

***ORNAMENTAL HORTICULTURE/
GREENHOUSE MANAGEMENT
CURRICULUM FRAMEWORK***



This document was prepared by:

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INTRODUCTION

The Nevada CTE Curriculum Frameworks are a resource for Nevada's public and charter schools to design, implement, and assess their CTE programs and curriculum. The content standards identified in this document are listed as a model for the development of local district programs and curriculum. They represent rigorous and relevant expectations for student performance, knowledge, and skill attainment which have been validated by industry representatives.

The intent of this document is to provide a resource to districts as they develop and implement CTE programs and curricula.

This program ensures the following thresholds are met:

- The CTE course and course sequence teaches the knowledge and skills required by industry through applied learning methodology and, where appropriate, work-based learning experiences that prepare students for careers in high-wage, high-skill and/or high-demand fields. Regional and state economic development priorities shall play an important role in determining program approval. Some courses also provide instruction focused on personal development.
- The CTE course and course sequence includes leadership and employability skills as an integral part of the curriculum.
- The CTE course and course sequence are part of a rigorous program of study and include sufficient technical challenge to meet state and/or industry-standards.

The CTE program components include the following items:

- Program of Study
- State Skill Standards
- Employability Skills for Career Readiness Standards
- Career Technical Student Organizations (CTSO)
- Curriculum Framework
- CTE Assessments:
 - Workplace Readiness Skills Assessment
 - End-of-Program Technical Assessment
- Certificate of Skill Attainment
- CTE Endorsement on a High School Diploma
- CTE College Credit

**NEVADA DEPARTMENT OF EDUCATION
CURRICULUM FRAMEWORK FOR
ORNAMENTAL HORTICULTURE/
GREENHOUSE MANAGEMENT**

PROGRAM TITLE:	ORNAMENTAL HORTICULTURE/GREENHOUSE MGMT
STATE SKILL STANDARDS:	ORNAMENTAL HORTICULTURE/GREENHOUSE MGMT
STANDARDS REFERENCE CODE:	OHGM
CAREER CLUSTER:	AGRICULTURE, FOOD AND NATURAL RESOURCES
CAREER PATHWAY:	PLANT SYSTEMS
PROGRAM LENGTH:	3 LEVELS (L1, L2, L3C)
PROGRAM ASSESSMENT	ORNAMENTAL HORTICULTURE/GREENHOUSE MGMT WORKPLACE READINESS SKILLS
CTSO:	FFA
GRADE LEVEL:	9-12
AVAILABLE INDUSTRY CERTIFICATIONS/LICENSES	NEVADA PESTICIDE APPLICATORS LICENSE WORKER PROTECTION HANDLER VERIFICATION CARD

PROGRAM PURPOSE

The purpose of this program is to prepare students for postsecondary education and employment in the Ornamental Horticulture/Greenhouse Management industry.

The program includes the following state standards:

- Nevada CTE Skill Standards: Ornamental Horticulture/Greenhouse Management
- Employability Skills for Career Readiness
- Nevada Academic Content Standards (alignment shown in the Nevada CTE Skill Standards):
 - Science (based on the Next Generation Science Standards)
 - English Language Arts (based on the Common Core State Standards)
 - Mathematics (based on the Common Core State Standards)
- Common Career Technical Core (alignment shown in the Nevada CTE Skill Standards)

CAREER CLUSTERS

The National Career Clusters™ Framework provides a vital structure for organizing and delivering quality CTE programs through learning and comprehensive programs of study (POS). In total, there are 16 Career Clusters in the National Career Clusters™ Framework, representing more than 79 Career Pathways to help students navigate their way to greater success in college and career. As an organizing tool for curriculum design and instruction, Career Clusters™ provide the essential knowledge and skills for the 16 Career Clusters™ and their Career Pathways.*

*Cite: National Association of State Directors of Career Technical Education Consortium. (2012). Retrieved from <http://www.careertech.org/career-clusters/glance/careerclusters.html>

PROGRAM OF STUDY

The program of study illustrates the sequence of academic and career and technical education coursework that is necessary for the student to successfully transition into postsecondary educational opportunities and employment in their chosen career path. (NAC 389.803)

PROGRAM STRUCTURE

The core course sequencing provided in the following table serves as a guide to schools for their programs of study. Each course is listed in the order in which it should be taught and has a designated level. Complete program sequences are essential for the successful delivery of all state standards in each program area.

