**Lab 7: Kingdom Fungi and Kingdom Plantae**

 **Kingdom Fungi**
**Zygomycota:**dissecting scope A: Rhizopus (black bread mold)/identify sporangium (p. 136-137)
slide 1. Rhizopus conjugation (sexual structure)/ identify zygosporangium
 (this is where meiosis takes place). 10X. p. 136-137

**Ascomycota:**scope B: yeast: Observe wet mount slide of Saccharomyces
slide 2: Aspergillus (mold). Identify conidiophore p. 141; figure 6.25.
slide 3: Penicillium (mold). figure 6.22

**Basidiomycota:**specimen A: Common mushroom: Identify stalk, cap, gills; p.144
specimen B: observe assorted basidocarps

**Lichens:**
specimen C: Lichens can be compact and crustose, leaflike and foliose, or shrublike and
 fruticose. Identify the 3 different lichen shapes provided
slide 4: Lichen. Identify algal cells & fungal hyphae. p.147, fig. 6.43.

**Mycorrhizae:**slide 5: ectomycorrhizae. Note the placement of the hyphae in relation to the plant root.
 Label plant root and fungal hyphae.
slide 6: endomycorrhizae. Note the penetration of the plant root by the hyphae. Identify
 plant root cells and fungal hyphae.

 **Kingdom Plantae**
**Nonvascular Plants:**Specimen D: Liverworts/Marchantia. Identify gemmae cups. p.71, fig. 5.9.
Specimen E: Bryophyte/moss. p. 75-77. Identify the sporophyte and gametophyte.
 Which structure is (n) and which is (2n). Identify the stalk, capsule.
slides 7, 8, 9: Mnium moss:
 7: Archegonia: identify the egg p.77 fig.5.35
 8: Antheridia: identify the sperm p.77 fig. 5.37
 9: Capsule: identify the spores p.77 fig.5.39

**Seedless Vascular Plants:**Specimen F: Phylum Pterophyta = live fern. On live fern, identify frond and sori; p.89,
 fig. 5.85
slide 10: Fern: Identify gametophyte, young sporophyte. Is each structure (n) or (2n)?
 p.88 “young sporophyte growing from gametophyte” life cycle.)

**Gymnosperm:** vascular plants with naked (no fruit) seeds
specimen G: Conifer: p.99. Identify male and female cones from a pine tree
slide 11: male staminate cone: identify microsporangium and pollen grains. Pg 104 Fig.
 5.157 and 5.158a.
slide 12: female ovulate cone: Identify ovule and cone scale. p.103 Fig. 5.153

**Angiosperm: flowering plants
Roots:**slide 13: c.s monocot root. Identify the xylem and phloem. p.107, Fig. 5.170
slide 14: c.s.dicot root. Identify the xylem and phloem. p.109, Fig. 5.181
Specimen H: Identify taproot vs fibrous root. p. 107
Specimen I: Observe assorted modified roots.

**Stems:**slide 15: monocot stem. Identify vascular bundle, xylem and phloem. p.111, Fig. 5.190.
slide 16: eudicot (dicot) stem. Identify vascular bundle, xylem and phloem. p.111, Fig.
 5.192 and 5.193
specimen J: woody stem cross section. Identify annual rings, heartwood, sapwood.
specimen K: Observe assorted modified stems.

**Leaves:**slide 17: transverse section slide of dicot leaf (ignore monocot leaf present on the same
 slide). Identify the epidermis, palisade mesophyll, spongy mesophyll and
 vascular bundles. p.116, Fig. 5.214.

**Reproductive Organs: flowers**Specimen L: dissect the flower: identify the stigma, style, ovary, anther, filament,
 stamen, petal.

**Seeds:**slide 18: Capsella with seeds: Identify seed coat and cotyledons. P. 129, figure 5.276/7

 **Fruit:**
12. How do you use a dichotomous key to learn the botanical names of different types of fruit? Play…

**Additional questions:**1. Is the conidophore a sexual or asexual structure?
2. When you look at a bed of moss, are you looking at the gametophyte or sporophyte generation?
3. What is a lichen?
4. How do female vs male conifer cones look different?
5. What is the purpose of pollen?
6. Why do you think the male/female parts of a flower are arranged as they are?
7. When you are looking at a fern plant, are you looking at the gametophyte or the sporophyte? Is this generation of the plant n or 2n?
8. Why are fern usually found in damp areas?
9. What you are looking at a mushroom, what is the purpose of that structure?