Conservatory Flower Dissection

Objectives

The amount of time a visitor spends with you at this station is ultimately up to him/her, and visitors may come and go in the midst of and activity. Therefore we cannot expect or require that every visitor comes away with the same knowledge or experience. However, a given visitor could be expected to come away with some combination (though not *all*) of the following objectives:

After having participated in the flower dissection station, the visitor can

- Identify parts of the four whorls, or layers, of a flower including *sepals*, *petals*, *anther*, *filament*, *stamen*, *ovary*, *ovules*, *stigma*, *style*, *and pistil*.
- Describe the function of the parts of a flower.
- Properly operate a dissecting microscope.
- Locate the ovules in a flower such as *Alstroemeria*.
- Locate pollen grains and stigma.
- Identify the role various flower parts play in pollination.
- Compare two different flowers considering presence or absence of whorl parts, number of flowers in a bunch (or inflorescence), shapes and colors, fusion of parts, symmetry, and potential pollinators.
- Identify a diversity of flower shapes and structures

Materials

- Forceps ("tweezers")
- Scissors
- Dissecting scope
- Petri dishes
- Probe
- *Alstroemeria* or a related lily
- As available:
    - *Cosmos* or related composite flower
    - *Salvia* or similarly-shaped flower
    - *Dendrobium* or other orchids
    - Other options will be available periodically

Procedure

Your presentation will vary based on a variety of factors, but there are a few procedural options that you can use as guides.

A. Focus on the *Alstroemeria* or another lily and facilitate the visitor's dissection, drawing attention to the individual parts and having a discussion about their appearance and possible functions.
    - The scope can be used to view petal patters, anthers and pollen, and/or ovules.
    - As time permits or based on audience interest, you can focus on specific whorls. For example, you may focus your facilitation on the reproductive parts or on the parts involved in attracting pollinators.
B. Focus on comparisons of two or more flowers. Encourage the visitors to contrast flowers and to look for similarities.
    - Comparisons can be made amongst petals of various flowers. The colors, patterns, shapes, and fusions have relations to the pollination process. A wind-pollinated flower may not even have petals.
    - Flowers have symmetry, including bilateral, radial, and irregular. You may focus on an exploration of examples of symmetry and encourage continued exploration throughout the conservatory.
    - Flowers may or may not have all the parts of the four whorls. You can lead a search for the presence or absence of these parts in different flowers.
C. Use the facilitated experience to reiterate concepts from the Conservatory's exhibits.
    - Lead a search for the location of nectar in different example flowers.
    - Compare the anthers and stigmas in different examples and encourage the visitor to use the scope to look closely at the pollen and the often-sticky stigma.

Tips and tricks

- Remember the inquiry method. You can use entirely open questions such as "tell me what you see" to gauge a visitor's interest and tailor the process based upon responses. You can also ask pointed questions that still are open ended, for example, "How would you describe the patterns?" or "What do you see now?". A question such as "What colors do you see?" can lead to more discussion when rephrased "Tell me about the colors".
- Even with an unfamiliar flower, you can facilitate discovery. Highlight shapes, differences from the flowers that are familiar, and encourage the visitor to make his/her own predictions about the shapes, colors, etc.

Even if you do not know if the predictions are correct, you can ask "What makes you say that?" and continue the conversation.

- When possible, encourage use of the dissecting scopes. This can be particularly useful when examining the patterns on petals, ovules, stigma, and anthers/pollen.
- There are many options; be flexible to allow the process to vary based on time, visitor interest, available materials, etc. Challenge yourself as a facilitator to try new directions. Share "notes" with other facilitators.
- Allow the visitors to dissect their own flowers as much as possible.
- Encourage the visitors to use new knowledge in the rest of the Conservatory and the other Gardens.