

***Dedicated  
to Reducing  
Pesticides***

## Unit 3 Section 1 Lesson 3: Better Homes and Gardens

**Focus Areas:** Science, Language Arts, Graphic Design, Math, Environmental Studies

**Focus Skills:** Researching a topic, cooperative planning and execution, letter writing, creating a diagram

### Objectives

- To determine the needs of butterflies
- To create an environment in which butterflies will thrive
- To recognize the importance of becoming Earth stewards

### Essential Questions

- What environment do butterflies need to survive and grow?
- How can a butterfly garden provide for butterflies' needs?
- Why is it important to preserve butterfly habitats?

### Essential Understandings

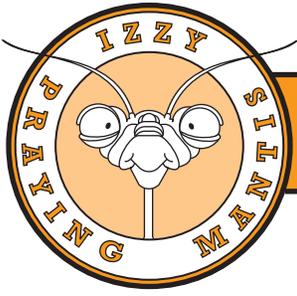
- Butterflies, like other living organisms, need food, water, and shelter to survive.
- Humans can provide the essentials for butterfly survival.
- Next to bees, butterflies are the chief pollinators of plants.

### Background

Deforestation of the oyamel forests in Mexico, urbanization of formerly natural areas, and an increase of land cultivated for commercial use and agriculture are threatening the monarch butterfly population. The destruction of monarch habitat both in overwintering sites and along the routes of migratory flights has come to the attention of scientists, environmentalists, and politicians. Plans to preserve existing butterfly habitats, and restore those devastated, are underway. However, legal action is a long, slow process. The monarchs and other butterflies need help now.



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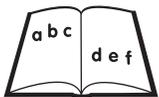
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In response to this growing threat to the butterfly population, many civic organizations, school groups, and individuals are taking positive action. A wonderful way to do this is by planting a butterfly garden. While helping to preserve a species that serves as a pollinator second only to bees, a butterfly gardener is rewarded with the opportunity to watch the movie stars of the insect world up close and personal.

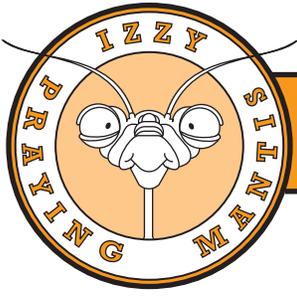
Butterfly gardens can be as small as a window box or as large as an area of a school playground. All that is needed are compatible plants for larvae and adult butterflies, a source of water for puddling, and plants to provide shelter during inclement weather.

There are a myriad of reasons to become a butterfly gardener. Chances are the butterflies will like the same flowers that you enjoy in your summer garden. By planting flowers in a section of your yard you reduce the need to mow, which will reduce pollutants from gas powered engines. Since butterflies enjoy a diversity of plants, a butterfly garden can reduce the number of host plants for pests! The butterflies in your area depend on native plants. As a gardener, this means a higher success rate of viable plantings. Butterflies are active in the warmth of the day and will provide hours of viewing enjoyment for minimal human effort.

### Vocabulary



<b>annual</b>	a plant that germinates, grows, flowers, and produces seeds in a single growing season
<b>biennial</b>	a plant whose life cycle is two years. It blooms in the second year.
<b>caterpillar</b>	the larval stage of moths and butterflies



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<b>chrysalis</b>	the pupal stage of a butterfly
<b>herbicide</b>	a chemical substance that kills plants
<b>host plant</b>	a plant on which adult butterflies lay their eggs
<b>insecticide</b>	a chemical substance that kills insects
<b>larva</b>	the second life stage of many insects. In butterflies, this is a caterpillar.
<b>nectar plant</b>	a plant that provides a food source (nectar) for butterflies, bees, moths, and hummingbirds
<b>organic</b>	a natural substance, in comparison to a synthetic substance, such as a manufactured chemical
<b>perennial</b>	a plant that grows, flowers, and produces seeds in a continuous cycle, with a dormant stage between each cycle
<b>pesticide</b>	a substance that kills either plant or animal pests
<b>pollination</b>	the transfer of pollen grains, needed to produce seed, from one flower to another
<b>puddling</b>	drinking from a mineral-rich water source. Male butterflies especially seek minerals in water that can't be obtained from nectar alone.



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### Logistics



**Time:** 3 sessions of 40 minutes each, plus several hours to plant shrubs in the fall and flowers in the spring. In addition, some participants in this project may be asked to speak to adults (PTO, School Board of Education, civic groups, etc.) to obtain help and/or permission.

**Group Size:** 5 to 30

**Space:** a room with comfortable seating and an outside area



### Materials

plants and seeds compatible with both larval and adult butterfly needs

an area to plant a butterfly garden

white/blackboard or chart paper

graph paper

Internet access and/or print materials on butterfly gardens

Handout 1 “Tips on Butterfly Gardening” \*

Handout 2 “The Basic Needs” \*

Handout 3 “List of Possible Nectar, Host Plants, and Seeds for the Garden” \*

Handout 4 “Diagram and Directions for Garden Design” \*

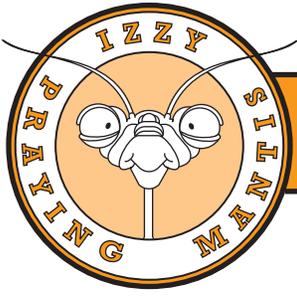
\* single copy provided

### Preparation



#### Prior to Introduction

1. Obtain permission to plant a butterfly garden on a portion of your school or town property.
2. Arrange for a speaker from a local nursery or garden club (optional).
3. Check and bookmark websites on butterfly gardens.