ORNAMENTAL HORTICULTURE/ GREENHOUSE MANAGEMENT Core Course Sequence	
COURSE NAME	LEVEL
Agriculture Science I or Horticulture Science	L1
Plant Science and Ornamental Horticulture	L2
Greenhouse Management	L3C

The core course sequencing with the complementary courses provided in the following table serves as a guide to schools for their programs of study. Each course is listed in the order in which it should be taught and has a designated level. A program does not have to utilize all of the complementary courses in order for their students to complete their program of study. Complete program sequences are essential for the successful delivery of all state standards in each program area.

ORNAMENTAL HORTICULTURE/ GREENHOUSE MANAGEMENT Core Course Sequence with Complementary Courses	
COURSE NAME	LEVEL
Agriculture Science I or Horticulture Science	L1
Plant Science and Ornamental Horticulture	L2
Greenhouse Management	L3C
Greenhouse Management Advanced Studies *	AS

* Complimentary Courses

STATE SKILL STANDARDS

The state skill standards are designed to clearly state what the student should know and be able to do upon completion of an advanced high school career and technical education (CTE) program. The standards are designed for the student to complete all standards through their completion of a program of study. The standards are designed to prepare the student for the end-of-program technical assessment directly aligned to the standards. (Paragraph (a) of Subsection 1 of NAC 389.800)

EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS

Employability skills, often referred to as “soft skills”, have for many years been a recognizable component of the standards and curriculum in career and technical education programs. The twenty-one standards are organized into three areas: (1) Personal Qualities and People Skills; (2) Professional Knowledge and Skills; and (3) Technology Knowledge and Skills. The standards are designed to ensure students graduate high school properly prepared with skills employers prioritize as the most important. Instruction on all twenty-one standards must be part of each course of the CTE program. (Paragraph (d) of Subsection 1 of NAC 389.800)

CURRICULUM FRAMEWORK

The Nevada CTE Curriculum Frameworks are organized utilizing the recommended course sequencing listed in the Program of Study and the CTE Course Catalog. The framework identifies the recommended content standards, performance standards, and performance indicators that should be taught in each course

CAREER AND TECHNICAL STUDENT ORGANIZATIONS (CTSOS)

To further the development of leadership and technical skills, students must have opportunities to participate in one or more of the Career and Technical Student Organizations (CTSOS). CTSOs develop character, citizenship, and the technical, leadership and teamwork skills essential for the workforce and their further education. Their activities are considered a part of the instructional day when they are directly related to the competencies and objectives in the course. (Paragraph (a) of Subsection 3 of NAC 389.800)

WORKPLACE READINESS SKILLS ASSESSMENT

The Workplace Readiness Skills Assessment has been developed to align with the Nevada CTE Employability Skills for Career Readiness Standards. This assessment provides a measurement of student employability skills attainment. Students who complete a program will be assessed on their skill attainment during the completion level course. Completion level courses are identified by the letter “C”. (e.g., Level = L3C) (Paragraph (d) of Subsection 1 of NAC 389.800)

END-OF-PROGRAM TECHNICAL ASSESSMENT

An end-of-program technical assessment has been developed to align with the Nevada CTE Skill Standards for this program. This assessment provides a measurement of student technical skill attainment. Students who complete a program will be assessed on their skill attainment during the completion level course. Completion level courses are identified by the letter “C”. (e.g., Level = L3C) (Paragraph (e) of Subsection 1 of NAC 389.800)

CERTIFICATE OF SKILL ATTAINMENT

Each student who completes a course of study must be awarded a certificate which states that they have attained specific skills in the industry being studied and meets the following criteria: A student must maintain a 3.0 grade point average in their approved course of study, pass the Workplace Readiness Skills Assessment, and pass the end-of-program technical assessment. (Subsection 4 of NAC 389.800)

CTE ENDORSEMENT ON A HIGH SCHOOL DIPLOMA

A student qualifies for a CTE endorsement on their high school diploma after successfully completing the following criteria: 1) successful completion of a CTE course of study in a program area, 2) successful completion of academic requirements governing receipt of a standard diploma, and 3) meet all requirements for the issuance of the Certificate of Skill Attainment. (NAC 389.815)

CTE COLLEGE CREDIT

CTE College Credit is awarded to students based on articulation agreements established by each college for the CTE program, where the colleges will determine the credit value of a full high school CTE program based on course alignment. An articulation agreement will be established for each CTE program designating the number of articulated credits each college will award to students who complete the program.

