Following Plant Evolution through Plant Part Stations

Set up trays with plant material, various magnification devices, pruners and other cutting devices, chart paper and pens for recording questions, insights, discoveries, connections, etc. Aim for the greatest variety of plant material as examples of land plant evolution and the huge diversity in form. Consider adding another station with microscopes to see cyanobacteria and algae.

Sample planning matrix:

#1 – Non-Vascular • Moss • Liverwort	• Magnifiers: 30X micro-viewer • Digital scope • *Moss Liverwort comparison sheet
#2 – Roots • Sunchoke (tuber is modified stem!) • Grass Bamboo rhizomes and roots • Woody plant with mycorrhizae • Ivy adventitious roots	• Magnifiers • Digital scope • Photo of mycorrhizae • *1 pg. descriptor of root types and functions
#3 – Stems • Tall grass, ferns • Bamboo - cut open: length and width • Herbaceous and Woody stems • Tree cookie	• Magnifiers: • *Photos of vascular bundles: dicot vs. monocot • *1 page descriptor of stem types and functions
#4 – Leaves • Variety of deciduous leaves, including ferns • Variety of needles and scales • Ginkgo leaf	• Magnifiers – dissecting scope • *Photos of stomata and leaf structure • *1 page comparison needles vs leaves • Leaf model
#5 – Cones • Fleshy: ginkgo, yew arils, plum yew • Woody: dawn redwood, bald cypress, pine • Seeds from cones	• Magnifiers • Cut open cones: mature and immature • *Photo of male cones releasing pollen • *Botanical print of gymnosperms
#6 – Flowers • Lily – or other “perfect” flower • Other flowers as available	• Magnifiers • Dissecting scope • Flower 3D model
#7 – Fruit • Alder in various stages • Magnolia • Other fruit as available • Include seeds, pods, samaras, etc.	• Magnifiers

*Simple google image searches will yield all manner of diagrams, photos, other visual aids, and explanations.

Station #1

Non-Vascular Plants

Liverwort and Moss

“root-like, stem-like, leaf-like tissue”

Station #2

Roots

also

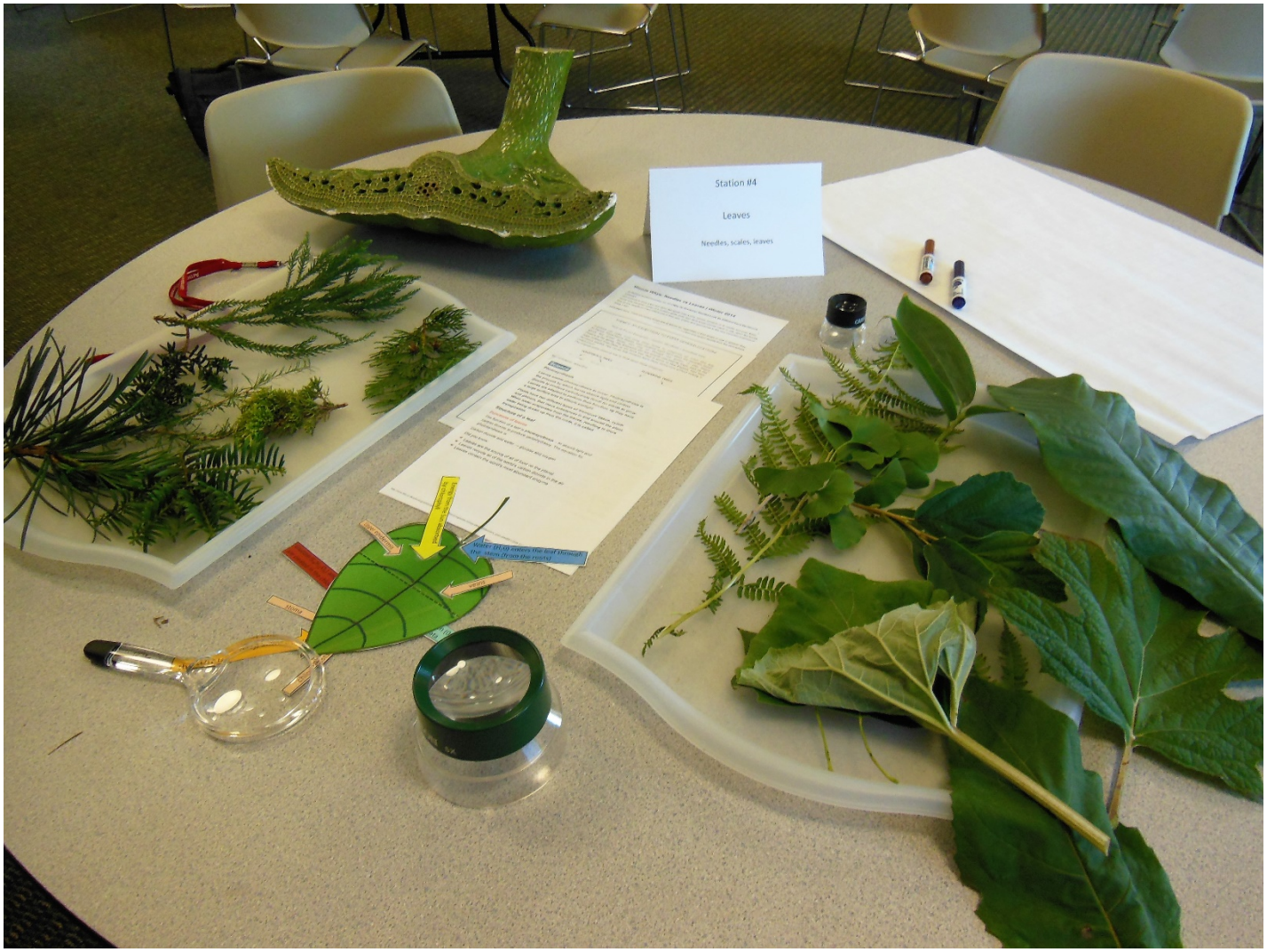
Rhizomes, underground modified stem tuber, mycorrhizae partnership

Station #3

Stems

Vascular system,

herbaceous and woody



Station #4

Leaves

Needles, scales, leaves

Station #5

Reproductive Structure: Cone

Fleshy and woody

Station #6

Reproductive Structure: Flower

Stamen and pistil, ovary

Pollen and ovules

Station #7

Fruit and Seeds

In botany, fruit is the plant part that protects the seed