

VoCats

Course Blueprint

Agricultural Education

6841 Horticulture I

Public Schools of North Carolina
State Board of Education • Department of Public Instruction
Office of Instructional and Accountability Services
Division of Instructional Services

Raleigh, North Carolina
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VoCATS Course Blueprint

A course blueprint is a document laying out the framework of the curriculum for a given course.

Shown on the blueprint are the units of instruction, the core competencies in each unit, and the specific objectives for each competency. The blueprint illustrates the recommended sequence of units and competencies and the weight or relative importance of the objective within the course or unit.

The blueprint is intended to be used by teachers in planning the course of work for the year, preparing daily lesson plans, and constructing instructionally valid assessments.

For additional information about this blueprint, contact program area staff. For additional information about the VoCATS Competency Achievement Tracking System, contact program area staff or VoCATS, Workforce Development, Division of Instructional Services, North Carolina Department of Public Instruction, 301 North Wilmington Street, Raleigh, North Carolina 27601-2825, 919/715-1674, email: rwelfare@dpi.state.nc.us.

Interpretation of Columns on Course Blueprints

| No. | Heading | Column Information |
|-----|--|--|
| 1 | Comp # & Obj. # | Comp=Competency number (three digits); Obj.=Objective number (competency number plus two-digit objective number) |
| 2 | Unit Titles/Competency and Objective Statements | Statements of unit titles, competencies per unit, and specific objectives per competency. Each competency statement or specific objective begins with an action verb and makes a complete sentence when combined with the stem "The student will be able to..." (The stem appears once in Column 2). Outcome behavior in each competency/objective statement is denoted by the verb plus its object. |
| 3 | Time Hrs | Space for teachers to calculate time to be spent on each objective based on their individual school schedule and the students' performance on preassessments. |
| 4 | UNIT Weight | A percentage indicates the relative importance or weight of each competency within a specific unit or each objective within a specific unit. |
| 5 | COURSE Weight | A percentage indicates the relative importance or weight of each unit within the total course or program, each competency within the total course or program, or each objective within the total course or program. |
| 6 | Type Behavior | Classification of outcome behavior in competency and objective statements. (C=Cognitive 1, 2, 3; P=Psychomotor; A=Affective). |
| 7 | Integrated Skill Area | Integrated Skills codes: A=Arts; C=Communications; H=Health/Safety; M=Math; SC=Science; SS=Social Studies. |
| 8 | Core Supp | Designation of the competencies and objectives as Core or Supplemental. Competencies and objectives designated Core must be included in the yearly calendar of work. |

AGRICULTURAL EDUCATION
COURSE BLUEPRINT FOR 6841 - HORTICULTURE I
(Recommended hours of instruction: 135-180)

| Comp# Obj.# | Unit Titles/Competency and Objective Statements (The learner will be able to:) | Time Hours | Course Weight | | Type Behavior | Integrated Skill Area | Core Supp |
|----------------|---|---------------|---------------|-------------|------------------|--------------------------|--------------|
| | | | Cognitive | Performance | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | | | 100% | | | | |
| | Total Course Weight | | 64% | 36% | | | |
| A | LEADERSHIP DEVELOPMENT | | 5% | 2% | | | |
| 001.00 | Investigate organizations as related to the horticulture industry. | | 2% | | C3 | NC/SC/SS | Core |
| 001.01 | Describe opportunities for leadership development in horticulture industry organizations. | | 1% | | C1 | C/SS | Core |
| 001.02 | Examine youth activities provided by horticulture industry organizations. | | 1% | | C3 | A/C/SC/SS | Core |
| 002.00 | Demonstrate the process used in conducting business meetings in horticulture industry organizations. | | 3% | 2% | C3P | C/SS/M | Core |
| 002.01 | Explain the role of parliamentary procedure in conducting business meetings. | | 3% | | C2 | C/SS | Core |
| 002.02 | Demonstrate key parliamentary procedure abilities that would be used in a business meeting. | | | 2% | C3P | C/M/SS | Core |
| 003.00 | Research aspects of public speaking and their importance to horticultural businesses. | | | | C3P | C/M/SC | Supp |
| 003.01 | Compare techniques of public speaking. | | | | C3P | C | Supp |
| 003.02 | Demonstrate a conversational knowledge of horticulture and the horticultural industry. | | | | C3P | C/M/SC | Supp |
| B | EMPLOYABILITY SKILLS | | 8% | 3% | | | |
| 004.00 | Describe skills needed for employment and careers in the horticulture industry. | | 2% | | C1 | A/C/SC | Core |

