Auburn Framework: Horticulture I & II

Course: Horticultural Science	**Total Framework Hours:** 360 Hours
CIP Code: 011103	**Type:** Exploratory
Career Cluster: Agriculture, Food and Natural Resources	**Date Last Modified:** Thursday, January 29, 2015

Resources and Standard used in Framework Development:

Standards for this framework are taken from the OSPI Model Framework for Plant Systems

Unit 1 PLANT PHYSIOLOGY AND GROWTH — Hours: 26

Performance Assessment(s):

Performance Assessments:
Horticulture I-II

Diagram all plant parts.
Can make a cell model and outline the function of each part.
Properly Identify 25 interior plants

Leadership Alignment:

Leadership:
The student will demonstrate oral, interpersonal, written, and electronic communication and presentations skills and understand how to apply those skills through designing a cell model project and creating plant I.D charts.
The student will understand and utilize organizational systems to advocate for issues at the local, and state pay participation in class FFA meetings and community awareness projects.
SAE Sample: Crop production project
FFA CDE Nursery Landscape or Floriculture

Standards and Competencies

SAE.01.01: Students will establish and conduct Supervised Agriculture Experience Projects (SAE).
- SAE.01.01.b. Explain the benefits of SAE projects to skill development, leadership and career success.
- SAE.01.01.c. Explain the connection between SAE and FFA.
- SAE.01.01.e. Explore ideas for SAE projects.
- SAE.01.01.g. Select and establish an SAE project.
- SAE.01.01.h. Explain and keep records on established SAE projects.
- SAE.01.01.i. Explain SAE project Supervision, visitation and assessment.
- SAE.01.01.j. Explain how SAE projects benefit the community.

PS.01.01: Classify agricultural plants according to taxonomy systems
- Level 1
- PS.01.01.01.a Explain systems used to classify plants
- Level 2
- PS.01.01.01.b.Compare and contrast the hierarchical classification of agricultural plants
- Level 3
- PS.01.01.01.c Classify agricultural plants according to the hierarchical classification system, life cycles, plant use and as monocotyledons or dicotyledons.

PS.01.02: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems
- Level 1

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.01.02.05.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
Level 2
PS.01.02.01.b.Compare and contrast mitosis and meiosis
PS.01.02.02.b Identify root tissues and explain the pathway of water and nutrients into and through the root tissue
PS.01.02.03.b Describe the processes of translocation
PS.01.02.04.b.Explain how leaves capture light energy and allow for the exchange of gasses
PS.01.02.06.b.Identify the major types of fruit
Level 3
PS.01.02.01.c Apply the knowledge of cell differentiation and the functions of the major types of cells to plant systems.
PS.01.02.02.c.Relate the active and passive transport of minerals into and through the root system to plant nutrition.
PS.01.02.03.c.Apply concepts associated with translocation to the management of plants.
PS.01.02.04.c Explain the relationship between leaf structure and functions and plant management practices
PS.01.02.05.c Apply the knowledge of flower structure to plant breeding, production and use.
PS.01.02.06.c Apply the knowledge of seed and fruit structures to plant culture and use.

PS.01.03: Apply knowledge of plant physiology and energy conversion to plant systems

Level 1
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.01.03.03.a Define primary growth and the role of the apical meristem
PS.01.03.04.a Identify the five groups of naturally occurring plant hormones and synthetic plant growth regulators
Level 2
PS.01.03.01.b.Explain requirements necessary for photosynthesis to occur and identify the products and by products of photosynthesis.
PS.01.03.02.b.Explain factors that affect cellular respiration and identify the products and by products of cellular respiration.
PS.01.03.03.b.Explain the process of secondary plant growth.
PS.01.03.04.b Identify the plant responses to plant growth regulators and different forms of tropism
Level 3
PS.01.03.01.c.Explain the light –dependent and light –independent reactions that occur during photosynthesis and apply the knowledge to plant management
PS.01.03.02.c.Explain the four stages of aerobic respiration and relate cellular respiration respiration to plant growth, crop management and post harvest handling.
PS.01.03.03.c.Relate the principles of primary and secondary growth to plant systems
PS.01.03.04.c Select plant growth regulators to produce desired responses from plants.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Language

Mathematics

Reading

CC: College and Career Readiness Anchor Standards for Reading

Key Ideas and Details

3 - Analyze how and why individuals, events, and ideas develop and interact over the course of a text.

Integration of Knowledge and Ideas

7 - Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.

9 - Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

CC: Reading Informational Text

Craft and Structure (9-10)

4 - Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).

Science

Life Sciences

HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

HS-LS1-4. Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.

HS-LS1-5. Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.

HS-LS4 Biological Evolution: Unity and Diversity

HS-LS4-3. Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.

HS-LS4-4. Construct an explanation based on evidence for how natural selection leads to adaptation of populations.

Social Studies

Writing

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- [x] Think Creatively
- [ ] Work Creatively with Other
- [ ] Implement Innovations

Creative Thinking and Problem Solving
- [ ] Reason Effectively
- [x] Use Systems Thinking
- [ ] Make Judgements and Decisions
- [x] Solve Problems

Communication and Collaboration
- [ ] Communicate Clearly
- [ ] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- [x] Access and Evaluate Information
- [ ] Use and Manage Information

Media Literacy
- [ ] Analyze Media
- [ ] Create Media Products

Information, Communications, and Technology (ICT Literacy)
- [ ] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- [ ] Adapt to Change
- [x] Be Flexible

Initiative and Self-Direction
- [ ] Mange Goals and Time
- [ ] Work Independently
- [ ] Be Self-Directed Learners

Social and Cross-Cultural
- [ ] Interact Effectively with Other
- [ ] Work Effectively in Diverse Teams

Productivity and Accountability
- [x] Manage Projects
- [ ] Produce Results

Leadership and Responsibility
- [ ] Guide and Lead Others
- [ ] Be Responsible to Others

Unit 2 CLASSIFY ORNAMENTAL FLOWERS

Hours: 15

Performance Assessment(s):

Horticulture I-II
Properly identify a variety of indoor plants and flowers
Group house plants based on their environmental needs
Group annual plants based on their environmental needs
Identify a variety of plants and categorize them in to families
Properly identify 12 outdoor plants

Leadership Alignment:

Leadership:
The student will demonstrate managing information skills, interpersonal, written, and electronic communication and presentations skills and understand how to apply those skills using the crop management project and advertisement fliers.
SAE Sample: Landscape design
Landscape maintenance
FFA CDE Nursery Lanscape or Floriculture

Standards and Competencies

PS.01.01: Classify agricultural plants according to taxonomy systems

Level 1

PS.01.01.01.a Explain systems used to classify plants

Level 2

PS.01.01.01.b.Compare and contrast the hierarchical classification of agricultural plants

Level 3

PS.01.01.01.c Classify agricultural plants according to the hierarchical classification system, life cycles, plant use and as monocotyledons or dicotyledons.

PS.01.02: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems

Level 1

PS.01.02.05.a Identify the components of a flower, the functions of a flower and the functions of flower components

Level 3

PS.01.02.05.c Apply the knowledge of flower structure to plant breeding, production and use.

PS.01.02.06.c Apply the knowledge of seed and fruit structures to plant culture and use.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Language

Mathematics

Reading

CC: Reading Informational Text

Key Ideas and Details (9-10)

1 - Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

Craft and Structure (9-10)

4 - Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).

CC: Reading for Literacy in Science and Technical Subjects

Key Ideas and Details (11-12)

3 - Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.

Integration of Knowledge and Ideas (11-12)

8 - Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.

Science

Life Sciences

HS-LS1-4. Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.

HS-LS2 Ecosystems: Interactions, Energy, and Dynamics

HS-LS2-6. Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.

HS-LS3 Heredity: Inheritance and Variation of Traits

HS-LS3-1. Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.

Crosscutting Concepts

1. Patterns.
3. Scale, proportion, and quantity.
4. Systems and system models.

Social Studies

Writing

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- [x] Think Creatively
- [ ] Work Creatively with Other
- [ ] Implement Innovations

Creative Thinking and Problem Solving
- [ ] Reason Effectively
- [ ] Use Systems Thinking
- [ ] Make Judgements and Decisions
- [x] Solve Problems

Communication and Collaboration
- [ ] Communicate Clearly
- [ ] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- [ ] Access and Evaluate Information
- [x] Use and Manage Information

Media Literacy
- [ ] Analyze Media
- [ ] Create Media Products

Information, Communications, and Technology (ICT Literacy)
- [ ] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- [ ] Adapt to Change
- [ ] Be Flexible

Initiative and Self-Direction
- [ ] Mange Goals and Time
- [ ] Work Independently
- [ ] Be Self-Directed Learners

Social and Cross-Cultural
- [ ] Interact Effectively with Other
- [ ] Work Effectively in Diverse Teams

Productivity and Accountability
- [ ] Manage Projects
- [x] Produce Results

Leadership and Responsibility
- [ ] Guide and Lead Others
- [ ] Be Responsible to Others

Unit 3 PREPARE GROWING MEDIA AND SEEDBEDS — Hours: 15

Performance Assessment(s):

Horticulture I-II

Students will properly prepare a variety of soil growing environments for 20 different species of plants.
Choose and use proper planting materials
Demonstrate proper media, pot, and environment preparation for specific plants

Leadership Alignment:

Leadership:
The student will communicate, participate, and advocate effectively in pairs, small groups, teams, and large groups in order to reach common goals using their crop management project including a soils brochure. .
The student will demonstrate knowledge of conflict resolution and challenge management using problem solving excersizes in class and committee meetings to choose yearly crops and soils.

