**BOTANY OBJECTIVES**

By the end of the semester students will be able to:

1. Practice scientific reasoning and apply it by constructing, executing, and evaluating scientific investigations of life sciences.
2. Describe dermal, ground, and vascular tissue and explain their function and position within plants.
3. Describe in detail the structures that make up xylem and phloem of the vascular tissue system.
4. List the different types of plant root systems.
5. Identify the structural characteristics of a cross-section of a root.
6. Compare and contrast characteristics of non-woody and woody stems.
7. Identify the structural characteristics of a cross-section of a non-woody and  woody stem.
8. List the structural characteristics of a leaf.
9. Identify the structural characteristics of a cross-section of a leaf.
10. Describe in detail the transpiration that occurs within plants relating specific  structures and functions that facilitate this process.
11. Describe in detail the translocation that occurs within plants relating specific  structures and functions that facilitate.
12. Discuss the advantages of conduction tissues, seeds, and flowers.
13. Diagram tissues, seeds, and flowers.
14. Identify nonvascular, seedless vascular, and vascular plants with specific  examples relating to a phylum.
15. List the key features of non-vascular, seedless vascular and vascular plants.
16. Identify the kinds and key features related to gymnosperms.
17. Identify the kinds and key features related to angiosperms.
18. Compare and contrast dicots vs. monocots.
19. Draw and identify the life cycles of the moss, fern, conifers, and angiosperms  labeling the reproductive structures and determining haploid vs. diploid stages.
20. Identify the structures and list the functions of a flower.
21. Determine if a plant is undergoing primary or secondary growth by identifying  characteristics.
22. List the six major mineral nutrients necessary for plant growth.
23. Identify the different types of tropisms and relate them to natural or hormonal  factors.
24. Demonstrate a working knowledge of genetic vocabulary when discussing  Mendelian genetics
25. Determine the outcomes and probability of a variety of monohybrid and  dihybrid crosses using Punnet squares including dominant vs. recessive,