| | | | | | | | |
|--------|---|--|----|--|----|--------|------|
| 004.01 | Identify horticulture industry careers and their required skills. | | 1% | | C1 | A/C/SC | Core |
|--------|---|--|----|--|----|--------|------|

| Comp# Obj.# | Unit Titles/Competency and Objective Statements (The student will be able to:) | Time Hours | Course Weight | | Type Behavior | Integrated Skill Area | Core Supp |
|----------------|---|---------------|---------------|-------------|------------------|--------------------------|--------------|
| | | | Cognitive | Performance | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 004.02 | Describe various skills that are necessary for employment in a horticultural career. | | 1% | | C1 | A/C/SC | Core |
| 005.00 | Describe horticulture as a profession and its importance in relation to the National, State, and local economy | | 2% | | C1 | SC | Core |
| 005.01 | Describe the broad field of horticulture and its different divisions. | | 1% | | C1 | SC | Core |
| 005.02 | Specify how horticulture is important to our economy. | | 1% | | C1 | SC | Core |
| 006.00 | Explore the occupations in the field of horticulture and its common career paths. | | | | C3 | SC | Supp |
| 006.01 | Analyze horticulture industry careers and related employment opportunities. | | | | C3 | SC | Supp |
| 006.02 | Compare characteristics, preparation and credentials needed in horticultural industry careers. | | | | C3 | SC | Supp |
| 007.00 | Examine opportunities for work-based learning experiences related to the horticulture industry. | | | | C3P | C/M/SC | Supp |
| 007.01 | Revise career development plans to reflect horticultural career opportunities. | | | | C3P | C/M/SC | Supp |
| 007.02 | Research opportunities for career development in horticulture. | | | | C3 | C/SS | Supp |
| 008.00 | Examine the Supervised Agricultural Experience component of the horticulture course. | | 2% | 2% | C3P | C/M/SC | Core |
| 008.01 | Identify the component parts of the Supervised Agricultural Experience Record used in the horticulture course. | | 2% | | C1 | C/M/SC | Core |
| 008.02 | Correctly record entries in the SAE Record. | | | 2% | C3P | M/SC | Core |

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|----------------|---|---------------|---------------|-------------|------------------|--------------------------|--------------|
| | | | Cognitive | Performance | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 009.00 | Explore methods of financial record keeping in a horticultural business. | | 2% | 1% | C3P | C/M/SC | Core |
| 009.01 | Define the terminology used in financial record-keeping systems, such as asset, liability, inventory, net worth, etc. | | 2% | | C1 | C/M/SC | Core |
| 009.02 | Correctly record entries in a financial record system. | | | 1% | C3P | C/M | Core |
| 010.00 | Research alternative methods of record keeping. | | | | C3P | C/M/SC | Supp |
| 010.01 | Compare computer software programs designed to aid record keeping. | | | | C3P | C/M/SC | Supp |
| 010.02 | Examine the Internet for methods of record-keeping assistance. | | | | C3 | SC | Supp |
| 011.00 | Research customer relations techniques for working in the horticulture business. | | | | C3P | C | Supp |
| 011.01 | Apply customer relations techniques in a horticultural business situation. | | | | C3P | C | Supp |
| 011.02 | Compare various markets, marketing methods, and salesmanship techniques in the horticultural industry. | | | | C3 | C | Supp |
| 012.00 | Investigate techniques for marketing horticultural products. | | | | C3P | C | Supp |
| 012.01 | Design advertisements and arrange displays of horticultural products, which appeal to the public for sale. | | | | C3P | C | Supp |
| 012.02 | Explain the principles of supply and demand. | | | | C3 | C/SS | Supp |
| C | PLANT GROWTH, DEVELOPMENT, AND REPRODUCTION | | 27% | 23% | | | |
| 013.00 | Describe principles of plant science as related to horticulture. | | 5% | | C1 | SC | Core |