CTE College Credit is awarded to students who: (1) complete the CTE course sequence with a grade-point average of 3.0 or higher; (2) pass the state end-of-program technical assessment for the program; and (3) pass the Workplace Readiness Assessment for employability skills.

Pre-existing articulation agreements will be recognized until new agreements are established according to current state policy and the criteria shown above.

Please refer to the local high school's course catalog or contact the local high school counselor for more information. (Paragraph (b) of Subsection 3 of NAC 389.800)

ACADEMIC CREDIT FOR CTE COURSEWORK

Career and technical education courses meet the credit requirements for high school graduation (1 unit of arts and humanities or career and technical education). Some career and technical education courses meet academic credit for high school graduation. Please refer to the local high school's course catalog or contact the local high school counselor for more information. (NAC 389.672)

**CORE COURSE:
RECOMMENDED STUDENT PERFORMANCE STANDARDS
AGRICULTURE SCIENCE OPTION**

COURSE TITLE:	Agriculture Science I
ABBR. NAME:	AG SCIENCE I
CREDITS:	1
LEVEL:	L1
CIP CODE:	01.0000
PREREQUISITE:	None
CTSO:	FFA

COURSE DESCRIPTION

This course is an introduction and survey course of the many career areas in agriculture. Topics include scientific investigations in agriculture, basic animal science, basic plant and soil science, ornamental horticulture, natural resource management, business management, leadership and communication through FFA, and career skills. An essential part of this course will be leadership activities and Supervised Agriculture Experience Programs.

TECHNICAL STANDARDS**CONTENT STANDARD 1.0 : EXAMINE THE ROLE OF AG IN SOCIETY**

Performance Standard 1.1 : Recognize the Role of Ag in Society

Performance Indicators : 1.1.1-1.1.6

Performance Standard 1.2 : Understand the History of Production Agriculture

Performance Indicators : 1.2.1-1.2.3

Performance Standard 1.3 : Explore the World Food Supply

Performance Indicators : 1.3.1-1.3.2

CONTENT STANDARD 2.0 : DEVELOP LEADERSHIP AND COMMUNICATION SKILLS THROUGH PARTICIPATION IN FFA

Performance Standard 2.1 : Understand the History and Organization of FFA

Performance Indicators : 2.1.1-2.1.4

Performance Standard 2.2 : Understand the Opportunities in FFA

Performance Indicators : 2.2.1-2.2.3

Performance Standard 2.3 : Properly Use Skills in Parliamentary Procedure

Performance Indicators : 2.3.1-2.3.3

Performance Standard 2.4 : Understand the Importance of School and Community Awareness

Performance Indicators : 2.4.1-2.4.3

CONTENT STANDARD 3.0 : DEVELOP A SUPERVISED AGRICULTURAL EXPERIENCE (SAE) PROGRAM

Performance Standard 3.1 : Understand The Benefits of an SAE Program

Performance Indicators : 3.1.1-3.1.5

Performance Standard 3.2 : Understand the Benefits of SAE Records

Performance Indicators : 3.2.1-3.2.4

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CONTENT STANDARD 4.0 : EXPLORING SCIENTIFIC INVESTIGATION IN AGRICULTURE