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4. Contact local nurseries to obtain price lists for needed materials.
5. Enlist the help of parents or other leaders to create the garden.
6. Determine payment options for creation of your butterfly garden with the administration.
  - a. Parent Teacher Organization (PTO)
  - b. Fund raising
  - c. School budget
7. Prepare copies of Handouts 1, 2, 3, and 4.
8. When prices have been determined, create a price list and make copies for each team (Handout 5).

### Activity

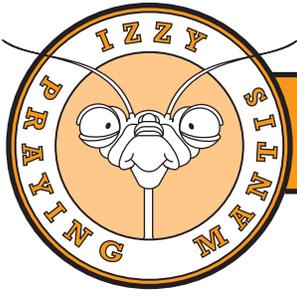
**Challenge:** Create an inviting butterfly environment.

*(Display for group viewing)*

### Introduction

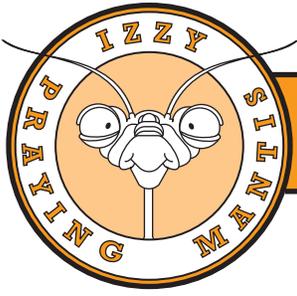
1. Discuss the needs of living things and display responses. (food source, water source, shelter, air)
2. Ask the question, “How do butterflies meet these needs?” (Caterpillars eat leaves, butterflies sip nectar, trees and shrubs protect them from wind and rain.)
3. Introduce the vocabulary word puddling and explain. (see **Vocabulary**)
4. Create the scenario: You are on a 2,000 mile trip, but all the grocery stores have closed and the restaurants and motels/hotels have gone out of business. Ask the children what they would do. (Ask for help from people who live in the area.)
5. Discuss the current threat to the monarch population: deforestation of oyamel forests in Mexico, destruction of natural wild areas to build homes, malls, etc., and the changing of natural meadowlands and prairies to cultivated fields.





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6. Discuss ways in which you and the children could help provide the environment needed by butterflies. (Write letters to government officials urging them to pass laws to protect the butterflies' natural environment, create a butterfly friendly environment on the school or town grounds)
7. Distribute Handout 1 to half of the children and Handout 2 to the other half. Allow time for the children to read them.
8. Invite a guest speaker to talk to the children about butterfly gardens or research the topic online and through printed materials.
9. Create a list of what will be needed in your butterfly garden. (sunny locations, shelter from wind, nectar-rich blooms, host plants where they can lay eggs, moist sand or mud for puddling, flat rocks or other light colored flat surfaces for basking)
10. Research online, through print materials (see **Resources**) and Handout 3, which specific plants you could use in your garden.
11. Over the next four to five weeks, the children will work on one of the following assignments. Post them and allow all the children to choose one of the tasks, or assign participants to each task.
  - a. Write or call local nurseries and greenhouses to check on the prices of needed materials. Share your findings. Based on the cost, determine the feasible size of your garden with your classmates.
  - b. Scout the area to determine possible sites for your garden. Share your findings.
  - c. Meet with the administration to request the use of an area of the determined size on the school or town property for a butterfly garden.
  - d. Write letters to possible funding groups explaining your project and the reason for it. Speak in person to possible funding groups.
  - e. Write a letter to people who could help create your garden, parents, local landscapers, Scout troops, garden club members, etc.



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12. Plan and hold fund raisers if necessary.

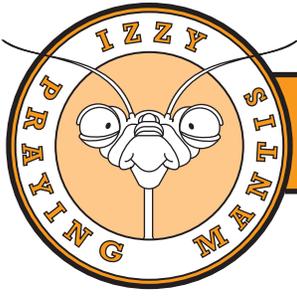
**Note:** Letters may be written as a Language Arts assignment following a review of letter writing etiquette and format.

### Involvement

1. Divide the groups into teams of three or four.
2. Scout the proposed site and decide on the location for your garden.
3. Give each team three pieces of graph paper, and demonstrate the relationship of the printed squares to distance: 1 square = 1" or 1 square = 6". (to be determined by your garden size)
4. Distribute Handout 4 to teams, and create butterfly garden designs to include estimated cost.
5. Based on the list generated in #9 of the **Introduction** and taking estimated cost into account, select the best design for your proposed budget and space.
6. Set a date (a weekend is best) to create your garden and contact the volunteers who will help you.
7. Make copies of the design so all those involved will have a clear understanding of the final product.
8. Prepare and send a notice to the parents or other adults, advising them of:

- a. Date and time span of project
- b. Plan for lunch (brown bag, volunteers for a cookout, picnic, or pizza will work)
- c. Appropriate dress for the participants
- d. Request for tools
- e. Invitation to participate
- f. A permission slip for child's participation





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9. Assign teams to:
  - a. Plant flowers
  - b. Plant shrubs
  - c. Create a water source
  - d. Distribute and collect tools

10. Plant the garden.

**Note:** Each team should have adult supervision; one adult per five children.

### Follow Up

1. Assign teams to water and weed the garden.
2. Allow time during the warmth of the day to visit the garden.
3. Write thank you notes to any guest speaker and organizations who donated time, materials, or funds to this project. (These letters may be written as a Language Arts assignment following a review of letter writing etiquette and format.)

