Lesson Plan: Plant Phylogeny

NOTE: You MUST notify the ICE team at least 1 week prior to using this activity so they can be sure the live potted plants are available.

General Description
This activity is designed to introduce students to phylogenetic reconstruction using morphological characters. Students will examine live potted plants and create a hypothesis regarding their relationships.

Objectives
The student will:
1. Choose morphological characters and character states useful in phylogenetic reconstruction.
2. Use a character state matrix to reconstruct a phylogeny based on parsimony.
3. Determine if characters are ancestral or derived, or homologous or analogous based on their phylogenetic hypothesis.
4. Compare and contrast phylogenies based on different characters and data types.
5. Determine probable evolutionary relationships based on their phylogenetic reconstruction.

Concepts
parsimony, ancestral and derived character states, phylogeny, sister groups

Time
Approximately 50 minutes

Materials
7 live potted plants with accompanying pictures
phylogeny overhead
2-page student handout
2-page phylogeny comparison worksheet

Refer to the following website for more information on Angiosperm phylogenies: http://www.mobot.org/MOBOT/Research/APweb/welcome.html