Performance Standard 4.1 : Design and Conduct Agricultural Research

Performance Indicators : 4.1.1-4.1.2

Performance Standard 4.2 : Report Agricultural Research

Performance Indicators : 4.2.1-4.2.3

Performance Standard 4.3 : Understand Scientific Measurement

Performance Indicators : 4.3.1-4.3.3

Performance Standard 4.4 : Use Laboratory Tools and Equipment

Performance Indicators : 4.4.1-4.4.5

Performance Standard 4.5 : Explore Careers in Agricultural Science

Performance Indicators : 4.5.1-4.5.2

CONTENT STANDARD 5.0 : DEVELOP AN UNDERSTANDING OF THE ANIMAL SCIENCE INDUSTRY

Performance Standard 5.1 : Explore and Evaluate the Livestock Industry

Performance Indicators : 5.1.1-5.1.4

Performance Standard 5.2 : Understand Animal Cellular Biology

Performance Indicators : 5.2.1-5.2.2

Performance Standard 5.7 : Explore Careers in Animal Science

Performance Indicators : 5.7.1-5.7.2

CONTENT STANDARD 6.0 : UNDERSTANDING PLANT SCIENCE

Performance Standard 6.1 : Identify Different Plant Classification Systems

Performance Indicators : 6.1.1-6.1.3

Performance Standard 6.2 : Identify Parts and Functions of Plant Cells

Performance Indicators : 6.2.1-6.2.3

Performance Standard 6.3: Understand Plant Physiology

Performance Indicators : 6.3.1-6.3.4

Performance Standard 6.4 : Understand Flower Anatomy

Performance Indicators : 6.4.1-6.4.3

Performance Standard 6.5 : Understand Plant Propagation

Performance Indicators : 6.5.1-6.5.3

Performance Standard 6.6 : Understand Plant Nutrition

Performance Indicators : 6.6.1-6.6.5

Performance Standard 6.7 : Explore Careers in Plant Science

Performance Indicators : 6.7.1-6.7.2

EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS**CONTENT STANDARD 1.0 : DEMONSTRATE EMPLOYABILITY SKILLS FOR CAREER READINESS**

Performance Standard 1.1 : Demonstrate Personal Qualities and People Skills

Performance Indicators : 1.1.1-1.1.7

Performance Standard 1.2 : Demonstrate Professional Knowledge and Skills

Performance Indicators : 1.2.1-1.2.10

Performance Standard 1.3 : Demonstrate Technology Knowledge and Skills

Performance Indicators : 1.3.1-1.3.4

ALIGNMENT TO THE NEVADA ACADEMIC CONTENT STANDARDS*

English Language Arts: Reading Standards for Literacy in Science and Technical Subjects
Writing Standards for Literacy in Science and Technical Subjects
Speaking and Listening
Language

Mathematics: Mathematical Practices

Science: Nature of Science
Physical Science
Life Science
Earth and Space

* Refer to the Agriculture Science I and II Standards for alignment by performance indicator

**CORE COURSE:
RECOMMENDED STUDENT PERFORMANCE STANDARDS
HORTICULTURE SCIENCE OPTION**

COURSE TITLE:	Horticulture Science
ABBR. NAME:	HORTICULTURE SCI
CREDITS:	1
LEVEL:	L1
CIP CODE:	01.1103
PREREQUISITE:	None
CTSO:	FFA
COURSE DESCRIPTION	
<p>This course is an introductory course into the horticulture industry. Areas of study include scientific investigations in horticulture, basic plant processes and anatomy, soils, plant propagation, plant growth requirements, cultivation practices, business management, horticulture and environment, and leadership and career skills. An essential part of this course will be leadership activities and Supervised Agriculture Experience Programs.</p>	

TECHNICAL STANDARDS

CONTENT STANDARD 1.0 : EXAMINE THE ROLE OF AG IN SOCIETY

Performance Standard 1.1 : Recognize the Role of Ag in Society

Performance Indicators : 1.1.1-1.1.6

Performance Standard 1.2 : Understand the History of Production Agriculture

Performance Indicators : 1.2.1-1.2.3

Performance Standard 1.3 : Explore the World Food Supply

Performance Indicators : 1.3.1-1.3.2

CONTENT STANDARD 2.0 : DEVELOP LEADERSHIP AND COMMUNICATION SKILLS THROUGH PARTICIPATION IN FFA

Performance Standard 2.1 : Understand the History and Organization of FFA

Performance Indicators : 2.1.1-2.1.4

Performance Standard 2.2 : Understand the Opportunities in FFA

Performance Indicators : 2.2.1-2.2.3

Performance Standard 2.3 : Properly Use Skills in Parliamentary Procedure

Performance Indicators : 2.3.1-2.3.3

Performance Standard 2.4 : Understand the Importance of School and Community Awareness

