



Great Hill
Horticultural Foundation

Plant Evolution and Taxonomy

Introduction: During this field trip we will be concentrating on the evolution of plants and their progression from simple to complex organisms. Observation of actual plant examples and their adaptive features will be possible. This field trip is most effective if your students have already studied plant evolution and the binomial classification system.

Some terms we will be using during your visit:

bryophytes
sporophyte
gametophyte
tracheophytes
sori
gymnosperms
conifers
ginkgos
angiosperms
monocots
dicots

Pre-visit activity: See page 2

Guided field trip: (2 hours) An experienced horticulturist and educator will guide your students on a walking trip of our planting fields and some of the grounds. Your students will be shown examples of plants following their evolutionary progression from mosses to angiosperms. Adaptive plant structures will be discussed and observed whenever possible depending on the time of the year.

Following your visit to GHHF your students should be able to:

- name several adaptations plants have made to life on land
- describe adaptive structures that allow plants to reproduce without standing water
- briefly outline the evolutionary history of seed plants
- discuss reasons angiosperms are the most successful of the land plants
- list several methods of pollination in seed plants



Among the trees you will be seeing during your trip to Great Hill Horticultural Foundation are:

Ginkgo biloba
Chamaecyparis nootkatensis
Picea abies
Cryptomeria japonica
Pinus aristata
Abies concolor
Sciadopitys verticillata
Metasequoia glyptostroboides
Acer palmatum
Cornus kousa
Franklinia alatamaha
Cercidiphyllum japonicum
Gymnocladus dioicus
Stewartia pseudocamellia



Some of these trees have very interesting stories behind them and/or characteristics you will be observing.

Choose one to research and answer as many of the following questions about your plant as possible.

1. Name the phylum or division your plant is in.
2. List as many characteristics about your plant as you can from knowing its division.
3. What is the common everyday name of your plant?
4. Are there any interesting facts about your plant you are able to find?

Such as stories about its discovery or how long it has been on earth. Maybe it has unusual or beautiful characteristic or perhaps an interesting adaptive reproductive feature. (Be prepared to inform your classmates of what you have learned when we actually see your plant during your visit.)