

FAIRCHILD TROPICAL BOTANIC GARDEN

Exploring, Explaining and Conserving the World of Tropical Plants

Plant Kingdom Lab

Directions:

Set up the different plant kingdom stations (stations 1-4). Have the students walk through the different stations and answer the questions on their handouts.

Material list:

Plant kingdom resource kit (provided by FTBG during workshop) plus additional collected materials (in italics below).

OR:

Station 1:

- *4 different plants*
 - 2 true mosses
 - 2 plants that resemble mosses (ex: Spanish moss or a small grass)
- microscope or hand lens with a small portion of the moss under the scope
- optional: picture of peat moss

Station 2:

- *2 fern leaves*
 - suggested ferns could be: resurrection fern, leather fern, marsh fern, maidenhair fern
- *1 leaf that resembles a fern*
 - suggested example: plants with compound leaves such as lignum vitae or a member of the bean family such as the Royal Poinciana, or the asparagus fern
- fiddle head (young fern leaf) or picture of a fiddlehead
- optional: have students make a fern terrarium out of a recycled jar such as a jelly jar (see terrarium instructions)

Station 3:

- *4 different plants*
 - suggested examples: 2 gymnosperms: either cycads or pines
 - 2 additional plants, not gymnosperms
 - pictures may substituted for live gymnosperms
- pine cone
- optional: picture of *Ginkgo biloba* or a picture of a *Ginkgo biloba* product.

Station 4:

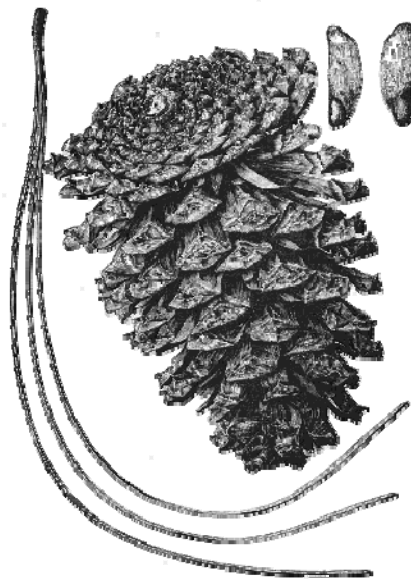
- labeled flower or picture of a flower
- monocot and dicot leaves
- cross-section of a monocot stem and cross-section of a dicot stem
- *Germinating monocot seed (corn) and germinating dicot seed (bean)*
- Resource sheet: comparison of a typical monocot and dicot

Gymnosperms (Station 3)

Gymnosperms are woody trees and shrubs that produce **cones**. Gymnosperm means “naked seed”. Unlike the angiosperms, gymnosperm seeds are not enclosed by the fruit. Instead, the seed are exposed on the scales of female cones. Some plants look like gymnosperms but are angiosperms and other plants look like angiosperms but are gymnosperms! Here you’ll see several plants. Look for cones and identify the gymnosperms. **Place an “x” next to the answer on your worksheet.**

- | | |
|---------------------|-----------------------|
| 9. _____gymnosperm | _____not a gymnosperm |
| 10. _____gymnosperm | _____not a gymnosperm |
| 11. _____gymnosperm | _____not a gymnosperm |
| 12. _____gymnosperm | _____not a gymnosperm |

USES for GYMNOSPERMS: Some people use conifers as holiday decorations in their homes. Other people use *Ginkgo biloba* as an herbal treatment for memory loss. Can you remember any other uses for gymnosperms?



Angiosperms (Station 4)

This group of plants protects its seeds in a fruit that develops from the ovary of the flower. Angiosperms are divided into two major groups: monocots and dicots or more formally -

- **Class Monocotyledonae** - plants with one seed leaf
- **Class Dicotyledonae** - plants with two seed leaves

Use the sheet titled "Comparison of Typical Monocots and Dicots" to decide which of the following are monocots (**M**) or dicots (**D**).

- | | | |
|----------------------|----------|----------|
| 13. flower | a) _____ | b) _____ |
| 14. leaf | a) _____ | b) _____ |
| 15. germinating seed | a) _____ | b) _____ |

USES for ANGIOSPERMS: As the most abundant group in the plant kingdom, angiosperms have uses too numerous to mention. Try thinking of a few uses, other than food.