FFA CDE Nursery Lanscape or Floriculture
SAE Sample: Landscape contractor
Landscape laborer

Standards and Competencies

PS.01.03: Apply knowledge of plant physiology and energy conversion to plant systems
- PS.01.03.03.a Define primary growth and the role of the apical meristem
- PS.01.03.03.b.Explain the process of secondary plant growth.
- PS.01.03.04.b Identify the plant responses to plant growth regulators and different forms of tropism
- PS.01.03.03.c.Relate the principles of primary and secondary growth to plant systems
- PS.01.03.04.c Select plant growth regulators to produce desired responses from plants.

PS.02.02: Prepare growing media for use in plant Systems
- Level 1
- PS 02.02.01.a. Identify the major components of growing media and describe how growing media support plants growth.
- PS.02.02.02.a. Identify the categories of soil water
- Level 2
- PS 02.02.01.b Describe the physical characteristics of growing media and explain the influence they have on plant growth.
- PS.02.02.02.b Discuss how soil drainage and water holding capacity can be improved
- Level 3
- PS.02.02.01.c. Formulate and prepare growing media and specific plants or crops.
- PS.02.02.02.c. Determine the hydraulic conductivity for soil and how the results influence irrigation practices

CS.01.01: Action: Exhibit the skills and competencies needed to achieve a desired result.
- Level 1
- CS.01.01.01.a. Work productively with a group or independently.
- CS.01.01.03.a. Exhibit good planning skills for a specific task or situation.
- CS.01.01.04.a. Explore available resources to assist in meeting project needs.
- Level 2
- CS.01.01.01.b. Demonstrate the ability to complete a task without assistance.
- Level 3
- CS.01.01.01.c. Work independently and in group settings to accomplish a task.

CS.01.01.02.c. Assess outcomes to determine success for a task.

CS.01.01.03.c. Implement an effective project plan.

CS.03.03: Flexibility / Adaptability: Describe traits that enable one to be capable and willing to accept change

CS.03.03.02.a. Select the appropriate process to initiate effective change for a given situation.

CS.03.03.03.b. Differentiate between positive and negative constructive feedback and realize the importance of both.

Level 3

CS.03.03.02.c. Evaluate strategies that can be used to manage change within the workplace.

CS.03.03.03.c. Respond to feedback to improve a situation, skill or performance.

CS.08.02: Use appropriate protective equipment and handle AFNR tools and equipment to demonstrate safe and proper use of the tools and equipment.

Level 1

CS.08.02.01.a. Use the appropriate procedures for the use and operation of specific tools and equipment.

Level 2

CS.08.02.01.b. Demonstrate safety precautions when using tools for a specific task around bystanders.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Language

Mathematics

CC: Algebra (A)

Seeing Structure in Expressions (A-SSE)

1 - Interpret expressions that represent a quantity in terms of its context.*

Reasoning with Equations and Inequalities (A-REI)

1 - Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

2 - Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

Reading

CC: Reading for Literacy in Science and Technical Subjects

Science

Science and Engineering Practices

1. Asking questions and defining problems

4. Analyzing and interpreting data

5. Using mathematics and computational thinking

Social Studies

Writing

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- ☐ Think Creatively
- ☐ Work Creatively with Other
- ☐ Implement Innovations

Creative Thinking and Problem Solving
- ☐ Reason Effectively
- ☐ Use Systems Thinking
- ☐ Make Judgements and Decisions
- ☑ Solve Problems

Communication and Collaboration
- ☑ Communicate Clearly
- ☐ Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- ☑ Access and Evaluate Information
- ☐ Use and Manage Information

Media Literacy
- ☐ Analyze Media
- ☐ Create Media Products

Information, Communications, and Technology (ICT Literacy)
- ☐ Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- ☑ Adapt to Change
- ☐ Be Flexible

Initiative and Self-Direction
- ☐ Mange Goals and Time
- ☐ Work Independently
- ☐ Be Self-Directed Learners

Social and Cross-Cultural
- ☐ Interact Effectively with Other
- ☑ Work Effectively in Diverse Teams

Productivity and Accountability
- ☑ Manage Projects
- ☑ Produce Results

Leadership and Responsibility
- ☐ Guide and Lead Others
- ☑ Be Responsible to Others

Unit 4 PROPIGATE ORNAMENTAL PLANTS

Hours: 45

Performance Assessment(s):

Horticulture I-II

Reproduce a variety of plants in three ways, cuttings, seeds, and division.
Chose and use the proper rooting materials and location in the greenhouse.
Apply natural growth stimulants to a crop to control growth
Identify advanced propagation techniques

Leadership Alignment:

Leadership:
The student will communicate clearly, reason effectively, think creatively in pairs, small groups, teams, and large groups in order to reach common goals using the plant propagation group project .
The student will demonstrate managing goals and time, being responsible to others, interacting effectively with others by participating in and evaluate community service and service learning activities by propagating a variety of plants to use in a community gardens.
SAE Sample: Nursery production
Greenhouse production
FFA CDE Nursery Landscape or Floriculture

Standards and Competencies

PS.01.02: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems

Level 1

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.01.02.05.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

Level 2

PS.01.02.02.b Identify root tissues and explain the pathway of water and nutrients into and through the root tissue

PS.01.02.03.b Describe the processes of translocation

PS.01.02.04.b.Explain how leaves capture light energy and allow for the exchange of gasses

PS.01.02.06.b.Identify the major types of fruit

Level 3

PS.01.02.01.c Apply the knowledge of cell differentiation and the functions of the major types of cells to plant systems.

PS.01.02.02.c.Relate the active and passive transport of minerals into and through the root system to plant nutrition.

PS.01.02.03.c.Apply concepts associated with translocation to the management of plants.

PS.01.02.04.c Explain the relationship between leaf structure and functions and plant management practices

PS.01.02.05.c Apply the knowledge of flower structure to plant breeding, production and use.

PS.01.02.06.c Apply the knowledge of seed and fruit structures to plant culture and use.

PS.01.03: Apply knowledge of plant physiology and energy conversion to plant systems

Level 1

PS.01.03.01.a Explain the basic process of photosynthesis and its importance to life on earth

PS.01.03.03.a Define primary growth and the role of the apical meristem

Level 2

PS.01.03.03.b.Explain the process of secondary plant growth.

PS.01.03.04.b Identify the plant responses to plant growth regulators and different forms of tropism

Level 3

PS.01.03.03.c.Relate the principles of primary and secondary growth to plant systems

PS.01.03.04.c Select plant growth regulators to produce desired responses from plants.

PS.02.01: Determine the influence of environmental factors on plant growth

Level 1

PS.02.01.01.a. Describe the qualities of light that affect plant growth

PS.02.01.02.a. Describe the effects air, temperature, and water have on plant metabolism, and growth

Level 2

PS.02.01.01.b. Describe plant responses to light color intensity and duration

PS.02.01.02.b. Determine the optimal air, temperature, and water conditions for plant growth

Level 3

PS.02.01.01.c Evaluate plant responses to varied light color, intensity, and duration

PS.02.01.02.c Design, implement, and evaluate a plan to maintain optimal conditions for plant growth

PS.02.02: Prepare growing media for use in plant Systems

Level 1

Level 2

PS 02.02.01.b Describe the physical characteristics of growing media and explain the influence they have on plant growth.

Level 3

PS.02.02.01.c. Formulate and prepare growing media and specific plants or crops.

PS.02.02.02.c. Determine the hydraulic conductivity for soil and how the results influence irrigation practices

CS.01.01: Action: Exhibit the skills and competencies needed to achieve a desired result.

Level 1

CS.01.01.01.a. Work productively with a group or independently.

CS.01.01.03.a. Exhibit good planning skills for a specific task or situation.

CS.01.01.04.a. Explore available resources to assist in meeting project needs.

CS.01.01.07.a. Set personal goals using the SMART goals method (Specific, Measurable, Approved by you, Realistic, Time-stamped).

Level 2

CS.01.01.01.b. Demonstrate the ability to complete a task without assistance.

Level 3

CS.01.01.01.c. Work independently and in group settings to accomplish a task.

CS.01.01.02.c. Assess outcomes to determine success for a task.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Language

Mathematics

CC: Number and Quantity (N)

Quantities (N-Q)

1 - Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.*

Reading

CC: Reading for Literacy in Science and Technical Subjects

Craft and Structure (9-10)

4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.

Science

Life Sciences

HS-LS2 Ecosystems: Interactions, Energy, and Dynamics

HS-LS2-1. Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.

HS-LS2-3. Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.

Social Studies

Writing

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- [x] Think Creatively
- [ ] Work Creatively with Other
- [ ] Implement Innovations

Creative Thinking and Problem Solving
- [x] Reason Effectively
- [ ] Use Systems Thinking
- [ ] Make Judgements and Decisions
- [ ] Solve Problems

Communication and Collaboration
- [x] Communicate Clearly
- [ ] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- [x] Access and Evaluate Information
- [ ] Use and Manage Information

Media Literacy
- [ ] Analyze Media
- [ ] Create Media Products

Information, Communications, and Technology (ICT Literacy)
- [ ] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- [ ] Adapt to Change
- [ ] Be Flexible

Initiative and Self-Direction
- [x] Mange Goals and Time
- [ ] Work Independently
- [x] Be Self-Directed Learners

Social and Cross-Cultural
- [x] Interact Effectively with Other
- [ ] Work Effectively in Diverse Teams

Productivity and Accountability
- [x] Manage Projects
- [x] Produce Results

Leadership and Responsibility
- [ ] Guide and Lead Others
- [x] Be Responsible to Others

Unit 5 DESIGN INSTALL AND SERVICE IRRIGATION SYSTEMS — Hours: 10

Performance Assessment(s):

Horticulture I-II
Label the basic parts of an irrigation system.
Calculate irrigation coverage using various math methods
Design and set up a small irrigation system. .