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|----------------|--|---------------|---------------|-------------|------------------|--------------------------|--------------|
| | | | Cognitive | Performance | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 013.01 | Describe the three applied plant sciences. | | 2% | | C1 | SC | Core |
| 013.02 | Describe biological terms used to describe plants. | | 3% | | C1 | SC | Core |
| 014.00 | Compare the anatomical parts and distinguishing characteristics of horticultural plants. | | 5% | | C3 | SC | Core |
| 014.01 | Identify the major parts of a plant including the anatomical parts and distinguishing characteristics of each. | | 3% | | C1 | SC | Core |
| 014.02 | Describe the functions of the major parts of a plant and their relationship to each other. | | 2% | | C1 | SC | Core |
| 014.03 | Explore the relationship between plant growth and the environment. | | | | C3 | SC | Supp |
| 015.00 | Investigate sexual reproduction in plants. | | | | C3 | M/C/ SC | Supp |
| 015.01 | Compare staminate and pistillate plants. | | | | C3 | M/C/ SC | Supp |
| 015.02 | Dissect a flower as a means of identifying male and female reproductive parts. | | | | C3 | SC | Supp |
| 016.00 | Analyze the process of growth in horticultural plants. | | 10% | | C3 | SC | Core |
| 016.01 | Compare and contrast the process and stages of growth in horticulture plants. | | 4% | | C3 | SC | Core |
| 016.02 | Explain how the phases of plant cell growth relate to total plant growth. | | 3% | | C2 | SC | Core |

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|----------------|--|---------------|---------------|-------------|------------------|--------------------------|--------------|
| | | | Cognitive | Performance | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 016.03 | Investigate how light, moisture, temperature, and nutrients affect a plant. | | 3% | | C3 | SC | Core |
| 017.00 | Apply procedures used in horticultural plant identification including scientific classification. | | | 18% | C3P | SC | Core |
| 017.01 | Classify plants using the scientific classification system. | | | 4% | C3P | SC | Core |
| 017.02 | Identify plants from the Introduction to Horticulture Plant I.D. list. | | | 14% | C1 | SC | Core |
| 018.00 | Apply different methods of plant propagation as related to horticultural plant production. | | 5% | 5% | C3P | C/SC | Core |
| 018.01 | Summarize both sexual and asexual methods of plant propagation and the advantages and disadvantages of each. | | 5% | | C2 | C/SC | Core |
| 018.02 | Demonstrate both sexual and asexual propagation methods using appropriate procedures given a situation. | | | 5% | C3P | SC | Core |
| 019.00 | Examine tissue culture (micropropagation) as a form of plant propagation | | | | C3 | SC/C | Supp |
| 019.01 | Compare methods of tissue culture used in plant propagation. | | | | C3 | SC/C | Supp |
| 019.02 | Explain the importance of sterile techniques used in micropropagation. | | | | C3 | SC | Supp |
| 020.00 | Research biotechnology and its uses in the horticultural industry. | | 2% | | C3 | SC | Core |
| 020.01 | Summarize the various uses of biotechnology as related to horticulture. | | 1% | | C2 | SC | Core |
| 020.02 | Hypothesize new ways that biotechnology might be used in horticulture. | | 1% | 1% | C3 | SC | Core |

| | | | | | | | |
|---------------|---|--|--|--|-----------|-----------|-------------|
| 021.00 | Explain the use of applied genetics in horticulture. | | | | C3 | SC | Supp |
|---------------|---|--|--|--|-----------|-----------|-------------|