Performance Indicators : 2.4.1-2.4.3

CONTENT STANDARD 3.0 : DEVELOP A SUPERVISED AGRICULTURAL EXPERIENCE (SAE) PROGRAM

Performance Standard 3.1 : Understand the Benefits of an SAE Program

Performance Indicators : 3.1.1-3.1.5

Performance Standard 3.2 : Understand the Benefits of SAE Records

Performance Indicators : 3.2.1-3.2.4

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CONTENT STANDARD 4.0 : EXPLORING THE HORTICULTURE INDUSTRY

Performance Standard 4.1 : Understand the Horticulture Industry

Performance Indicators : 4.1.1-4.1.3

Performance Standard 4.2 : Describe the Importance of Different Areas of the Horticulture Industry

Performance Indicators : 4.2.1-4.2.4

Performance Standard 4.3 : Explore Horticulture Careers

Performance Indicators : 4.3.1-4.3.2

Performance Standard 4.4 : Practice Safety in Horticulture Practices

Performance Indicators : 4.4.1-4.4.3

CONTENT STANDARD 5.0 : EXPLORING SCIENTIFIC INVESTIGATION IN AGRICULTURE

Performance Standard 5.1 : Design and Conduct Agricultural Research

Performance Indicators : 5.1.1-5.1.2

Performance Standard 5.2 : Report Agricultural Research

Performance Indicators : 5.2.1-5.2.3

Performance Standard 5.3 : Understand Scientific Measurement

Performance Indicators : 5.3.1-5.3.3

Performance Standard 5.4 : Use Laboratory Tools and Equipment

Performance Indicators : 5.4.1-5.4.5

Performance Standard 5.5 : Explore Careers in Agricultural Science

Performance Indicators : 5.5.1-5.5.2

CONTENT STANDARD 6.0 : UNDERSTAND BASIC PLANT PROCESSES

Performance Standard 6.1 : Identify Different Plant Classification Systems

Performance Indicators : 6.1.16.1.3

Performance Standard 6.2 : Identify Parts and Functions of Plant Cells

Performance Indicators : 6.2.1-6.2.3

Performance Standard 6.3 : Understand Plant Physiology

Performance Indicators : 6.3.1-6.3.4

CONTENT STANDARD 7.0 : UNDERSTANDING PLANT ANATOMY

Performance Standard 7.1 : Understand Root Anatomy

Performance Indicators : 7.1.1-7.1.3

Performance Standard 7.2 : Understand Stem Anatomy

Performance Indicators : 7.2.1-7.2.3

Performance Standard 7.3 : Understand Leaf Anatomy

Performance Indicators : 7.3.1-7.3.4

Performance Standard 7.4 : Understand Flower Anatomy

Performance Indicators : 7.4.1-7.4.7

CONTENT STANDARD 8.0 : UNDERSTAND THE ROLE OF SOILS IN HORTICULTURE

Performance Standard 8.1 : Understand Soil Texture and Structure

Performance Indicators : 8.1.1-8.1.4

Performance Standard 8.2 : Understand Moisture-Holding Capacity

Performance Indicators : 8.2.1-8.2.2

Performance Standard 8.3 : Understand Growing Media Components

Performance Indicators : 8.3.1-8.3.2

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CONTENT STANDARD 9.0 : UNDERSTAND THE ROLE OF SOILS IN HORTICULTURE

Performance Standard 9.1 : Understand Sexual Reproduction

Performance Indicators : 9.1.1-9.1.6

Performance Standard 9.2 : Demonstrate Propagation by Cuttings

Performance Indicators : 9.2.1-9.2.4

CONTENT STANDARD 10.0 : UNDERSTAND PLANT GROWTH REQUIREMENTS

Performance Standard 10.1 : Understand the Nutritional Requirements of Horticultural Crops

Performance Indicators : 10.1.1-10.1.4

Performance Standard 10.2 : Understand the Environmental Requirements for Plant Growth

Performance Indicators : 10.2.1-10.2.5

EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS**CONTENT STANDARD 1.0 : DEMONSTRATE EMPLOYABILITY SKILLS FOR CAREER READINESS**

Performance Standard 1.1 : Demonstrate Personal Qualities and People Skills

Performance Indicators : 1.1.1-1.1.7

Performance Standard 1.2 : Demonstrate Professional Knowledge and Skills

Performance Indicators : 1.2.1-1.2.10

Performance Standard 1.3 : Demonstrate Technology Knowledge and Skills

Performance Indicators : 1.3.1-1.3.4

ALIGNMENT TO THE NEVADA ACADEMIC CONTENT STANDARDS*

English Language Arts: Reading Standards for Literacy in Science and Technical Subjects
Writing Standards for Literacy in Science and Technical Subjects
Speaking and Listening
Language