Leadership Alignment:

Leadership:
The student will communicate, participate, and advocate effectively in pairs, small groups, teams, and large groups in order to reach common goals by creating an irrigatin coverage map and supply list..
The student will understand their role, participate in and evaluate community service and service learning activitiesby planning, pricing, and designing and building a very small irrigaitoin sysem
SAE Sample: Nursery production
Greenhouse production
Llandscape installation
FFA CDE Nursery Lanscape or Floriculture

Standards and Competencies

PS.02.01: Determine the influence of environmental factors on plant growth

Level 1

PS.02.01.02.a. Describe the effects air, temperature, and water have on plant metabolism, and growth

Level 2

PS.02.01.02.b. Determine the optimal air, temperature, and water conditions for plant growth

Level 3

PS.02.01.02.c Design, implement, and evaluate a plan to maintain optimal conditions for plant growth

PS.03.04: Apply principles and practices of sustainable agriculture to plant production

Level 1

PS.03.04.01.a Explain sustainable agriculture and objectives associated with the strategy.

Level 2

PS.03.04.01.b Describe sustainable agriculture practices and compare the ecological effects of traditional agricultural practices with those of sustainable agriculture.

Level 3

PS.03.04.01.c Prepare and implement a plan for an agricultural enterprise that involves practices in support of sustainable agriculture.

PS.04.01: Create designs using plants.

Level 1

PS.04.01.01.a. Define design and identify design elements.

Level 2

PS.04.01.02.b. Discuss principles of design that form the basis of artistic impression.

Level 3

PS.04.01.01.c Select plants, hard goods, supplies and other materials for use in a design based on a range of criteria.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Language

Mathematics

CC: Algebra (A)

Seeing Structure in Expressions (A-SSE)

1 - Interpret expressions that represent a quantity in terms of its context.*

Creating Equations (A-CED)

1 - Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*

Reasoning with Equations and Inequalities (A-REI)

1 - Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

CC: Mathematical Practices (MP)

1 - Make sense of problems and persevere in solving them.

2 - Reason abstractly and quantitatively.

4 - Model with mathematics.

5 - Use appropriate tools strategically.

Reading

CC: Reading for Literacy in Science and Technical Subjects

Key Ideas and Details (9-10)

1 - Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

Craft and Structure (9-10)

4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.

CC: Reading Informational Text

Key Ideas and Details (9-10)

1 - Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

Craft and Structure (9-10)

4 - Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).

Science

Physical Sciences

HS-PS3 Energy

HS-PS3-3. Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

Social Studies

Writing

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- [x] Think Creatively
- [ ] Work Creatively with Other
- [ ] Implement Innovations

Creative Thinking and Problem Solving
- [ ] Reason Effectively
- [x] Use Systems Thinking
- [x] Make Judgements and Decisions
- [x] Solve Problems

Communication and Collaboration
- [ ] Communicate Clearly
- [x] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- [x] Access and Evaluate Information
- [ ] Use and Manage Information

Media Literacy
- [ ] Analyze Media
- [ ] Create Media Products

Information, Communications, and Technology (ICT Literacy)
- [x] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- [x] Adapt to Change
- [ ] Be Flexible

Initiative and Self-Direction
- [ ] Mange Goals and Time
- [x] Work Independently
- [ ] Be Self-Directed Learners

Social and Cross-Cultural
- [ ] Interact Effectively with Other
- [x] Work Effectively in Diverse Teams

Productivity and Accountability
- [ ] Manage Projects
- [ ] Produce Results

Leadership and Responsibility
- [ ] Guide and Lead Others
- [ ] Be Responsible to Others

Unit 6 DETERMINE DRAINAGE SYSTEM NEEDS AND DESIGN A DRAINAGE SYSTEM — Hours: 10

Performance Assessment(s):

Horticulture I-II
Use math to determine the slope of a specific location.
Choose the correct soil amendment to improve a poorly draining site.
Demonstrate one method to eliminate a poorly draining site

Leadership Alignment:

Leadership:
The student will demonstrate the ability to incorporate and utilize the principles of group dynamics in a variety of settings.Real world site management project and presentation.
SAE Sample: Landscaper
Nursery worker
Plant production
FFA CDE Nursery Lanscape or Floriculture

Standards and Competencies

PS.01.02: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems

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

Level 3

PS.01.02.03.c.Apply concepts associated with translocation to the management of plants.

PS.03.04: Apply principles and practices of sustainable agriculture to plant production

Level 1

PS.03.04.01.a Explain sustainable agriculture and objectives associated with the strategy.

Level 2

PS.03.04.01.b Describe sustainable agriculture practices and compare the ecological effects of traditional agricultural practices with those of sustainable agriculture.

Level 3

PS.03.04.01.c Prepare and implement a plan for an agricultural enterprise that involves practices in support of sustainable agriculture.

CS.01.01: Action: Exhibit the skills and competencies needed to achieve a desired result.

Level 1

CS.01.01.01.a. Work productively with a group or independently.

CS.01.01.02.a. Create a task analysis.

Level 2

CS.01.01.01.b. Demonstrate the ability to complete a task without assistance.

CS.01.01.03.b. Assess individual strengths and weaknesses in planning.

Level 3

CS.01.01.01.c. Work independently and in group settings to accomplish a task.

CS.01.01.04.c. Create resources to complete an action or project.

CS.02.04: Mental Growth: Demonstrate the effective application of reasoning, thinking, and coping skills.

Level 1

CS.02.04.01.a. Describe the skills necessary to think critically and creatively.

Level 2

CS.02.04.02.b. Analyze problems that were solved well and problems that were not solved well.

Level 3

CS.02.04.01.c. Demonstrate critical and creative thinking skills while completing a task.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Language

Mathematics

CC: Algebra (A)

Seeing Structure in Expressions (A-SSE)

1 - Interpret expressions that represent a quantity in terms of its context.*

Creating Equations (A-CED)

1 - Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*

Reading

CC: Reading Informational Text

Craft and Structure (9-10)

4 - Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).

Science

Physical Sciences

HS-PS2 Motion and Stability: Forces and Interactions

HS-PS2-2. Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

HS-PS4 Waves and Their Applications in Technologies for Information Transfer

HS-PS4-2. Evaluate questions about the advantages of using a digital transmission and storage of information.

Life Sciences

HS-LS2 Ecosystems: Interactions, Energy, and Dynamics

HS-LS2-3. Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.

HS-LS4 Biological Evolution: Unity and Diversity

HS-LS4-6. Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity

Social Studies

Writing

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- [x] Think Creatively
- [ ] Work Creatively with Other
- [ ] Implement Innovations

Creative Thinking and Problem Solving
- [ ] Reason Effectively
- [x] Use Systems Thinking
- [ ] Make Judgements and Decisions
- [x] Solve Problems

Communication and Collaboration
- [x] Communicate Clearly
- [ ] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- [x] Access and Evaluate Information
- [ ] Use and Manage Information

Media Literacy
- [ ] Analyze Media
- [ ] Create Media Products

Information, Communications, and Technology (ICT Literacy)
- [ ] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- [ ] Adapt to Change
- [ ] Be Flexible

Initiative and Self-Direction
- [ ] Mange Goals and Time
- [x] Work Independently
- [ ] Be Self-Directed Learners

Social and Cross-Cultural
- [ ] Interact Effectively with Other
- [x] Work Effectively in Diverse Teams

Productivity and Accountability
- [ ] Manage Projects
- [x] Produce Results

Leadership and Responsibility
- [ ] Guide and Lead Others
- [ ] Be Responsible to Others

Unit 7 SELECT OPERATE AND MAINTAIN TOOLS AND EQUIPMENT — Hours: 8

Performance Assessment(s):

Horticulture I-II
Select small equipment for a specific job and operate them with skill
Properly maintain and store equipment.
Identify equipment safety hazards and demonstrate how to avoid an accident.
Repair and maintain damaged tools

Leadership Alignment:

Leadership:
The student will demonstrate the ability to incorporate and utilize the principles of group dynamics in a variety of settings using the tool management project and community safety posters.
SAE Sample: Nursery production
Greenhouse production Landscape Designer
Landscape maintenance
FFA CDE Nursery Lanscape or Floriculture

Standards and Competencies

PS.03.02: Develop and implement a plant management plan for crop production.
- Level 1
- PS.03.02.01.a Explain the importance of starting with pest-and disease-free propagation material.
- PS.03.02.03.a Demonstrate proper planting procedures and post-planting care.
- PS.03.02.03.b Apply pre--plant treatments required of seeds and plants and evaluate the results.
- PS.03.02.03.c Operate mechanized planting equipment.

PS.03.03: Develop and implement a plan for integrated pest management
- 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.03.03.04.c Evaluate environmental and consumer concerns regarding pest management strategies.

