

BUTTERFLY HABITAT GAME: BLOOMS AND BUDS

OBJECTIVES

Students will:

Construct and portray a butterfly habitat complete with the butterfly, food plants, host plants hilltop and predators.

Learn the importance of certain plants to the butterfly life cycle

Analyze the affects of too little or too much of one necessary plant species which occur in a butterfly habitat.

MATERIALS

- Rope or cones to mark boundaries of habitat.
- Easter Eggs or other items or tokens to represent food.
- Butterfly, host plant and food plant name tags.
- Flags, bands or vests for predators.

BACKGROUND

Butterflies are beautiful creatures most people enjoy looking at. Most people don't realize how important a role butterflies play in nature, and the amazing actions in a butterflies life cycle.

Butterflies help flowers pollinate by visiting several different flowers to feed, and transferring pollen from one flower to another. Butterflies are also an indicator to the health of the environment because they have specific habitat requirements. If butterflies disappear from a certain habitat, it is because the food or host plants they need no longer exist there. Such specific requirements can cause many species of butterflies to become extinct if the plants they need are not available in any habitat.

A butterfly starts out as an egg laid onto a specific host plant. The egg hatches into a small caterpillar which feeds ferociously, and then encases itself in a cocoon. Inside the cocoon the caterpillar changes completely. Its body tissues break down and begin to reform into the larger adult shape. When the adult emerges it must unfurl its wings and wait until they take form, so they can fly off. As an adult they fly around looking for flowers to feed on, mate, and then look for plants to lay eggs on.

Butterflies feed with a proboscis, which is a tube they extend into flowers to suck out the nectar like a straw. When not feeding the tube is coiled up under its head.

PROCEDURE

Warm Up

Use the Eastern Tiger Swallowtail as an example and explain the basics of butterfly feeding, and identify each of its plant requirements. Discuss other habitat needs and stress the importance of them. Explain the game and each participant's role, and what their duties are.

Role of Participants

Butterflies - (Each butterfly is assumed to be a mated (pregnant) female.) Enter playing area to look for food plant. Must uncoil proboscis by uncurling their hand and arm, to retrieve food token. Next they must go to the hilltop to "mate", which is done by just entering the hilltop area. Then they look for host plant to drop token on, which is now said to be an egg. On the back of their name tags is a list of their food and host plants so they can remember and match them up. When complete must leave playing area.

Butterfly Bush (food plant) - Stays motionless in playing area holding a food token in cupped hands, to simulate the petals of a flower. After losing food token host plants squat down to simulate "wilting", and show butterflies they have no more food.

Tulip Poplar (host plant) - Stays motionless in playing area with hands open. When a butterfly lays egg, must close hands simulating a cocoon. May only receive one egg.

Other plants (non-usable) - Stays motionless in playing area until game is over.

Predators / Pollution - Enters the playing area when told, and tries to catch butterflies by tagging with both hands. Both the butterfly and predator must then leave the playing area. Predators can only take one butterfly per round.

The Activity

1. Delineate butterfly habitat with rope, cones or flagging. Have one side be the "end" zone, where students go when they are finished playing. Rope off one area of the play field to be the "hilltop" where butterflies must go to mate before laying eggs.
2. Select ten students to be butterflies will be given name tags. Butterflies then must stand outside the playing area until the game is to begin, and turn around so not to see which students are which plants. (Game will be run three times, so every student gets to be a butterfly.)
3. Identify one, two or no predators, and instruct them to wait outside the playing area on the opposite sides of the butterflies. (Pollution, birds, etc.)
4. The rest of the class must evenly be distributed plant species name tags. Try to have an even number of food plants, host plants, and "other", non usable plants. Give the food plants one food token each. Tell the plants to spread themselves out in the playing field.

5. When play begins, butterflies enter (flapping their arms like butterfly wings) the playing area and first begin to look for their proper food plant. Students who are plants can only say what species of plant they are, nothing else. Butterflies must uncoil their proboscis to get the food, then they must go to the hilltop to “mate”.

After “mating” they must re-enter playing area and find a host plant to lay eggs on. The food token becomes an egg, and butterflies place this egg in the hands of a student is the host plant. Once this is done, that butterfly is successful and can leave the playing area.

After some butterflies have successfully found host plants you can allow predators to enter the playing area. Any butterfly tagged by a predator must leave the playing area immediately. Predators can only tag one butterfly per round.

Ask how many butterflies successfully reproduced and then switch roles of participants. Make sure you have ten new butterflies, then distribute cards as per guidelines for round 2. Play round two and three and discuss results of each round.

Table 1. Distribution of participants roles.

	Round 1	Round 2	Round 3
Eastern Tiger Swallowtail	10	10	10
Butterfly Bush (food plant)	6	5	8
Tulip Poplar (host plant)	6	8	5
Other plants (non-usable)	6	5	5
Predator / Pollution	1-2	1-2	1-2

Wrap Up

At end of each round show students results and explained what happened in each round. In the first round most butterflies got to feed and lay eggs. The second round butterflies had a lot of host plants, but could not lay enough eggs because of a lack of food. The last round most butterflies got to feed, but could not find a host plant to lay eggs on. These examples show common problems facing butterflies today. Poor habitat containing not enough of the butterflies required plants, will not allow successful reproduction of the butterfly.

Extensions

Other species of butterflies can be added to the game. Some use the same plants, and others will need to use different species. Male butterflies could be added to the equation to allow females to mate before laying eggs.