Mathematics: Mathematical Practices

Science: Nature of Science
Physical Science
Life Science
Earth and Space

* Refer to the Horticulture Science Standards for alignment by performance indicator

**CORE COURSE:
RECOMMENDED STUDENT PERFORMANCE STANDARDS**

COURSE TITLE:	Plant Science and Ornamental Horticulture
ABBR. NAME:	PLANT SCI HORT
CREDITS:	1
LEVEL:	L2
CIP CODE:	01.063
PREREQUISITE:	Ag Science I or Horticulture Science
CTSO:	FFA
COURSE DESCRIPTION	
<p>This course is a continuation of Agriculture Science I or Horticulture Science. This course is designed to introduce the intermediate agriculture student to the skills and knowledge needed in order to successfully grow and care for plants. Areas emphasized include: plant anatomy and physiology, plant identification, propagation, growing media, nutrition, and plant technologies. An essential part of this course will be leadership activities and Supervised Agriculture Experience Programs. The appropriate use of technology and industry-standard equipment is an integral part of this course.</p>	

TECHNICAL STANDARDS

CONTENT STANDARD 1.0 : PRACTICE SAFETY IN THE ORNAMENTAL HORTICULTURE AND GREENHOUSE INDUSTRY

Performance Standard 1.1 : Properly Perform Safe Work Practices

Performance Indicators : 1.1.1-1.1.5

CONTENT STANDARD 2.0 : UNDERSTANDING PLANT ANATOMY

Performance Standard 2.1 : Understand Root Anatomy

Performance Indicators : 2.1.1-2.1.4

Performance Standard 2.2 : Understand Stem Anatomy

Performance Indicators : 2.2.1-2.2.4

Performance Standard 2.3 : Understand Leaf Anatomy

Performance Indicators : 2.3.1-2.3.5

Performance Standard 2.4 : Understand Flower Anatomy

Performance Indicators : 2.4.1-2.4.5

CONTENT STANDARD 3.0 : UNDERSTANDING PLANT PHYSIOLOGY

Performance Standard 3.1 : Examine Energy Conversion in Plants

Performance Indicators : 3.1.1-3.1.3

Performance Standard 3.2 : Examine Transport Within a Plant System

Performance Indicators : 3.2.1-3.2.3

Performance Standard 3.3 : Examine Environmental Requirements for Plant Growth

Performance Indicators : 3.3.1-3.3.3

CONTENT STANDARD 4.0 : PLANT IDENTIFICATION

Performance Standard 4.1 : Categorize Plants

Performance Indicators : 4.1.1-4.1.4

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CONTENT STANDARD 5.0 : GROWING MEDIA

Performance Standard 5.1 : Understand Soil Texture and Structure

Performance Indicators : 5.1.1-5.1.4

CONTENT STANDARD 6.0 : EXPLORE PLANT NUTRITION

Performance Standard 6.1 : Understand Soil Texture and Structure

Performance Indicators : 6.1.1-6.1.4

CONTENT STANDARD 8.0 : DEMONSTRATE PLANT PROPAGATION

Performance Standard 8.1 : Understand Propagation by Seed

Performance Indicators : 8.1.1-8.1.5

Performance Standard 8.2 : Understand Asexual Propagation

Performance Indicators : 8.2.1-8.2.5

CONTENT STANDARD 11.0 : EXPLORING PLANT TECHNOLOGIES

Performance Standard 11.1 : Explore Selective Plant Breeding

Performance Indicators : 11.1.1-11.1.5

Performance Standard 11.2 : Examine Genetic Engineering of Plants

Performance Indicators : 11.2.1-11.2.2

Performance Standard 11.3 : Describe Micropropagation Techniques

Performance Indicators : 11.3.1-11.3.3

Performance Standard 11.4 : Explore Hydroponic Techniques

Performance Indicators : 11.4.1-11.4.3

CONTENT STANDARD 13.0 : PARTICIPATE IN LEADERSHIP TRAINING THROUGH MEMBERSHIP IN FFA

Performance Standard 13.1 : Recognize the Traits of Effective Leaders and Participate in Leadership Training Through Involvement in FFA

Performance Indicators : 13.1.1-13.1.3

Performance Standard 13.2 : Understand the Importance of School and Community Awareness

