

Introduction to Horticulture

State Standards

Life Knowledge and Cluster Skills

- CS.06.02.01.a Use proper safety practices/personal protective equipment.
- CS.07.04.01.a Research applicable regulatory and safety standards (e.g., MSDS, bioterrorism).
- CS.07.04.02.a Handle chemicals and equipment in a safe and appropriate manner.
- CS.08.01.01.a Identify standard tools, equipment, and safety procedures related to a specific task.
- CS.08.01.01.b Set up/adjust tools and equipment related to complete a specific task.
- CS.08.01.02.b Demonstrate appropriate operation, storage, and maintenance techniques for tools and equipment.
- CS.08.02.01.a Use the appropriate procedures for the use and operation of specific tools and equipment.
- CS.08.03.01.a Describe the conditions that cause the need for tool maintenance.

Environmental Service Systems

- ESS.03.02.01.a Explain the process of soil formation through weathering.
- ESS.03.02.03.a Explain how the physical qualities of the soil influence the infiltration and percolation of water.

Natural Resource Systems

- NRS.01.02.05.a Demonstrate techniques used to identify rock, mineral and soil types.
- NRS.01.02.05.b Identify rock, mineral and soil types.

Plant Systems

- PS.01.01.01.a Explain systems used to classify plants.
- PS.01.01.01.b Compare and contrast the hierarchical classification of agricultural plants.
- PS.01.01.02.a Describe the morphological characteristics used to identify agricultural plants.
- PS.01.02.01.a Diagram a typical plant cell and identify plant cell organelles and their functions.
- PS.01.02.02.a Identify the components, the types and the functions of plant roots.
- PS.01.02.03.a Identify the components and the functions of plant stems.
- PS.01.02.04.a Discuss leaf morphology and the functions of leaves.
- PS.01.02.04.b Explain how leaves capture light energy and allow for the exchange of gases.
- PS.01.02.05.a Identify the components of a flower, the functions of a flower and the functions of flower components.
- PS.01.02.06.a Explain the functions and components of seeds and fruit.
- PS.01.03.01.a Explain the basic process of photosynthesis and its importance to life on Earth.
- PS.01.03.02.a Explain cellular respiration and its importance to plant life.
- PS.01.03.04.a Identify the five groups of naturally occurring plant hormones and synthetic plant growth regulators.
- PS.01.03.04.b Identify the plant responses to plant growth regulators and different forms of tropism.
- PS.02.02.01.a Identify the major components of growing media and describe how growing media support plant growth.
- PS.02.02.02.a Identify the categories of soil water.
- PS.02.02.02.b Discuss how soil drainage and water-holding capacity can be improved.
- PS.02.03.01.a Identify the essential nutrients for plant growth and development and their major functions.

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- PS.02.03.01.b. Describe nutrient deficiency symptoms and recognize environmental causes of nutrient deficiencies.
- PS.02.03.04.a. Identify fertilizer sources of essential plant nutrients, explain fertilizer formulations, and describe different methods of fertilizer application.
- PS.02.03.04.b. Calculate the amount of fertilizer to be applied and calibrate equipment to apply the prescribed amount of fertilizer.
- PS.03.01.01.a. Explain pollination, cross-pollination and self-pollination of flowering plants.
- PS.03.01.02.a. Demonstrate sowing techniques and provide favorable conditions for seed germination.
- PS.03.01.02.b. Handle seed to overcome seed dormancy mechanisms and to maintain seed viability and vigor.
- PS.03.01.03.a. Describe optimal conditions for asexual propagation and demonstrate techniques used to propagate plants by cuttings, division, separation and layering.
- PS.03.01.03.b. Demonstrate proper procedures in budding or grafting selected materials.
- PS.03.02.01.a. Explain the importance of starting with pest- and disease-free propagation material.
- PS.03.02.02.a. Explain the reasons for preparing growing media before planting.
- PS.03.02.04.a. Observe and record environmental conditions during the germination, growth and development of a crop.
- PS.03.02.05.a. Explain the reasons for controlling plant growth.
- PS.03.02.05.b. Demonstrate proper techniques to control and manage plant growth through mechanical, cultural or chemical means.
- PS.03.03.01.a. Identify types of plant pests and disorders.
- PS.03.03.01.b. Identify major local weeds, insect pests and infectious and noninfectious plant diseases.
- PS.03.03.02.a. Describe damage caused by plant pests and diseases.
- PS.03.03.03.a. Describe pest control strategies associated with integrated pest management.
- PS.03.03.03.b. Describe types of pesticide controls and formulations.
- PS.03.03.04.a. Explain risks and benefits associated with the materials and methods used in plant pest management.
- PS.03.03.04.b. Explain procedures for the safe handling, use and storage of pesticides.
- PS.03.05.03.a. Identify storage methods for plants and plant products.
- PS.04.01.01.a. Define design and identify design elements.
- PS.04.01.01.b. Explain design elements of line, form, texture and color and express the visual effect each has on the viewer.