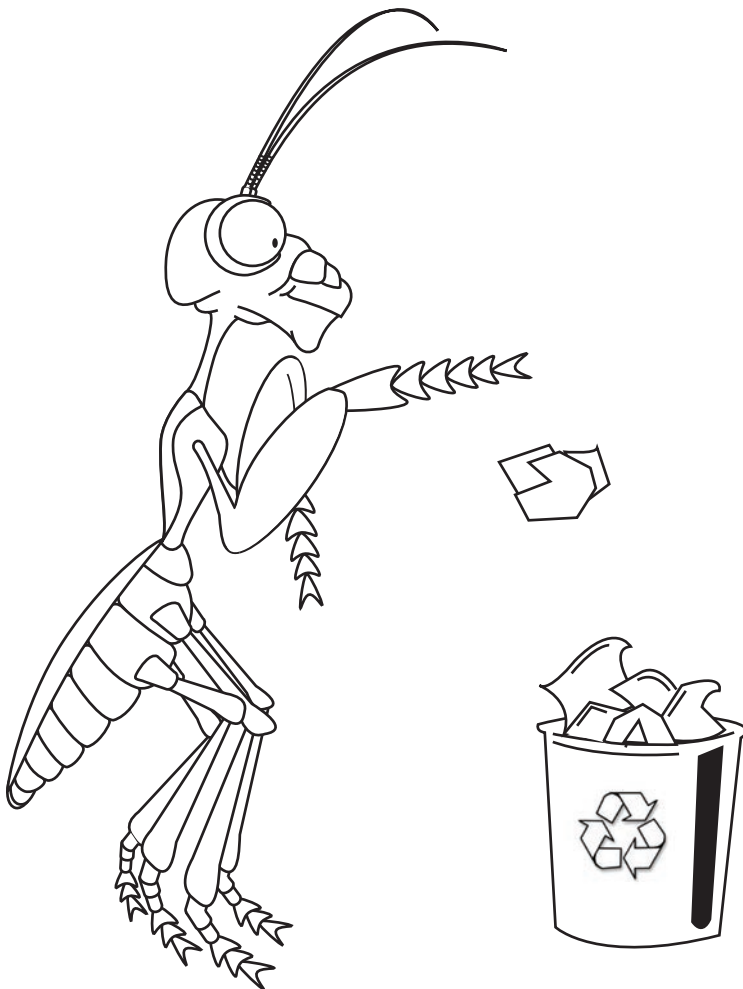
Unit 6 Lesson 1: The Choice is Yours

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Unit 6 Lesson 1: The Choice is Yours

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