Arkansas CTE

Plant Science I: Grades 9, 10, 11, 12

Adopted 2014

Plant Science Industry

1.1 The Plant Industry in the U.S.

1. Examine the importance of plants in our daily lives. (Food, fiber, shelter, medicine, aesthetics) 1.1.1
2. Examine the major areas of the plant science industry in the U.S. (Horticulture, Agronomy, Forestry, Nursery/Landscape, Floriculture) 1.1.2
3. Research/Investigate careers in plant science. 1.1.3
4. Discuss FFA and SAE opportunities available to students in plant science. 1.1.4

1.2 Explore the plant industry as it relates to agriculture.

1. Illustrate the life cycle of an agricultural plant crop. (propagation, growth, harvesting, storage) 1.2.1

1.3 Classify agricultural plants according to taxonomy systems.

1. Explain systems used to classify plants. (binomial nomenclature, genus, species, 1.3.1
2. Classify agricultural plants according to the life cycles. (annual, biennial, perennial) 1.3.2
3. Classify agricultural plants as deciduous or evergreen. 1.3.3
4. Compare and contrast morphology of monocotyledons and dicotyledons. 1.3.4
5. Classify agricultural plants by growth habit. (trees, shrubs, grasses, vines) 1.3.5

Safety in the Plant Science Industry

2.1 Apply Safety Concepts in the Plant Science Industry

1. Discuss the meaning and importance of safety and safe work with plant science. (OSHA) 2.1.1
2. Identify and classify hazards in plant science. (chemical hazards, mechanical hazards, biological hazards) 2.1.2
3. Describe the importance of personal safety in plant science, and demonstrate proficiency in safety. (PPE) 2.1.3
4. Explain procedures for the safe handling, use and storage of pesticides. (MSDS) 2.1.4

Plant Anatomy

3.1 Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems.

1. Label a typical plant cell and identify plant cell organelles and their functions. (cell wall, chloroplasts, nucleus, mitochondria, cytoplasm, cell membrane, vacuole) 3.1.1
2. Identify the types and the functions of plant roots. (fibrous, tap, legume, nitrogen fixation) 3.1.2
3. Identify the types and the functions of plant stems. (herbaceous, woody) 3.1.3
4. Describe and illustrate the processes of translocation. (xylem, phloem, cambium) 3.1.4
5. Discuss the functions of leaves. 3.1.5
6. Identify the components of a flower and their functions of a flower. (pistil, stamen, petal, sepal, pollination, stigma, style, ovary, anther, filament) 3.1.6
7. Compare and contrast the different types of flowers. (complete, incomplete, perfect, imperfect). 3.1.7
8. Compare and contrast the components of a seed and their functions. (embryo, endosperm, seed coat) 3.1.8

3.2 Apply knowledge of plant physiology and energy conversion to plant systems

1. Explain and illustrate the basic process of photosynthesis and its importance to life on Earth. 3.2.1
2. Explain and illustrate cellular respiration and its importance to plant life. 3.2.2
3. Explain and illustrate transpiration and its importance to plant life. 3.2.3
4. Define primary growth and the role of the apical meristem. 3.2.4