### Assessment

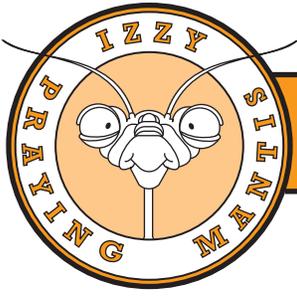
Self evaluation of individual contribution to the project and/or the project itself.

### Answer Key

(included as needed at the end of each question)

### Follow Through

1. Raise butterfly awareness in your city or town, and introduce the idea of butterfly plants in public parks to your local city council or whoever is in charge. It would be lovely to see butterfly plants and butterflies in public parks as well, instead of boring sunburned lawns!



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2. If you choose to create a butterfly garden at your school or a nearby park, please note that this will be an on going project. The first year shrubs may be planted in the fall and flowers in the spring. Throughout the growing season, plants will have to be watered and flower beds weeded. During the second year new annuals may be planted in the spring and shrubs trimmed. Watering and weeding will continue. The following years will be a repeat of year two. The initial creation may not attract butterflies until the following season, but the effort and wait will be well worth it.

### Resources

A special thanks to the following organizations that provided the information necessary to create this lesson:

**Butterfly World**

[www.Butterflyworld.com](http://www.Butterflyworld.com)

**Geocities**

[www.Geocities.com](http://www.Geocities.com)

**Journey North**

[www.learner.org/jnorth/](http://www.learner.org/jnorth/)

**Milkweed Café**

[www.milkweedcafe.com](http://www.milkweedcafe.com)

**Monarch Watch**

[www.monarchwatch.com](http://www.monarchwatch.com)





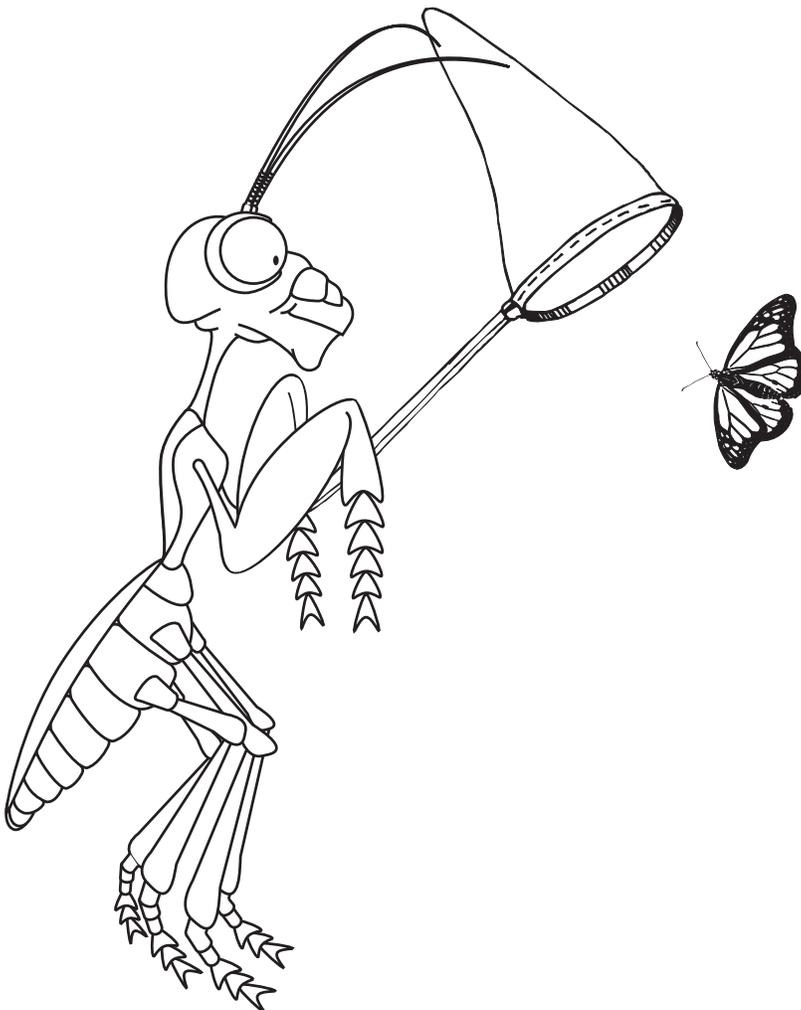
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**For further information contact:**

botanical societies in your area  
University of Connecticut Department of Plant Science;  
phone (860) 486-6448  
local garden and environmental groups

### **Suggested Reading**

*Butterfly House* by Eve Bunting  
*Where Butterflies Grow* by Joanne Ryder





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### Notes



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