PODCAST OUTLINE: INTRODUCTION TO THE TRACHEOPHYTES

1. Introductory comments

2. Phylogeny

3. Features shared with the bryophytes
   A. Cell wall composed of cellulose
   B. Photosynthetic pigments
   C. Amylose food storage
   D. Life cycle consists of sporophyte and gametophyte

4. Features that distinguish tracheophytes from bryophytes
   A. Vascular tissue
      1. Xylem
         a. Nature of cells
         b. Functions
         c. Benefits
         d. Vessels vs tracheids
         e. How to discern in stem cross sections
      2. Phloem
         a. Nature of cells
         b. Functions
         c. Sieve plates
         d. Benefits
4. Features that distinguish tracheophytes from bryophytes (cont).
   A. Sporophyte is dominant phase of the life cycle
   B. Gametophyte is less important
      1. Clubmosses, horsetails, ferns
      2. Conifers and flowering plants

5. Leaf attachment features of sporophyte
   A. Nodes vs internodes
   B. Alternate vs. opposite vs. whorled patterns

6. Sporangia

7. Spores
   A. Seedless vascular plants
   B. Seed plants

8. Types of vascular plants
   A. Seedless vascular plants
      1. Examples
      2. Homosporic life cycle
   B. Seed plants
      1. Examples
      2. Heterosporic life cycle

9. Ecological significance of tracheophytes

10. Economic significance of tracheophytes
Questions

What is the phylogenetic relationship between the vascular plants, the bryophytes, and the green algae?

In what ways are the tracheophytes similar to the bryophytes?

Explain the primary differences between xylem and phloem in terms of cellular composition, function, and significance to the plant.

How does the sporophyte / gametophyte relationship in the tracheophytes compare to that in the bryophytes?

Explain the main differences between alternate, opposite, and whorled leaf arrangement.

How are spores produced and dispersed within the tracheophytes?

What are the two groups of tracheophytes, and primary taxa that each includes?

What is heterospory, and how does it differ from homospory?

Discuss the significance of the tracheophytes, both ecologically and economically.