CS.06.01: Observe required regulations to maintain/improve safety, health and environmental management systems
- Level 1
- CS.06.01.01.a. Examine major health, safety, and environmental management system components in AFNR organizations.
- Level 3
- CS.06.01.01.c. Assess how AFNR organizations promote improved health, safety, and environmental performance and suggest plans for improvement.

CS.08.01: Evaluate and select the appropriate tool to perform a given task.
- Level 1
- CS.08.01.01.a. Identify standard tools, equipment, and safety procedures related to a specific task.
- CS.08.01.02.a. Follow operating instructions related to specific tools and equipment needed to complete a task.
- Level 2
- 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.
- Level 3
- CS.08.01.01.c. Use tools and equipment appropriately to complete a specific task.
- CS.08.01.02.c. Devise a maintenance plan or schedules for tools and equipment.

CS.08.03: Maintain tools for efficient use
- Level 1

CS.08.03.01.a. Describe the conditions that cause the need for tool maintenance.

Level 2

CS.08.03.01.b. Demonstrate how to replace tool parts and components as needed.

Level 3

CS.08.03.01.c. Develop and update a preventive maintenance schedule.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Language

Mathematics

Reading

CC: Reading Informational Text

Craft and Structure (9-10)

4 - Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).

Craft and Structure (11-12)

4 - Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).

Integration of Knowledge and Ideas (11-12)

7 - Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

CC: Reading for Literacy in Science and Technical Subjects

Key Ideas and Details (9-10)

1 - Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

Science

Social Studies

Writing

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- [ ] Think Creatively
- [ ] Work Creatively with Other
- [ ] Implement Innovations

Creative Thinking and Problem Solving
- [x] Reason Effectively
- [ ] Use Systems Thinking
- [x] Make Judgements and Decisions
- [ ] Solve Problems

Communication and Collaboration
- [ ] Communicate Clearly
- [ ] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- [ ] Access and Evaluate Information
- [ ] Use and Manage Information

Media Literacy
- [ ] Analyze Media
- [ ] Create Media Products

Information, Communications, and Technology (ICT Literacy)
- [ ] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- [x] Adapt to Change
- [x] Be Flexible

Initiative and Self-Direction
- [x] Mange Goals and Time
- [x] Work Independently
- [x] Be Self-Directed Learners

Social and Cross-Cultural
- [ ] Interact Effectively with Other
- [ ] Work Effectively in Diverse Teams

Productivity and Accountability
- [ ] Manage Projects
- [ ] Produce Results

Leadership and Responsibility
- [x] Guide and Lead Others
- [x] Be Responsible to Others

Unit 8 GROW ORNAMENTAL PLANTS

Hours: 25

Performance Assessment(s):

Horticulture I-II
Properly maintain a variety of plants and their growing environments.
Transplant material without damaging the crop.
Choose and prepare the correct size of containers for transplanting specific plants.
Effectively transplant plants to proper container.

Leadership Alignment:

The student will communicate, participate, and advocate effectively in pairs, small groups, teams, and large groups in order to reach common goals by planning a plant sale and creating advertisements for their crop.
The student will demonstrate knowledge of conflict resolution and challenge management by designiing a marketing plan for a crop.
The student will analyze the complex responsibilities of the leader and follower and demonstrate the ability to both lead and follow usint the crope management project
SAE Sample: Nursery production
Greenhouse production
FFA CDE Nursery Lanscape or Floriculture

Standards and Competencies

PS.01.02: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems

Level 1

PS.01.02.06.a.Explain the functions and components of seeds and fruit

Level 2

PS.01.02.04.b.Explain how leaves capture light energy and allow for the exchange of gasses

Level 3

PS.01.02.02.c.Relate the active and passive transport of minerals into and through the root system to plant nutrition.

PS.01.02.04.c Explain the relationship between leaf structure and functions and plant management practices

PS.01.02.05.c Apply the knowledge of flower structure to plant breeding, production and use.

PS.01.02.06.c Apply the knowledge of seed and fruit structures to plant culture and use.

PS.02.02: Prepare growing media for use in plant Systems

Level 1

PS 02.02.01.a. Identify the major components of growing media and describe how growing media support plants growth.

Level 2

PS.02.02.02.b Discuss how soil drainage and water holding capacity can be improved

Level 3

PS.02.02.01.c. Formulate and prepare growing media and specific plants or crops.

PS.02.02.02.c. Determine the hydraulic conductivity for soil and how the results influence irrigation practices

PS.02.03: Develop and implement a fertilization plan for specific plants or crops

Level 1

PS.02.03.01.a. Identify the essential nutrients for plant growth and development and their major functions

PS.02.03.02.a. Discuss the influence of pH and cation exchange capacity on the availability of nutrients

PS.02.03.03.a Collect soil and plant tissue samples for testing and interpret the test results

PS.02.03.04.a. Identify fertilizer sources of essential plant nutrients, explain fertilizer formulations and describe different methods of fertilizer applications

Level 2

PS.02.03.01.b. Describe nutrient deficiency symptoms and recognize environmental causes of nutrient deficiencies

PS.02.03.02.b. Contrast pH and cation exchange capacity between mineral soil and soilless growing media

PS.02.03.03.b. Determine the nutrient content of soil using appropriate laboratory procedures and prescribe fertilization based on results.

PS.02.03.04.b. Calculate the amount of fertilizer to be applied and calibrate equipment to apply the prescribed amount fertilizer

Level 3

PS.02.03.01.c. Monitor plants for signs of nutrient deficiencies and prepare a scouting report

PS.02.03.02.c. Adjust the pH of growing media

PS.02.03.04.c. Use variable rate technology to apply fertilizers to meet crop nutrient needs.

PS.03.02: Develop and implement a plant management plan for crop production.

Level 1

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.03.02.03.a Demonstrate proper planting procedures and post-planting care.

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

Level 2

PS.03.02.01.b Inspect propagation material for evidence of pests or disease.

PS.03.02.02.b Prepare soil for planting with the addition of amendments.

PS.03.02.03.b Apply pre--plant treatments required of seeds and plants and evaluate the results.

PS.03.02.04.b Monitor the progress of plantings and determine the need to adjust environmental conditions.

PS.03.02.05.b Demonstrate proper techniques to control and manage plant growth through mechanical, cultural or chemical means.

Level 3

PS.03.02.01.c Produce pest-and disease-free propagation material

PS.03.02.02.c Prepare growing media for planting.

PS.03.02.03.c Operate mechanized planting equipment.

PS.03.02.04.c Prepare and implement a plant production schedule based on predicted environmental conditions.

PS.03.02.05.c Create and implement a plan to control and manage plant growth.

PS.03.05: Harvest, handle and store crops

PS.03.05.02.a Explain reasons for calculating crop yield and loss.

PS.03.05.03.a Identify storage methods for plants and plant products.

Level 2

PS.03.05.01.b Assess the stage of growth to determine crop maturity or salability and demonstrate proper harvesting techniques.

PS.03.05.02.b Evaluate crop yield and loss data.

PS.03.05.03.b Explain the proper conditions to maintain the quality of plants and plant products held in storage.

Level 3

PS.03.05.02.c.Implement plans to reduce crop loss

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Language

Mathematics

CC: Number and Quantity (N)

Quantities (N-Q)

1 - Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.*

CC: Mathematical Practices (MP)

1 - Make sense of problems and persevere in solving them.

2 - Reason abstractly and quantitatively.

4 - Model with mathematics.

5 - Use appropriate tools strategically.

Reading

CC: Reading Informational Text

Key Ideas and Details (9-10)

1 - Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

Key Ideas and Details (11-12)

1 - Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.

Science

Life Sciences

HS-LS2 Ecosystems: Interactions, Energy, and Dynamics

HS-LS2-6. Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.

HS-LS4 Biological Evolution: Unity and Diversity

HS-LS4-5. Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.

Social Studies

Writing

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- [x] Think Creatively
- [ ] Work Creatively with Other
- [ ] Implement Innovations

Creative Thinking and Problem Solving
- [x] Reason Effectively
- [ ] Use Systems Thinking
- [x] Make Judgements and Decisions
- [x] Solve Problems

Communication and Collaboration
- [x] Communicate Clearly
- [ ] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- [ ] Access and Evaluate Information
- [ ] Use and Manage Information

Media Literacy
- [ ] Analyze Media
- [ ] Create Media Products

Information, Communications, and Technology (ICT Literacy)
- [x] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- [ ] Adapt to Change
- [x] Be Flexible

Initiative and Self-Direction
- [ ] Mange Goals and Time
- [ ] Work Independently
- [ ] Be Self-Directed Learners

Social and Cross-Cultural
- [x] Interact Effectively with Other
- [ ] Work Effectively in Diverse Teams

Productivity and Accountability
- [x] Manage Projects
- [ ] Produce Results

Leadership and Responsibility
- [ ] Guide and Lead Others
- [x] Be Responsible to Others

Unit 9 FERTALIZE ORNAMENTAL PLANTS

Hours: 25

Performance Assessment(s):

Horticulture I-II
Identify plants that are nutrient deficient.
Determine what type of fertilizer is best to correct specific plant needs.
Evaluate the results of fertilizer applications and determine if they are effective.
Understande appropriate safety precautions while using fertali8zers.