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|----------------|---|---------------|---------------|-------------|------------------|--------------------------|--------------|
| | | | Cognitive | Performance | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 021.01 | Investigate the methods of breeding used in developing plant varieties. | | | | C3 | SC | Supp |
| 021.02 | Make phenotypic predictions for the progeny of various horticultural plant species given parental information. | | | | C3 | SC | Supp |
| | | | | | | | |
| 022.00 | Explain the scientific method and how it is used in horticultural research. | | | | C3 | SC | Supp |
| 022.01 | Compare the components of the scientific method and their usefulness in conducting research. | | | | C3 | SC | Supp |
| 022.02 | Research a selected area of horticulture using the scientific method. | | | | C3 | SC | Supp |
| | | | | | | | |
| D | SOILS, NUTRIENTS, AND FERTILIZERS | | 18% | 6% | | | |
| 023.00 | Explain the properties of soils and their relationship to plant growth | | 10% | | C2 | C/SC | Core |
| 023.01 | Describe horticultural soils and hydroponics, as well as the advantages and disadvantages of each. | | 5% | | C1 | C/SC | Core |
| 023.02 | Interpret the relationship between the soil profile, soil structure, soil texture, pH, and other properties of soil as they relate to plant growth. | | 5% | | C2 | SC | Core |
| | | | | | | | |
| 024.00 | Explain the role of nutrients in quality plant growth. | | 6% | 4% | C3P | C/M/SC | Core |
| 024.01 | Identify macro and micronutrients and the related chemical or environmental plant deficiencies. | | 4% | | C1 | SC | Core |
| 024.02 | List the different types of fertilizers and the advantages and disadvantages of each. | | 2% | | C1 | C/SC | Core |
| 024.03 | Demonstrate the application of various types of fertilizers. | | | 4% | C3P | M/SC | Core |
| | | | | | | | |
| 025.00 | Investigate soil sampling and its benefits to growing quality plants. | | 2% | 2% | C3P | SC | Core |

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|----------------|---|---------------|---------------|-------------|------------------|--------------------------|--------------|
| | | | Cognitive | Performance | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 025.01 | Present a soil sample for testing. | | | 2% | C3P | SC | Core |
| 025.02 | Interpret recommendations from a soil test report | | 2% | | C2 | M/SC | Core |
| 026.00 | Demonstrate the use of different soil mixes. | | | | C3 | SC | Supp |
| 026.01 | Compare various horticultural soil mixes and their uses. | | | | C3 | SC | Supp |
| 026.02 | Suggest the most appropriate soil for various horticultural uses. | | | | C3 | SC | Supp |
| 027.00 | Examine the ingredients of horticultural media. | | | | C3P | SC | Supp |
| 027.01 | Compare the characteristics of media for planting seed, rooting, and potting. | | | | C3 | SC | Supp |
| 027.02 | Demonstrate the proper procedure for mixing a horticultural media for a given situation. | | | | C3P | SC | Supp |
| E | PEST MANAGEMENT | | 6% | 2% | | | |
| 028.00 | Examine distinguishing characteristics of pests so as to determine best management practices. | | 2% | | C3 | H/SC | Core |
| 028.01 | Describe the anatomy and life cycle of insect pests. | | 1% | | C1 | SC | Core |
| 028.02 | Hypothesize the cause of plant damage from various plant pests (i.e. insect, fungi, bacteria, viruses). | | 1% | | C3 | H/SC | Core |
| 029.00 | Compare methods of control of horticulture plant pests. | | 2% | | C3 | SC | Core |
| 029.01 | Discuss the various plant disease categories and how a knowledge of these aids pest control. | | 1% | | C2 | SC | Core |
| 029.02 | Investigate the control of chewing and sucking insects. | | 1% | | C3 | SC | Core |
| 030.00 | Compare methods of Integrated Pest Management. | | | | C3P | SC | Supp |

| | | | | | | | |
|--------|--|--|--|--|-----|----|------|
| 030.01 | Explore alternative methods of insect and plant disease control. | | | | C3 | SC | Supp |
| 030.02 | Demonstrate methods of alternative insect control and alternative plant disease control. | | | | C3P | SC | Supp |

