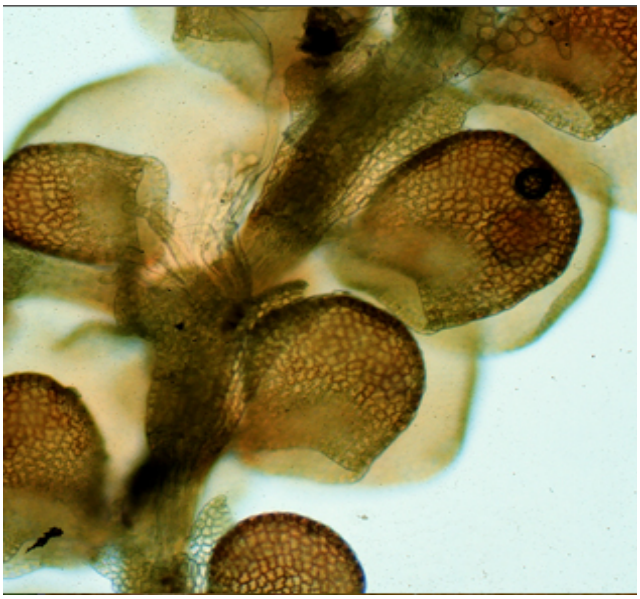
Scientific Drawings of Early Land Plants



Scientific illustrations are a useful tool for keeping a record of your observations and helping you to remember the important features of an observed specimen. Regardless of whether or not you are an artist, drawings can help you remember the significant features of a specimen because they require that you pay close attention to detail. Looking at a specimen on the page of a textbook or on a computer screen is less effective in terms of helping you remember and understand what you observed just like writing out the definitions of vocabulary terms will help you memorize the meanings of words.

Go to http://microplants.zooniverse.org. Use this website and the samples provided by your instructor (fresh specimen, images, and/or prepared slides) to identify, sketch, and label the following structures: antheridia, archegonia, capsule, gametophyte, gemma, invulucre, median leaf, micro-leaf, protonema, rhizoid, seta/stalk, spores, sporophyte, stem, and thallus.

- While carefully examining your specimen for important features, remember to only draw what you see and not what you think you should see.
- Draw large, clear images only in pencil using distinct, single lines (no shading or sketching; only stippling).
- All drawings must include the following:
    - Title that explains exactly what you are drawing (levels of classification TBD by instructor).
        - Kingdom: Plantae
        - Phylum: Marchantiophyta
        - Class: Jungermanniopsida
        - Order: Jungermanniales
        - Family: Jubulaceae
        - Genus: Frullania
        - Species: pycnantha
    - Labels are to the right of your drawing with straight lines that do not overlap.
    - Indicate the magnification at which the specimen was observed.
    - Include an annotation briefly describing what cannot be seen in the drawing, but was observed under the microscope (e.g. cells were stained blue).

- Scale bar indicating the length and/or width of your specimen.
- No more than two drawings per page.

When you are finished drawing and labeling your specimen(s), fill in the comparison chart on the next page. Write down the different structures you observed. In the last two columns, create your own features to compare (shape, measurement, arrangement, etc.).

You now have a detailed documentation of one of the earliest plants to make the transition onto to land over 400 million years ago. Think of different specimens you would like to draw. Scientific drawings can be made using different methods, depending on the class or subject. As long as you have a plan and follow a few simple rules you can produce quality work that is accurate and as pretty as a picture. Your ability will improve with practice. Look through your drawings and see if you can remember what you drew without reading the labels. Make sure the structures are labeled properly and you followed all of the guidelines listed above.

"Hepaticae" from Ernst Haeckel's *Kunstformen der Natur*, 1904

Anatomy and Morphology Comparison Chart

Specimen	Structure	Function		

Vocabulary Check

Alteration of generations

Antheridia

Archegonia

Capsule

Gametophyte

Gemma

Invulucre

Median leaf

Micro-leaf

Protonema

Rhizoid

Seta/Stalk

Spores

Sporophyte

Stem

Thallus