Leadership Alignment:

Leadership:
The student will analyze the complex responsibilities of the leader and follower and demonstrate the ability to both lead and follow using the plant nutrition diagnosis project and by creating a fertalizer or plant disorders brochure.
SAE Sample: Nursery production
Greenhouse production
FFA CDE Nursery Lanscape or Floriculture

Standards and Competencies

PS.01.02: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems

Level 1

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

Level 2

PS.01.02.02.b Identify root tissues and explain the pathway of water and nutrients into and through the root tissue

PS.01.02.03.b Describe the processes of translocation

PS.01.02.04.b.Explain how leaves capture light energy and allow for the exchange of gasses

Level 3

PS.01.02.02.c.Relate the active and passive transport of minerals into and through the root system to plant nutrition.

PS.01.02.03.c.Apply concepts associated with translocation to the management of plants.

PS.01.02.04.c Explain the relationship between leaf structure and functions and plant management practices

PS.02.03: Develop and implement a fertilization plan for specific plants or crops

Level 1

PS.02.03.01.a. Identify the essential nutrients for plant growth and development and their major functions

PS.02.03.02.a. Discuss the influence of pH and cation exchange capacity on the availability of nutrients

PS.02.03.03.a Collect soil and plant tissue samples for testing and interpret the test results

PS.02.03.04.a. Identify fertilizer sources of essential plant nutrients, explain fertilizer formulations and describe different methods of fertilizer applications

Level 2

PS.02.03.01.b. Describe nutrient deficiency symptoms and recognize environmental causes of nutrient deficiencies

PS.02.03.02.b. Contrast pH and cation exchange capacity between mineral soil and soilless growing media

PS.02.03.03.b. Determine the nutrient content of soil using appropriate laboratory procedures and prescribe fertilization based on results.

PS.02.03.04.b. Calculate the amount of fertilizer to be applied and calibrate equipment to apply the prescribed amount fertilizer

Level 3

PS.02.03.01.c. Monitor plants for signs of nutrient deficiencies and prepare a scouting report

PS.02.03.02.c. Adjust the pH of growing media

PS.02.03.04.c. Use variable rate technology to apply fertilizers to meet crop nutrient needs.

PS.03.02: Develop and implement a plant management plan for crop production.

Level 1

PS.03.02.03.a Demonstrate proper planting procedures and post-planting care.

PS.03.02.04.a Observe and record environmental conditions during the germination, growth and development of a crop.

Level 2

PS.03.02.03.b Apply pre--plant treatments required of seeds and plants and evaluate the results.

PS.03.02.04.b Monitor the progress of plantings and determine the need to adjust environmental conditions.

PS.03.02.05.b Demonstrate proper techniques to control and manage plant growth through mechanical, cultural or chemical means.

PS.03.02.04.c Prepare and implement a plant production schedule based on predicted environmental conditions.

PS.03.02.05.c Create and implement a plan to control and manage plant growth.

CS.01.01: Action: Exhibit the skills and competencies needed to achieve a desired result.

Level 1

CS.01.01.01.a. Work productively with a group or independently.

Level 2

CS.01.01.01.b. Demonstrate the ability to complete a task without assistance.

CS.01.01.04.b. Use appropriate and reliable resources to complete an action or project.

Level 3

CS.01.01.01.c. Work independently and in group settings to accomplish a task.

CS.01.01.05.c. Implement a plan that minimizes physical, financial, and professional risks and analyze results.

CS.01.01.07.c. Evaluate actions taken and make appropriate modifications to personal goals.

CS.03.02: Decision Making: Analyze situations and execute an appropriate course of action.

Level 1

CS.03.02.01.a. Analyze the steps in the decision-making process.

Level 2

CS.03.02.02.b. Determine information that is critical to solving problems.

Level 3

CS.03.02.01.c. Make decisions for a given situation by applying the decision making process.

CS.03.02.02.c. Use problem-solving skills

CS.03.02.03.c. Examine an ethical dilemma and prepare an argument for a position.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Language

Mathematics

CC: Number and Quantity (N)

Quantities (N-Q)

1 - Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.*

Reading

CC: Reading for Literacy in Science and Technical Subjects

Craft and Structure (9-10)

4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.

Integration of Knowledge and Ideas (9-10)

7 - Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.

Key Ideas and Details (11-12)

1 - Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.

CC: Reading Informational Text

Key Ideas and Details (9-10)

1 - Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

Craft and Structure (9-10)

4 - Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).

Key Ideas and Details (11-12)

3 - Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.

Science

Life Sciences

HS-LS2 Ecosystems: Interactions, Energy, and Dynamics

HS-LS2-1. Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.

Crosscutting Concepts

1. Patterns.
2. Cause and effect: Mechanism and explanation.
3. Scale, proportion, and quantity.

Social Studies

Writing

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- ☐ Think Creatively
- ☐ Work Creatively with Other
- ☐ Implement Innovations

Creative Thinking and Problem Solving
- ☑ Reason Effectively
- ☐ Use Systems Thinking
- ☐ Make Judgements and Decisions
- ☑ Solve Problems

Communication and Collaboration
- ☑ Communicate Clearly
- ☐ Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- ☑ Access and Evaluate Information
- ☑ Use and Manage Information

Media Literacy
- ☐ Analyze Media
- ☐ Create Media Products

Information, Communications, and Technology (ICT Literacy)
- ☐ Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- ☐ Adapt to Change
- ☐ Be Flexible

Initiative and Self-Direction
- ☑ Mange Goals and Time
- ☑ Work Independently
- ☑ Be Self-Directed Learners

Social and Cross-Cultural
- ☐ Interact Effectively with Other
- ☐ Work Effectively in Diverse Teams

Productivity and Accountability
- ☑ Manage Projects
- ☑ Produce Results

Leadership and Responsibility
- ☐ Guide and Lead Others
- ☐ Be Responsible to Others

Unit 10 MANAGE PEST CONTROL PROBLEMS

Hours: 7

Performance Assessment(s):

Horticulture I-II
Identify a specific pest and design an IPM approach to eliminate it.
Demonstrate the safe use of pesticides.

Identify one most common greenhouse pests and outline the IPM method to control them within a specific budget.

Leadership Alignment:

Leadership:
The student will understand the organizational skills necessary to be a successful leader and citizen and practices those skills in real-life by using the pest I.D project and making pest maintenance fliers.
The student will understand and utilize organizational systems to advocate for issues at the local, and state level by creating agriculture awareness posters, safety posters, and insect I.D posters
SAE Sample: Landscape maintenance, Nursery worker
FFA CDE Nursery Lanscape or Floriculture
Fair Demonstraitons on Pests

Standards and Competencies

PS.03.03: Develop and implement a plan for integrated pest management
- Level 1
- PS.03.03.01.a Identify types of plant pests and disorders.
- PS.03.03.02.a Describe damage caused by plant pests and diseases
- PS.03.03.04.a Explain risks and benefits associated with the materials and methods used in plant pest management.
- Level 2
- PS.03.03.01.b Identify major local weeds, insect pests and infectious and noninfectious plant diseases.
- PS.03.03.02.b Diagram the life cycles of major plant pests and diseases
- PS.03.03.04.b Explain procedures for the safe handling, use and storage of pesticides.
- Level 3
- PS.03.03.01.c Design and implement a crop scouting program.
- PS.03.03.02.c Predict pest and disease problems based on environmental conditions and life cycles.
- PS.03.03.04.c Evaluate environmental and consumer concerns regarding pest management strategies.

PS.03.04: Apply principles and practices of sustainable agriculture to plant production
- Level 1
- PS.03.04.01.a Explain sustainable agriculture and objectives associated with the strategy.
- Level 2
- PS.03.04.01.b Describe sustainable agriculture practices and compare the ecological effects of traditional agricultural practices with those of sustainable agriculture.

CS.01.01: Action: Exhibit the skills and competencies needed to achieve a desired result.
- Level 1
- CS.01.01.01.a. Work productively with a group or independently.
- CS.01.01.03.a. Exhibit good planning skills for a specific task or situation.
- Level 2
- CS.01.01.01.b. Demonstrate the ability to complete a task without assistance.
- CS.01.01.04.b. Use appropriate and reliable resources to complete an action or project.
- CS.01.01.05.b. Create a plan for performing a job that will minimize physical, financial and professional risks.

Level 3

CS.01.01.01.c. Work independently and in group settings to accomplish a task.

CS.01.01.02.c. Assess outcomes to determine success for a task.

CS.01.01.03.c. Implement an effective project plan.

CS.03.02: Decision Making: Analyze situations and execute an appropriate course of action.

Level 1

CS.03.02.02.a. Select resources to help in the problem-solving process.

Level 2

Level 3

CS.03.02.01.c. Make decisions for a given situation by applying the decision making process.

CS.03.02.02.c. Use problem-solving skills

CS.03.02.03.c. Examine an ethical dilemma and prepare an argument for a position.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Language

Mathematics

CC: Functions (F)

Interpreting Functions (F-IF)

1 - Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then f(x) denotes the output of f corresponding to the input x. The graph of f is the graph of the equation y = f(x).

Reading

CC: Reading for Literacy in Science and Technical Subjects

Key Ideas and Details (9-10)

1 - Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

Craft and Structure (9-10)

4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.