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|----------------|---|---------------|---------------|-------------|------------------|--------------------------|--------------|
| | | | Cognitive | Performance | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 031.00 | Interpret chemical labels to insure safe pesticide application. | | 2% | | C2 | H/SC | Core |
| 031.01 | Recognize the parts of a chemical label including key signal words. | | 1% | | C1 | H/SC | Core |
| 031.02 | Interpret the legal requirements of the chemical label. | | 1% | | C2 | H/SC | Core |
| 032.00 | Examine the agricultural chemical manual and its uses. | | | 2% | C3P | H/SC/M | Core |
| 032.01 | Explain how the agricultural chemical manual is used. | | | 1% | C2 | H/SC | Core |
| 032.02 | Demonstrate the ability to make the correct pesticide recommendation from the agricultural chemical manual. | | | 1% | C3P | M/SC | Core |
| 033.00 | Demonstrate the use of chemicals. | | | | C3 | C/H/M/ SC/SS | Supp |
| 033.01 | Explain mixing rates, appropriate uses, disposal, and environmental dangers. | | | | C3 | H/M/ SC | Supp |
| 033.02 | Propose proper pesticide to use given a situation. | | | | C3 | C/SS | Supp |
| 034.00 | Determine type of pest(s) that a pesticide is designed to control when given labels from various commonly used pesticides. | | | | C3 | H/SC | Supp |
| 034.01 | Select a pesticide for control of common horticultural plant pests. | | | | C3 | H/SC | Supp |
| 034.02 | Distinguish between chemical pesticides by the uses stated on their respective labels. | | | | C3 | H/SC | Supp |
| 035.00 | Demonstrate safety precautions for handling and mixing pesticides when given various commonly used pesticides. | | | | C3P | H/SC | Supp |
| 035.01 | Demonstrate the ability to safely mix pesticides. | | | | C3P | H/SC | Supp |
| 035.02 | Explain the proper procedure for applying pesticides. | | | | C3 | C/H/SC | Supp |

| Comp# Obj.# | Unit Titles/Competency and Objective Statements (The student will be able to:) | Time Hours | Course Weight | | Type Behavior | Integrated Skill Area | Core Supp |
|----------------|--|---------------|---------------|-------------|------------------|--------------------------|--------------|
| | | | Cognitive | Performance | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 036.00 | Demonstrate safe disposal and storage of pesticides following legal requirements. | | | | C3 | C/H/SC | Supp |
| 036.01 | Explain safety procedures to follow when storing and disposing of pesticides and their containers. | | | | C3 | C/H/SC | Supp |
| 036.02 | Investigate legal requirements in pesticide disposal and storage. | | | | C3 | C/H/SC | Supp |
| | | | | | | | |
| F | LAWN CARE AND GARDENING | | | | | | |
| 037.00 | Create and manage turf areas in the landscape. | | | | C3P | C/H/SC/ M | Supp |
| 037.01 | Demonstrate lawn establishment from seeds, sod, sprigs, or plugs. | | | | C3P | C/SC/M | Supp |
| 037.02 | Explain maintenance/management requirements (fertilizing, watering, mowing, etc.) of turf areas in the landscape | | | | C3 | C/H/SC/M | Supp |
| | | | | | | | |
| 038.00 | Create and maintain a vegetable garden. | | | | C3P | C/SC/H/M | Supp |
| 038.01 | Research cultural requirements of various common vegetable crops. | | | | C3 | C/H/SC | Supp |
| 038.02 | Demonstrate the establishment of a vegetable garden. | | | | C3P | C/SC/M | Supp |