Oklahoma CTE

Introduction to Horticulture (2014)

Adopted 2014

Introduction to Horticulture	**a.** Explain systems used to classify plants. PS.01.01.01.A
	b. Compare and contrast the hierarchical classification of agricultural plants. PS.01.01.01.B
	a. Describe the morphological characteristics used to identify agricultural plants. PS.01.01.02.A
Safety Fundamentals	**a.** Use proper safety practices/personal protective equipment. CS.06.02.01.A
Chemical Safety	**a.** Research applicable regulatory and safety standards (e.g., MSDS, bioterrorism). CS.07.04.01.A
	a. Handle chemicals and equipment in a safe and appropriate manner. CS.07.04.02.A
	a. Identify storage methods for plants and plant products. fertilizer and chemical storage PS.03.05.03.A
Hand and Power Tools	**a.** Identify standard tools, equipment, and safety procedures related to a specific task. CS.08.01.01.A
	b. Set up/adjust tools and equipment related to complete a specific task. CS.08.01.01.B
	b. Demonstrate appropriate operation, storage, and maintenance techniques for tools and equipment. CS.08.01.02.B
	a. Use the appropriate procedures for the use and operation of specific tools and equipment. CS.08.02.01.A
	a. Describe the conditions that cause the need for tool maintenance. CS.08.03.01.A
Gr	**I**dentify storage methods for plants and plant products. greenhouse benches and storage PS.03.05.03.A

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Plant Structures	**a.** Diagram a typical plant cell and identify plant cell organelles and their functions. PS.01.02.01.A
	a. Identify the components, the types and the functions of plant roots. PS.01.02.02.A
	a. Identify the components and the functions of plant stems. PS.01.02.03.A
	a. Discuss leaf morphology and the functions of leaves. PS.01.02.04.A
	a. Identify the components of a flower, the functions of a flower and the functions of flower components. PS.01.02.05.A
	a. Explain the functions and components of seeds and fruit. PS.01.02.06.A
Plant Functions	**b.** Explain how leaves capture light energy and allow for the exchange of gases. PS.01.02.04.B
	a. Explain the basic process of photosynthesis and its importance to life on Earth. PS.01.03.01.A
	a. Explain cellular respiration and its importance to plant life. PS.01.03.02.A
	a. Identify the five groups of naturally occurring plant hormones and synthetic plant growth regulators. PS.01.03.04.A
	b. Identify the plant responses to plant growth regulators and different forms of tropism. PS.01.03.04.B
	a. Observe and record environmental conditions during the germination, growth and development of a crop. PS.03.02.04.A
	a. Explain the reasons for controlling plant growth. PS.03.02.05.A
	b. Demonstrate proper techniques to control and manage plant growth through mechanical, cultural or chemical means. PS.03.02.05.B
Plant Growth Media	**a.** Explain the process of soil formation through weathering. ESS.03.02.01.A
	a. Explain how the physical qualities of the soil influence the infiltration and percolation of water. ESS.03.02.03.A
	a. Demonstrate techniques used to identify rock, mineral and soil types. NRS.01.02.05.A
	b. Identify rock, mineral and soil types. NRS.01.02.05.B
	Identify the major components of growing media and describe how growing media support plant growth. PS.02.02.01.A

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	a. Identify the categories of soil water. PS.02.02.02.A
	b. Discuss how soil drainage and water-holding capacity can be improved. PS.02.02.02.B
	a. Explain the reasons for preparing growing media before planting. PS.03.02.02.A
Fertilizers and Nutrients	**a.** Identify the essential nutrients for plant growth and development and their major functions. PS.02.03.01.A
	b. Describe nutrient deficiency symptoms and recognize environmental causes of nutrient deficiencies. PS.02.03.01.B
	a. Identify fertilizer sources of essential plant nutrients, explain fertilizer formulations, and describe different methods of fertilizer application. PS.02.03.04.A
	b. Calculate the amount of fertilizer to be applied and calibrate equipment to apply the prescribed amount of fertilizer. PS.02.03.04.B
	a. Identify storage methods for plants and plant products. fertilizer and chemical storage PS.03.05.03.A
Greenhouse Watering	**a.** Observe and record environmental conditions during the germination, growth and development of a crop. PS.03.02.04.A
Plant Propagation	**a.** Explain pollination, cross-pollination and selfpollination of flowering plants. PS.03.01.01.A
	a. Demonstrate sowing techniques and provide favorable conditions for seed germination. PS.03.01.02.A
	b. Handle seed to overcome seed dormancy mechanisms and to maintain seed viability and vigor. PS.03.01.02.B
	a. Describe optimal conditions for asexual propagation and demonstrate techniques used to propagate plants by cuttings, division, separation and layering. PS.03.01.03.A
	b. Demonstrate proper procedures in budding or grafting selected materials. PS.03.01.03.B
	a. Explain the importance of starting with pestand disease-free propagation material. PS.03.02.01.A
De	**o specific standards.**
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Cultural Practices for Trees and Shrubs	**No specific standards.**
Plant Pests and Treatment	**a.** Identify types of plant pests and disorders. PS.03.03.01.A
	b. Identify major local weeds, insect pests and infectious and noninfectious plant diseases. PS.03.03.01.B
	a. Describe damage caused by plant pests and diseases. PS.03.03.02.A
	a. Describe pest control strategies associated with integrated pest management. PS.03.03.03.A
	b. Describe types of pesticide controls and formulations. PS.03.03.03.B
	a. Explain risks and benefits associated with the materials and methods used in plant pest management. PS.03.03.04.A
	b. Explain procedures for the safe handling, use and storage of pesticides. PS.03.03.04.B
Landscape Design	**a.** Define design and identify design elements. PS.04.01.01.A
	b. Explain design elements of line, form, texture and color and express the visual effect each has on the viewer. PS.04.01.01.B
Indoor Plant Care	**No specific standards.**
Floral Design	**a.** Define design and identify design elements. PS.04.01.01.A
	b. Explain design elements of line, form, texture and color and express the visual effect each has on the viewer. PS.04.01.01.B