Science

Science and Engineering Practices

1. Asking questions and defining problems

4. Analyzing and interpreting data

8. Obtaining, evaluating, and communicating information

Social Studies

Writing

CC: Writing for Literacy in History/Social Studies, Science, and Technical Subjects (9-10)

Text Types and Purposes

Production and Distribution of Writing

4 - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation

- [x] Think Creatively
- [ ] Work Creatively with Other
- [ ] Implement Innovations

Creative Thinking and Problem Solving

- [ ] Reason Effectively
- [ ] Use Systems Thinking
- [ ] Make Judgements and Decisions
- [x] Solve Problems

Communication and Collaboration

- [ ] Communicate Clearly
- [x] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy

- [x] Access and Evaluate Information
- [ ] Use and Manage Information

Media Literacy

- [ ] Analyze Media
- [ ] Create Media Products

Information, Communications, and Technology (ICT Literacy)

- [ ] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability

- [ ] Adapt to Change
- [ ] Be Flexible

Initiative and Self-Direction

- [ ] Mange Goals and Time
- [x] Work Independently
- [ ] Be Self-Directed Learners

Social and Cross-Cultural

- [x] Interact Effectively with Other
- [ ] Work Effectively in Diverse Teams

Productivity and Accountability

- [x] Manage Projects
- [x] Produce Results

Leadership and Responsibility

- [ ] Guide and Lead Others
- [ ] Be Responsible to Others

Unit 11 PRUNING AND SHAPING ORNAMENTAL PLANTS

Hours: 11

Performance Assessment(s):

Horticulture I-II
Demonstrate three methods of pruning.
Correctly prune a specific plant using one of the common pruning methods.
Create a small Bonsai tree using the thinning method of pruning.
Root prune a bonsai plant and effectively transplant it into a container.
Demonstrate sanitation and safety while pruning shrubs and trees.

Leadership Alignment:

Leadership:
The student will access and evaluate information,work independently, be self-directed and flexibile while pruning plants in the community.
The students will think creatively, problem solve make judgments and decisions and manage goals and time by design a pruning schedule for a specific plant or crop. Students will work independently, be self-directed and manage goals and time by making Bonsai trees for a plant sale
SAE Sample: Landscape maintenance
Nursery worker Landscape contractor
Landscape laborer
Bonsai:
FFA CDE Nursery Lanscape or Floriculture

Standards and Competencies

PS.01.02: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems

PS.01.02.03.a Identify the components and the functions of plant stems

Level 3

PS.01.02.04.c Explain the relationship between leaf structure and functions and plant management practices

PS.02.01: Determine the influence of environmental factors on plant growth

Level 1

PS.02.01.02.a. Describe the effects air, temperature, and water have on plant metabolism, and growth

Level 3

PS.02.01.01.c Evaluate plant responses to varied light color, intensity, and duration

PS.02.01.02.c Design, implement, and evaluate a plan to maintain optimal conditions for plant growth

CS.01.01: Action: Exhibit the skills and competencies needed to achieve a desired result.

Level 1

CS.01.01.01.a. Work productively with a group or independently.

CS.01.01.02.a. Create a task analysis.

CS.01.01.04.a. Explore available resources to assist in meeting project needs.

Level 2

CS.01.01.01.b. Demonstrate the ability to complete a task without assistance.

Level 3

CS.01.01.01.c. Work independently and in group settings to accomplish a task.

CS.01.01.02.c. Assess outcomes to determine success for a task.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Language

Mathematics

CC: Mathematical Practices (MP)

1 - Make sense of problems and persevere in solving them.

2 - Reason abstractly and quantitatively.

6 - Attend to precision.

7 - Look for and make use of structure.

Reading

CC: Reading Informational Text

Craft and Structure (11-12)

4 - Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).

CC: Reading for Literacy in Science and Technical Subjects

Key Ideas and Details (9-10)

1 - Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

Craft and Structure (9-10)

4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.

Key Ideas and Details (11-12)

1 - Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.

Craft and Structure (11-12)

4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.

Science

Life Sciences

HS-LS4 Biological Evolution: Unity and Diversity

HS-LS4-5. Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.

Social Studies

Writing

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- [x] Think Creatively
- [ ] Work Creatively with Other
- [ ] Implement Innovations

Creative Thinking and Problem Solving
- [ ] Reason Effectively
- [ ] Use Systems Thinking
- [x] Make Judgements and Decisions
- [x] Solve Problems

Communication and Collaboration
- [ ] Communicate Clearly
- [ ] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- [x] Access and Evaluate Information
- [ ] Use and Manage Information

Media Literacy
- [ ] Analyze Media
- [ ] Create Media Products

Information, Communications, and Technology (ICT Literacy)
- [ ] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- [x] Adapt to Change
- [x] Be Flexible

Initiative and Self-Direction
- [x] Mange Goals and Time
- [x] Work Independently
- [x] Be Self-Directed Learners

Social and Cross-Cultural
- [ ] Interact Effectively with Other
- [ ] Work Effectively in Diverse Teams

Productivity and Accountability
- [ ] Manage Projects
- [ ] Produce Results

Leadership and Responsibility
- [ ] Guide and Lead Others
- [ ] Be Responsible to Others

Unit 12 PROTECT PLANTS AND EQUIPMENT FROM ADVERSE WEATHER | Hours: 8

Performance Assessment(s):

Horticulture I-II
•Correctly read the Greenhouse weather system and document weather changes.
•Show how specific plants can be protected from sever weather.
•Show how a specific microclimate can be manipulated to be warm, cold or humid.
•Group ornamental plants by their light, temperature and moisture needs.

Leadership Alignment:

Leadership: The student will access and evaluate information. Apply technology effectively, guide and lead others, and be responsible to others by creating a greenhouse weather systems guide and by producing a temperature graph.
The student will think creatively, solve problems and manage projects while grouping ornamental plants into manageable crops based on their cultural needs.
SAE Sample: Landscape maintenance
Nursery worker
Nursery production
Greenhouse production Pesticide applicator
FFA CDE Nursery Landscape or Floriculture

Standards and Competencies

PS.01.02: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems
- Level 2
- PS.01.02.06.b.Identify the major types of fruit
- Level 3
- PS.01.02.04.c Explain the relationship between leaf structure and functions and plant management practices
- PS.01.02.06.c Apply the knowledge of seed and fruit structures to plant culture and use.

PS.02.01: Determine the influence of environmental factors on plant growth
- PS.02.01.02.a. Describe the effects air, temperature, and water have on plant metabolism, and growth
- Level 2
- PS.02.01.02.b. Determine the optimal air, temperature, and water conditions for plant growth
- Level 3
- PS.02.01.01.c Evaluate plant responses to varied light color, intensity, and duration
- PS.02.01.02.c Design, implement, and evaluate a plan to maintain optimal conditions for plant growth

PS.03.02: Develop and implement a plant management plan for crop production.
- Level 1
- PS.03.02.01.a Explain the importance of starting with pest-and disease-free propagation material.
- PS.03.02.05.a Explain the reasons for controlling plant growth
- Level 2
- PS.03.02.04.b Monitor the progress of plantings and determine the need to adjust environmental conditions.
- PS.03.02.05.b Demonstrate proper techniques to control and manage plant growth through mechanical, cultural or chemical means.
- Level 3

CS.01.01: Action: Exhibit the skills and competencies needed to achieve a desired result.
- Level 1
- CS.01.01.01.a. Work productively with a group or independently.
- Level 2
- CS.01.01.04.b. Use appropriate and reliable resources to complete an action or project.

CS.01.01.07.b. Use a variety of strategies to evaluate goals (e.g., observe, apply, and demonstrate).

Level 3

CS.01.01.01.c. Work independently and in group settings to accomplish a task.

CS.01.01.04.c. Create resources to complete an action or project.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Language

Mathematics

CC: Algebra (A)

Seeing Structure in Expressions (A-SSE)

1 - Interpret expressions that represent a quantity in terms of its context.*

Reasoning with Equations and Inequalities (A-REI)

1 - Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

Reading

CC: Reading for Literacy in Science and Technical Subjects

Key Ideas and Details (9-10)

1 - Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

Craft and Structure (9-10)

4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.

Key Ideas and Details (11-12)

1 - Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.

CC: Reading Informational Text

Key Ideas and Details (9-10)

1 - Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

Craft and Structure (9-10)

4 - Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).

Science

Physical Sciences

HS-PS1-5. Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.

Social Studies

Writing

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- [x] Think Creatively
- [ ] Work Creatively with Other
- [ ] Implement Innovations

Creative Thinking and Problem Solving
- [ ] Reason Effectively
- [ ] Use Systems Thinking
- [ ] Make Judgements and Decisions
- [x] Solve Problems

Communication and Collaboration
- [ ] Communicate Clearly
- [ ] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- [x] Access and Evaluate Information
- [ ] Use and Manage Information

Media Literacy
- [ ] Analyze Media
- [ ] Create Media Products

Information, Communications, and Technology (ICT Literacy)
- [x] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- [ ] Adapt to Change
- [ ] Be Flexible

Initiative and Self-Direction
- [ ] Mange Goals and Time
- [ ] Work Independently
- [ ] Be Self-Directed Learners

Social and Cross-Cultural
- [ ] Interact Effectively with Other
- [ ] Work Effectively in Diverse Teams

Productivity and Accountability
- [x] Manage Projects
- [x] Produce Results

Leadership and Responsibility
- [x] Guide and Lead Others
- [x] Be Responsible to Others

Unit 13 HARVEST PROCESS AND SHIP ORNAMENTAL PLANTS

Hours: 15

Performance Assessment(s):

Performance Assessments:
Horticulture I-II
•Group harvested plants by size or the plant crown.
•Select, grade and assemble plants into containers for market.
•Prepare a crop for transportation to another location.