Performance Indicators : 13.2.1

CONTENT STANDARD 14.0 : DESCRIBE THE RELATIONSHIP BETWEEN A SUPERVISED AGRICULTURAL EXPERIENCE (SAE) AND PREPARATION OF STUDENTS FOR A CAREER IN AGRICULTURE

Performance Standard 14.1 : Maintain a Supervised Agricultural Experience

Performance Indicators : 14.1.1-14.1.3

EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS**CONTENT STANDARD 1.0 : DEMONSTRATE EMPLOYABILITY SKILLS FOR CAREER READINESS**

Performance Standard 1.1 : Demonstrate Personal Qualities and People Skills

Performance Indicators : 1.1.1-1.1.7

Performance Standard 1.2 : Demonstrate Professional Knowledge and Skills

Performance Indicators : 1.2.1-1.2.10

Performance Standard 1.3 : Demonstrate Technology Knowledge and Skills

Performance Indicators : 1.3.1-1.3.4

ALIGNMENT TO THE NEVADA ACADEMIC CONTENT STANDARDS*

English Language Arts: Reading Standards for Literacy in Science and Technical Subjects
Writing Standards for Literacy in Science and Technical Subjects
Speaking and Listening
Language

Mathematics: Mathematical Practices

Science: Nature of Science
Physical Science
Life Science
Earth and Space

* Refer to the Plant Science and Ornamental Horticulture Standards for alignment by performance indicator

**CORE COURSE:
RECOMMENDED STUDENT PERFORMANCE STANDARDS**

COURSE TITLE:	Greenhouse Management
ABBR. NAME:	GREENHOUSE MGMT
CREDITS:	1
LEVEL:	L3C
CIP CODE:	01.0604
PREREQUISITE:	Plant Science and Ornamental Horticulture
CTSO:	FFA
COURSE DESCRIPTION	
<p>This course is a continuation of Ornamental Horticulture. This course provides advanced agriculture students a technical understanding and working knowledge of the greenhouse industry. Topics include safety, plant physiology, growing media, plant nutrition, integrated pest management, propagation, growing greenhouse crops and greenhouse business concepts. Students will gain knowledge and skills related to the care and management of gardens and greenhouses. An essential part of this course will be leadership activities and Supervised Agriculture Experience Programs. The appropriate use of technology and industry-standard equipment is an integral part of this course. Upon successful completion of this course, students will have acquired entry-level skills for employment.</p>	

TECHNICAL STANDARDS

CONTENT STANDARD 1.0 : PRACTICE SAFETY IN THE ORNAMENTAL HORTICULTURE AND GREENHOUSE INDUSTRY

Performance Standard 1.1 : Properly Perform Safe Work Practices

Performance Indicators : 1.1.1-1.1.5

CONTENT STANDARD 3.0 : UNDERSTANDING PLANT PHYSIOLOGY

Performance Standard 3.3 : Examine Environmental Requirements for Plant Growth

Performance Indicators : 3.3.1-3.3.3

Performance Standard 3.4 : Research Plant Growth Regulators

Performance Indicators : 3.4.1-3.4.2

Performance Standard 3.5 : Explore Plant Tropisms

Performance Indicators : 3.5.1

CONTENT STANDARD 5.0 : GROWING MEDIA

Performance Standard 5.2 : Explore Soilless Growing Media

Performance Indicators : 5.2.1-5.2.4

Performance Standard 5.3 : Explore Chemical Characteristics of Growing Media

Performance Indicators : 5.3.1-5.3.5

CONTENT STANDARD 6.0 : PLANT NUTRITION

Performance Standard 6.2 : Explore the Function of Plant Nutrients

Performance Indicators : 6.2.1-6.2.2

CONTENT STANDARD 7.0 : INTEGRATED PEST MANAGEMENT (IPM)

Performance Standard 7.1 : Describe Integrated Pest Management

Performance Indicators : 7.1.1-7.1.2

Performance Standard 7.2 : Explore Common Pests and Diseases

Performance Indicators : 7.2.1-7.2.3

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Performance Standard 7.3 : Explain Procedures for The Safe Handling , Use And Storage Of Pesticides

