

NOCTI
State Customized
Credential Blueprint



Plant Science/Horticulture (GA)

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General Assessment Information

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General Assessment Information
Written Assessment Information

Specific Competencies Covered in the Test
Sample Written Items

Test Type: The Plant Science/Horticulture assessment was developed based on standards used in the state of Georgia and contains a multiple-choice and performance component. This assessment is meant to measure technical skills at the occupational level and includes items which gauge factual and theoretical knowledge.

Revision Team: The assessment content is based on input from Georgia educators who teach in career and technical education programs.



1.0601 - Applied Horticulture/Horticultural
Operations, General



Career Cluster 1-
Agriculture, Food &
Natural Resources



45-2092.00 -
Farmworkers and Laborers, crop,
Nursery, and Greenhouse

Written Assessment

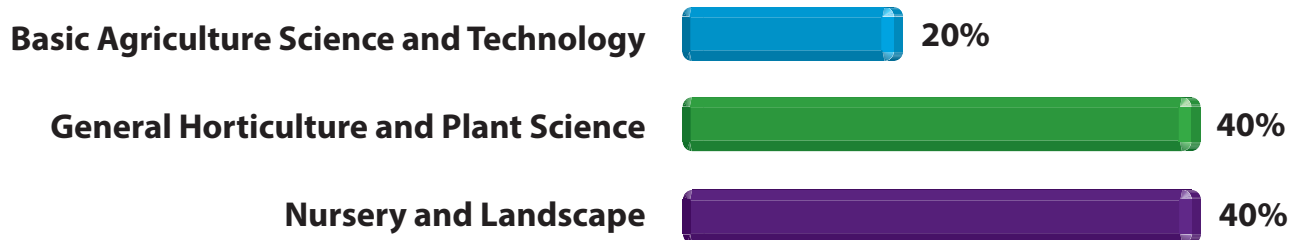
This written assessment consists of questions to measure an individual's factual theoretical knowledge.

Administration Time: 90 Minutes

Number of Questions: 100

Number of Sessions: This assessment may be administered in one, two, or three sessions.

Areas Covered



Specific Standards and Competencies Included in this Assessment

Basic Agriculture Science and Technology

- Discuss the importance of reading and adhering to pesticide label directions
- Explain different plant life cycles and give examples
- Identify the major parts of the plant
- Describe the functions of vegetative plant parts
- Distinguish between plant root systems and how they absorb water and nutrients
- Explain ways plants reproduce
- Describe the role of seed in reproduction, sexually and asexually
- Explain the role of flowers in reproducing plants
- Describe germination and the conditions under which it occurs
- Explain the application of vegetative propagation
- Discuss use of improved seeds and cultivars and the importance of improved seed
- Explain important factors in plant growth
- Explain photosynthesis and its importance
- Explain respiration and transpiration and their importance
- Identify essential plant nutrients for plant growth and reproduction
- Describe how pests are prevented and methods used to control them after infestation
- Explain supply and demand in agriculture
- Explain the role of the Agriculture Education program and the FFA in personal development
- Develop leadership and personal development skills through participation in the FFA

General Horticulture and Plant Science

- Explain the role of Agriculture Education programs and the FFA in personal development
- Demonstrate knowledge learned through a Supervised Agricultural Experience (SAE) program
- Develop leadership and personal development skills through participation in the FFA
- Explore career opportunities in horticulture/plant science through the FFA and the Agriculture Education Program
- Explore the professional agricultural organizations associated with the course content
- Explain the three phases of plant life (dormancy, vegetative, reproductive)

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Specific Standards and Competencies (continued)

General Horticulture and Plant Science (continued)