Leadership Alignment:

The student will think creatively, access and evaluate information and be flexible using the packaging and transporting plants project,
The student will demonstrate knowledge of conflict resolution and problem solving by grouping market-ready crops together for a plant sale.
Students will be self-directed learners who work independently to complete using the plant potting excursive in class.
SAE Sample: Wholesale nursery
Retail nursery worker
FFA CDE Nursery Landscape or Floriculture
Crop production manager.

Standards and Competencies

SAE.01.01: Students will establish and conduct Supervised Agriculture Experience Projects (SAE).
- SAE.01.01.b. Explain the benefits of SAE projects to skill development, leadership and career success.
- SAE.01.01.e. Explore ideas for SAE projects.
- SAE.01.01.g. Select and establish an SAE project.
- SAE.01.01.h. Explain and keep records on established SAE projects.
- SAE.01.01.j. Explain how SAE projects benefit the community.

PS.01.02: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems
- PS.01.02.06.a.Explain the functions and components of seeds and fruit
- Level 2
- PS.01.02.06.b.Identify the major types of fruit
- Level 3
- PS.01.02.06.c Apply the knowledge of seed and fruit structures to plant culture and use.

PS.03.04: Apply principles and practices of sustainable agriculture to plant production
- Level 1
- Level 2
- PS.03.04.01.b Describe sustainable agriculture practices and compare the ecological effects of traditional agricultural practices with those of sustainable agriculture.
- Level 3
- PS.03.04.01.c Prepare and implement a plan for an agricultural enterprise that involves practices in support of sustainable agriculture.

PS.03.05: Harvest, handle and store crops
- Level 1
- PS.03.05.01.a Identify harvesting methods and harvesting equipment.
- PS.03.05.02.a Explain reasons for calculating crop yield and loss.
- PS.03.05.03.a Identify storage methods for plants and plant products.
- PS.03.05.04.a Explain the reasons for preparing plants and plant products for distribution.
- Level 2
- PS.03.05.01.b Assess the stage of growth to determine crop maturity or salability and demonstrate proper harvesting techniques.
- PS.03.05.02.b Evaluate crop yield and loss data.

PS.03.05.03.b Explain the proper conditions to maintain the quality of plants and plant products held in storage.

Level 3

PS.03.05.02.c.Implement plans to reduce crop loss

PS.03.05.03.c Monitor environmental conditions in storage facilities for plants and plant products.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Language

Mathematics

Reading

CC: Reading Informational Text

Key Ideas and Details (11-12)

1 - Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.

Integration of Knowledge and Ideas (11-12)

7 - Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

Science

Life Sciences

HS-LS2 Ecosystems: Interactions, Energy, and Dynamics

HS-LS2-1. Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.

Social Studies

Writing

CC: Writing for Literacy in History/Social Studies, Science, and Technical Subjects (11-12)

Text Types and Purposes

1 - Write arguments focused on discipline-specific content.

Production and Distribution of Writing

4 - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- [x] Think Creatively
- [ ] Work Creatively with Other
- [ ] Implement Innovations

Creative Thinking and Problem Solving
- [ ] Reason Effectively
- [ ] Use Systems Thinking
- [x] Make Judgements and Decisions
- [x] Solve Problems

Communication and Collaboration
- [ ] Communicate Clearly
- [ ] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- [x] Access and Evaluate Information
- [ ] Use and Manage Information

Media Literacy
- [ ] Analyze Media
- [ ] Create Media Products

Information, Communications, and Technology (ICT Literacy)
- [x] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- [x] Adapt to Change
- [x] Be Flexible

Initiative and Self-Direction
- [ ] Mange Goals and Time
- [x] Work Independently
- [x] Be Self-Directed Learners

Social and Cross-Cultural
- [ ] Interact Effectively with Other
- [ ] Work Effectively in Diverse Teams

Productivity and Accountability
- [ ] Manage Projects
- [ ] Produce Results

Leadership and Responsibility
- [ ] Guide and Lead Others
- [ ] Be Responsible to Others

Unit 14 MARKETING ORNAMENTAL PLANTS — Hours: 15

Performance Assessment(s):

Horticulture I-II
•Properly label a crop for market.
•Create a flier to market a specific crop, including prices and colors.

Leadership Alignment:

Leadership:
The student will think creatively, reason effectively, collaborate with others and access and evaluate information while creating plant sale fliers.
The student will demonstrate the ability to manage goals and time, work independently, be self-directed and produce results in teams while labeling specific crops for a community plant sale.
SAE Sample: Wholesale nursery worker
FFA CDE Nursery Landscape or Floriculture

Standards and Competencies

PS.03.05: Harvest, handle and store crops

PS.03.05.04.a Explain the reasons for preparing plants and plant products for distribution.

Level 2

PS.03.05.03.b Explain the proper conditions to maintain the quality of plants and plant products held in storage.

Level 3

PS.03.05.03.c Monitor environmental conditions in storage facilities for plants and plant products.

CS.01.01: Action: Exhibit the skills and competencies needed to achieve a desired result.

Level 1

CS.01.01.01.a. Work productively with a group or independently.

CS.01.01.03.a. Exhibit good planning skills for a specific task or situation.

Level 2

CS.01.01.02.b. Create measurable objectives for a given situation.

CS.01.01.07.b. Use a variety of strategies to evaluate goals (e.g., observe, apply, and demonstrate).

Level 3

CS.01.01.01.c. Work independently and in group settings to accomplish a task.

CS.01.01.02.c. Assess outcomes to determine success for a task.

CS.01.03: Vision: Establish a clear image of what the future should look like.

Level 1

CS.01.03.03.a. Analyze the risks and rewards of new experiences.

Level 2

CS.01.03.01.b. Utilize visioning skills to develop a plan.

Level 3

CS.01.03.03.c. Conduct a self-evaluation for personal reactions to new experiences.

CS.02.03: Professional Growth: Develop awareness and apply skills necessary for achieving career success.

Level 1

CS.02.03.01.a. Explore various career interests/options.

CS.02.03.03.a. Identify the skills required for various careers.

Level 2

CS.02.03.01.b. Make decisions to plan for a personal career.

CS.02.03.03.b. Develop skills required for a specific career.

Level 3

CS.02.03.03.c. Demonstrate employability skills for a specific career.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Language

Mathematics

CC: Number and Quantity (N)

Quantities (N-Q)

1 - Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.*

Reading

CC: Reading Informational Text

Key Ideas and Details (9-10)

1 - Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

Craft and Structure (9-10)

4 - Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).

Integration of Knowledge and Ideas (9-10)

7 - Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.

Science

Social Studies

Writing

CC: Writing for Literacy in History/Social Studies, Science, and Technical Subjects (11-12)

Text Types and Purposes

1 - Write arguments focused on discipline-specific content.

1a - Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.

1b - Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- [x] Think Creatively
- [ ] Work Creatively with Other
- [ ] Implement Innovations

Creative Thinking and Problem Solving
- [x] Reason Effectively
- [ ] Use Systems Thinking
- [ ] Make Judgements and Decisions
- [ ] Solve Problems

Communication and Collaboration
- [ ] Communicate Clearly
- [x] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- [x] Access and Evaluate Information
- [ ] Use and Manage Information

Media Literacy
- [ ] Analyze Media
- [ ] Create Media Products

Information, Communications, and Technology (ICT Literacy)
- [ ] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- [ ] Adapt to Change
- [ ] Be Flexible

Initiative and Self-Direction
- [x] Mange Goals and Time
- [x] Work Independently
- [x] Be Self-Directed Learners

Social and Cross-Cultural
- [ ] Interact Effectively with Other
- [x] Work Effectively in Diverse Teams

Productivity and Accountability
- [ ] Manage Projects
- [ ] Produce Results

Leadership and Responsibility
- [ ] Guide and Lead Others
- [ ] Be Responsible to Others

Unit 15 MAINTAIN AND ANALYZE RECORDS

Hours: 5

Performance Assessment(s):

Horticulture I-II
•Design a budget for pest control for a specific crop.
•Keep an accurate labor record for a planting project, including, date time, tasks completed beginning and ending time.

Leadership Alignment:

Leadership:
The student will access and evaluate information, adapt to change, be flexible and manage goals and time using their pest control project.
Students will guide and lead others, be responsible to others access and evaluate information along with problem solving by designing a pest maintenance program and budget for a plant crop.
SAE Sample: Pesticide applicator Wholesale nursery
Retail nursery worker
Crop production manager.
FFA CDE Nursery Landscape or Floriculture

Standards and Competencies

PS.03.04: Apply principles and practices of sustainable agriculture to plant production

Level 3

PS.03.04.01.c Prepare and implement a plan for an agricultural enterprise that involves practices in support of sustainable agriculture.

CS.01.03: Vision: Establish a clear image of what the future should look like.

Level 1

CS.01.03.02.a. Use various conceptualizing tools

Level 3

CS.01.03.01.c. Develop vision statements and plans for an organization.

CS.03.02: Decision Making: Analyze situations and execute an appropriate course of action.

Level 1

CS.03.02.01.a. Analyze the steps in the decision-making process.

CS.03.02.02.a. Select resources to help in the problem-solving process.

CS.03.02.03.a. Differentiate between ethical and unethical behavior.

Level 2

CS.03.02.04.b. Assess personal skills to set goals for success in a career.

Level 3

CS.03.02.02.c. Use problem-solving skills

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Comprehension and Collaboration (9-10)

1 - Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

Comprehension and Collaboration (11-12)

1a - Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research or the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.

