



Exploring Co-Evolution of Plants and their Pollinators

Lesson Plan for Grades 9-12

Focus Questions

Why are flowers so different from each other? How might pollination play a role in the shape of flowers?

Lesson at a Glance

Students will investigate the co-evolution of mutualistic relationships while studying the roles of pollinators and plants.

Key Concepts

- Natural Selection
- Co-Evolution
- Adaptation
- Diversity

Objectives

- Students will compare and contrast features of flowers to become familiar with flower morphology.
- Students will be able to describe the mutual benefits of pollination for flowers and pollinators.
- Students will predict which flowers are associated with similar pollinators based on their own observations and a basic understanding of co-evolution.

Subject Areas

Biology, Ecology, English

Time

Two class periods and homework

Materials

- *Maoli Nō* DVD
- DVD player
- Ten different fresh flowers
- Diagram of parts of a flower (found in most biology books)
- Diagram of parts of an insect (found in most biology books)
- Field guides of insects and plants

Procedure

1. Play the *Maoli Nō* DVD, *Pua 'Iliahi* and *'Iwi Pōlena* songs. Talk about the meanings of the songs (using the music notes on the DVD). Both songs speak of native Hawaiian flowers.
2. Review the parts of a flower using a diagram.
3. Set up 10 different stations with one flower at each station and divide students into pairs.
4. In teams of two, have students look at the flowers at each station, comparing and contrasting the similarities and differences that they see.
5. Ask them to make a table listing five characteristics of the flower. Example: number of petals, number of stamen, symmetry, color, smell, size, time and length of bloom, number of flowers per stem, etc.
6. Now ask students to brainstorm common pollinators for each of these flowers. Most of these pollinators will be insects.
7. Go over the parts of an insect.
8. Have students attempt to predict which flowers have the same type of pollinators. Example: flowers with little scent and red/orange colors might fall into one category; flowers with strong scent and white may fall into another.
9. Based on their knowledge of insects and other pollinators, ask students to determine which specific pollinators might pollinate which flower. Have them think about co-evolutionary aspects of the plant and pollinator.
10. Have students verify their answers through research in books and on the Internet.

Assessment

1. Have students select one of their flowers to present to the class. They should explain what they think pollinates it and why.
2. Have students write a short report on a native Hawaiian flower of their choice, explaining a co-evolutionary relationship.

Exceeds	Met	Not Met
Correlation between plant and pollinator is logical, answer is correct. Clearly describes the adaptive features of both the flower and its particular pollinator.	Correlation between plant and pollinator is logical, even if it is not the correct answer. Describes a few adaptive features of both the flower and its particular pollinator.	No correlation between plant and pollinator. Does not describe adaptive features of flower and pollinator.