- Explain the three phases of plant life (dormancy, vegetative, reproductive)
- Describe the difference between annuals, biennials, and perennials
- Identify vegetative structures and functions of plant parts (i.e., leaves, stems, roots)
- Identify sexual reproductive structures and functions of plant parts (i.e., flower, fruit, seeds)
- Identify asexual reproductive structures and functions of plant parts (i.e., stems, roots)
- Discuss the importance of plant propagation
- Explain the difference between sexual and asexual propagation
- Describe the factors involved in planting seeds
- Discuss the various methods of vegetative propagation and identify each method
- Explain the difference between separation and division in plant propagation
- Describe soil materials and structure
- Describe the components and functions of a good growing medium
- Name the nutrients needed for plant growth
- Identify common nutrient deficiency symptoms
- Describe pH modification
- Explain fertilizers and fertilization
- Analyze the difference between organic and inorganic fertilizers
- Demonstrate fertilizer application methods
- Identify common insects, weeds, diseases, and physiological disorders
- Diagram the external structure of an insect
- Trace the life cycles of insects
- Describe the type of damage inflicted by weeds
- Describe the types of plant diseases
- Identify the proper methods of controlling pests
- Describe the containers used in plant production
- Analyze the advantages and disadvantages of each type of plant growing container
- Describe the different types of watering methods
- List the advantages and disadvantages of each type of watering system
- Describe the processes of photosynthesis and factors that affect photosynthesis in plants
- Describe the processes of respiration and factors that affect respiration in plants
- Demonstrate basic understanding of education requirements/skills needed for various plant science careers
- Give a basic understanding of olericulture, arboriculture, pomology, agronomy, floriculture, etc.

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Specific Standards and Competencies (continued)

Nursery and Landscape

- Explain the role of the Agriculture Education program and the FFA in personal development
- Demonstrate knowledge learned through a Supervised Agriculture Experience (SAE) program
- Develop leadership and personal development skills through participation in the FFA
- Explore career opportunities in nursery/landscaper through the FFA and Agriculture Education program
- Define and describe the overall structure, scope, and importance of the green industry
- Explore career opportunities in the green industry related to nursery and landscape
- Identify hand and power tools and equipment used in landscape operations
- Demonstrate proper tool and equipment safety procedures in nursery and landscape operations
- Demonstrate proper maintenance and storage for tools and equipment
- Classify plants using horticultural characteristics (i.e., trees, shrubs, vines, groundcovers, etc.)
- Identify plants by their environmental needs (sun/shade, drought tolerant, etc.)
- Identify common landscape and nursery plants by common and scientific names
- Describe soil structural characteristics that affect fertility and plant growth
- Identify types, characteristics, and uses of soil amendments
- Demonstrate soil testing procedures and prescribe treatments based on soil test results
- Explain the importance of preparing beds for planting
- Determine the area of planting sites
- Calculate the amount of fertilizer, lime, and/or other soil amendments needed for the planting site
- Identify equipment used in site analysis and landscape drawing processes
- Assess client and site needs
- Utilize standard landscape drawing practices, including landscape symbols, computer programs, tools, etc.
- Apply the principles of good landscape design
- Select appropriate landscape plant materials

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Specific Standards and Competencies (continued)

Nursery and Landscape (continued)

- Identify and practice correct planting procedures
- Identify and practice mulching applications
- Identify and practice fertilizer applications
- Describe and practice proper pruning techniques
- Calculate the cost of a landscape plan and installation
- Identify landscape pests
- Analyze damage to landscape plants from pests
- Identify different types of management approaches to control pests
- Explain the concepts of integrated pest management
- Explain the relationship between water and plant growth
- Judge types of irrigation systems based on plant needs, effectiveness, feasibility, etc.
- Practice effective watering methods and techniques
- Identify and classify turfgrass species
- Select turf grasses for specific purposes (i.e., athletic fields, golf courses, lawns, shade areas)
- Identify the seasonality of landscape and nursery jobs

Sample Questions

In agriculture, the market is determined by

- A. price and consistency
- B. supply and demand
- C. food and raw products
- D. price and quality

Young leaves showing interveinal chlorosis may be deficient in

- A. carbon dioxide
- B. sulfur
- C. phosphorus
- D. iron

Customer complaints offer opportunities for

- A. the employee to be disciplined
- B. a business to improve service
- C. the employees to know how poor the products are
- D. the customer to find fault with the employees

The term, soil texture, refers to the

- A. individual soil particle grouping
- B. acidity and alkalinity of the soil
- C. moisture holding capacity of the soil
- D. size of the particles that make up the soil

The price of a product is the sum of

- A. materials, labor, overhead, and profit
- B. materials, labor, insurance, and profit
- C. labor, taxes, profit, and overhead
- D. labor, insurance, materials, and overhead