Performance Indicators : 7.3.1-7.3.6

CONTENT STANDARD 8.0 : PLANT PROPAGATION

Performance Standard 8.2 : Asexual Propagation

Performance Indicators : 8.2.1-8.2.5

CONTENT STANDARD 9.0 : GROWING GREENHOUSE CROPS

Performance Standard 9.1 : Prepare for Crop Production

Performance Indicators : 9.1.1-9.1.3

Performance Standard 9.2 : Perform Growth Maintenance Procedures

Performance Indicators : 9.2.1-9.2.5

Performance Standard 9.3 : Perform Transplanting

Performance Indicators : 9.3.1-9.3.3

Performance Standard 9.4 : Preparing Plants for Sale

Performance Indicators : 9.4.1-9.4.2

CONTENT STANDARD 10.0 : EXPLORE GREENHOUSE BUSINESS CONCEPTS

Performance Standard 10.1 : Explain the Basics of Marketing in the Greenhouse Industry

Performance Indicators : 10.1.1-10.1.3

Performance Standard 10.2 : Understand the Principles of Sales

Performance Indicators : 10.2.1-10.2.3

CONTENT STANDARD 12.0 : CAREERS IN HORTICULTURE

Performance Standard 12.1 : **Explore Careers in Horticulture**

Performance Indicators : 12.1.1-12.1.3

CONTENT STANDARD 13.0 : PARTICIPATE IN LEADERSHIP TRAINING THROUGH MEMBERSHIP IN FFA

Performance Standard 13.1 : Recognize the Traits of Effective Leaders and Participate in Leadership Training Through Involvement in FFA

Performance Indicators : 13.1.1-13.1.3

Performance Standard 13.2 : Understand the Importance of School and Community Awareness

Performance Indicators : 13.2.1

CONTENT STANDARD 14.0 : DESCRIBE THE RELATIONSHIP BETWEEN A SUPERVISED AGRICULTURAL EXPERIENCE (SAE) AND PREPARATION OF STUDENTS FOR A CAREER IN AGRICULTURE

Performance Standard 14.1 : Maintain a Supervised Agricultural Experience

Performance Indicators : 14.1.1-14.1.3

EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS

CONTENT STANDARD 1.0 : DEMONSTRATE EMPLOYABILITY SKILLS FOR CAREER READINESS

Performance Standard 1.1 : Demonstrate Personal Qualities and People Skills

Performance Indicators : 1.1.1-1.1.7

Performance Standard 1.2 : Demonstrate Professional Knowledge and Skills

Performance Indicators : 1.2.1-1.2.10

Performance Standard 1.3 : Demonstrate Technology Knowledge and Skills

Performance Indicators : 1.3.1-1.3.4

ALIGNMENT TO THE NEVADA ACADEMIC CONTENT STANDARDS*

English Language Arts: Reading Standards for Literacy in Science and Technical Subjects
Writing Standards for Literacy in Science and Technical Subjects
Speaking and Listening

Mathematics: Mathematical Practices

Science: Nature of Science
Physical Science
Life Science
Earth and Space

* Refer to the Plant Science and Ornamental Horticulture Standards for alignment by performance indicator

COMPLIMENTARY COURSE(S):

Programs that utilize the complementary courses can include the following courses. The Advanced Studies course allows for additional study through investigation and in-depth research.

COURSE TITLE:	Greenhouse Management Advanced Studies
ABBR. NAME:	GREENHOUSE MGMT AS
CREDITS:	1
LEVEL:	AS
CIP CODE:	01.0604
PREREQUISITE:	Greenhouse Management
CTSO:	FFA

COURSE DESCRIPTION

This course is offered to students who have achieved all content standards in a program whose desire is to pursue advanced study through investigation and in-depth research. Students are expected to work independently or in a team and consult with their supervising teacher for guidance. The supervising teacher will give directions, monitor, and evaluate the students' topic of study. Coursework may include various work-based learning experiences such as internships and job shadowing, involvement in a school-based enterprise, completion of a capstone project, and/or portfolio development. This course may be repeated for additional instruction and credit.

TECHNICAL STANDARDS

Students have achieved all program content standards and will pursue advanced study through investigation and in-depth research.

EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS

Students have achieved all program content standards and will pursue advanced study through investigation and in-depth research.

SAMPLE TOPICS

- Participate in individual/team competitions
- Investigate and utilize shop management techniques and procedures
- Participation in an internship or job shadow opportunities
- Explore college and career opportunities