3 - Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.

Presentation of Knowledge and Ideas (11-12)

4 - Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range or formal and informal tasks.

Health and Fitness

Language

Mathematics

CC: Number and Quantity (N)

The Real Number System (N-RN)

Quantities (N-Q)

1 - Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.*

2 - Define appropriate quantities for the purpose of descriptive modeling.*

3 - Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.*

CC: Mathematical Practices (MP)

1 - Make sense of problems and persevere in solving them.

2 - Reason abstractly and quantitatively.

4 - Model with mathematics.

6 - Attend to precision.

8 - Look for and express regularity in repeated reasoning.

Reading

Science

Social Studies

Writing

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- [x] Think Creatively
- [ ] Work Creatively with Other
- [x] Implement Innovations

Creative Thinking and Problem Solving
- [ ] Reason Effectively
- [ ] Use Systems Thinking
- [ ] Make Judgements and Decisions
- [x] Solve Problems

Communication and Collaboration
- [ ] Communicate Clearly
- [ ] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- [x] Access and Evaluate Information
- [ ] Use and Manage Information

Media Literacy
- [ ] Analyze Media
- [ ] Create Media Products

Information, Communications, and Technology (ICT Literacy)
- [ ] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- [x] Adapt to Change
- [x] Be Flexible

Initiative and Self-Direction
- [x] Mange Goals and Time
- [ ] Work Independently
- [ ] Be Self-Directed Learners

Social and Cross-Cultural
- [ ] Interact Effectively with Other
- [ ] Work Effectively in Diverse Teams

Productivity and Accountability
- [x] Manage Projects
- [ ] Produce Results

Leadership and Responsibility
- [x] Guide and Lead Others
- [x] Be Responsible to Others

Unit 16 DEMONSTRATE MANAGERIAL AND SUPERVISORY SKILLS — Hours: 15

Performance Assessment(s):

Horticulture I-II
•.Write out a work order for a specific job.
•Evaluate employee/student performance and give detailed feed back by using the performance assessment sheet.

Leadership Alignment:

Leadership:
The student will demonstrate the ability to train others to understand the established rules and expectations, rationale, and consequences and to follow those rules and expectations.
SAE Sample: Retail nursery worker
Nursery production
Landscape Designer
FFA CDE Nursery Lanscape or Floriculture

Standards and Competencies

CS.01.02: Relationships: Build a constituency through listening, coaching, understanding and appreciating others.

Level1

CS.01.02.01.a. Explain human relation skills such as compassion, empathy, unselfishness, trustworthiness, reliability and being friendly.

CS.01.02.02.a. Engage in a conversation with others to identify their interests and aspirations.

CS.01.02.04.a. Identify characteristics of effective teams

Level 2

CS.01.02.02.b. Utilize communication skills to collaborate in a group setting.

CS.01.02.03.b. Perform the steps/strategies to successfully coach/mentor others.

Level 3

CS.01.02.02.c. Engage others in conversations to respond to an obstacle when completing a task.

CS.01.02.04.c. Evaluate the effectiveness of team members.

CS.01.03: Vision: Establish a clear image of what the future should look like.

Level 1

CS.01.03.01.a. Identify the benefits of developing vision.

Level 2

CS.01.03.01.b. Utilize visioning skills to develop a plan.

Level 3

CS.01.03.01.c. Develop vision statements and plans for an organization.

CS.03.02: Decision Making: Analyze situations and execute an appropriate course of action.

Level 1

CS.03.02.01.a. Analyze the steps in the decision-making process.

CS.03.02.03.a. Differentiate between ethical and unethical behavior.

Level 2

CS.03.02.04.b. Assess personal skills to set goals for success in a career.

Level 3

CS.03.02.02.c. Use problem-solving skills

CS.03.03: Flexibility / Adaptability: Describe traits that enable one to be capable and willing to accept change

CS.03.03.02.a. Select the appropriate process to initiate effective change for a given situation.

CS.03.03.03.a. Access to the value of providing feedback.

Level 2

CS.03.03.03.b. Differentiate between positive and negative constructive feedback and realize the importance of both.

Level 3

CS.03.03.02.c. Evaluate strategies that can be used to manage change within the workplace.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Language

Mathematics

CC: Number and Quantity (N)

Quantities (N-Q)

2 - Define appropriate quantities for the purpose of descriptive modeling.*

Reading

Science

Social Studies

Writing

CC: Writing for Literacy in History/Social Studies, Science, and Technical Subjects (11-12)

Text Types and Purposes

1 - Write arguments focused on discipline-specific content.

2 - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

2a - Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- [x] Think Creatively
- [ ] Work Creatively with Other
- [ ] Implement Innovations

Creative Thinking and Problem Solving
- [x] Reason Effectively
- [ ] Use Systems Thinking
- [ ] Make Judgements and Decisions
- [ ] Solve Problems

Communication and Collaboration
- [x] Communicate Clearly
- [ ] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- [x] Access and Evaluate Information
- [ ] Use and Manage Information

Media Literacy
- [ ] Analyze Media
- [ ] Create Media Products

Information, Communications, and Technology (ICT Literacy)
- [ ] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- [ ] Adapt to Change
- [ ] Be Flexible

Initiative and Self-Direction
- [x] Mange Goals and Time
- [x] Work Independently
- [x] Be Self-Directed Learners

Social and Cross-Cultural
- [ ] Interact Effectively with Other
- [ ] Work Effectively in Diverse Teams

Productivity and Accountability
- [x] Manage Projects
- [x] Produce Results

Leadership and Responsibility
- [ ] Guide and Lead Others
- [ ] Be Responsible to Others

Unit 17 DESIGN ORNAMENTAL HORTICULTURE FACILITIES

Hours: 15

Performance Assessment(s):

Horticulture I-II
•Make a small growing bed for a specific crop.
•Design a dish garden with plants that require the same exposure.

Leadership Alignment:

Leadership:
The student will interact effectively with others, be responsible to others, guide and lead others and work effectively in diverse teams while creating growing beds for specific corps.
The student will demonstrate the ability to work creatively with others, access and evaluate information, use and manage information, produce result through the plant and market a container garden project.
The student will demonstrate social responsibility in family, community, and business and industry interacting effectively with others using the spring plant sale marketing activity.
SAE Sample: Nursery production
Greenhouse production
FFA CDE Nursery Landscape or Floriculture

Standards and Competencies

PS.01.02: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems
- Level 3
- PS.01.02.04.c Explain the relationship between leaf structure and functions and plant management practices
- PS.01.02.05.c Apply the knowledge of flower structure to plant breeding, production and use.

PS.02.01: Determine the influence of environmental factors on plant growth
- Level 1
- PS.02.01.01.a. Describe the qualities of light that affect plant growth
- PS.02.01.02.a. Describe the effects air, temperature, and water have on plant metabolism, and growth
- Level 2
- PS.02.01.01.b. Describe plant responses to light color intensity and duration
- PS.02.01.02.b. Determine the optimal air, temperature, and water conditions for plant growth
- Level 3
- PS.02.01.02.c Design, implement, and evaluate a plan to maintain optimal conditions for plant growth

CS.01.03: Vision: Establish a clear image of what the future should look like.
- Level 1
- CS.01.03.01.a. Identify the benefits of developing vision.
- CS.01.03.04.a. Describe techniques used to build consensus.
- Level 2
- CS.01.03.02.b. Compare conceptualizing tools to use in a given situation.
- Level 3

CS.03.02: Decision Making: Analyze situations and execute an appropriate course of action.
- Level 1
- CS.03.02.01.a. Analyze the steps in the decision-making process.
- CS.03.02.02.a. Select resources to help in the problem-solving process.
- Level 2
- CS.03.02.02.b. Determine information that is critical to solving problems.
- CS.03.02.04.b. Assess personal skills to set goals for success in a career.
- Level 3

CS.03.02.02.c. Use problem-solving skills

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Language

Mathematics

CC: Number and Quantity (N)

Quantities (N-Q)

1 - Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.*

2 - Define appropriate quantities for the purpose of descriptive modeling.*

3 - Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.*

The Complex Number System (N-CN)

1 - Know there is a complex number i such that i^2 = −1, and every complex number has the form a + bi with a and b real.

Reading

Science

Crosscutting Concepts

1. Patterns.

3. Scale, proportion, and quantity.

4. Systems and system models.

5. Energy and matter: Flows, cycles, and conservation.

6. Structure and function.

Engineering, Technology, and Applications of Science

HS-ETS1-2. Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.

HS-ETS1-3. Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environme

Social Studies

Writing

CC: Writing for Literacy in History/Social Studies, Science, and Technical Subjects (11-12)

Text Types and Purposes

1 - Write arguments focused on discipline-specific content.

1a - Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.

2 - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

2b - Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

Production and Distribution of Writing

4 - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- ☐ Think Creatively
- ☑ Work Creatively with Other
- ☐ Implement Innovations

Creative Thinking and Problem Solving
- ☐ Reason Effectively
- ☐ Use Systems Thinking
- ☐ Make Judgements and Decisions
- ☐ Solve Problems

Communication and Collaboration
- ☐ Communicate Clearly
- ☐ Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- ☑ Access and Evaluate Information
- ☑ Use and Manage Information

Media Literacy
- ☐ Analyze Media
- ☐ Create Media Products

Information, Communications, and Technology (ICT Literacy)
- ☑ Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- ☐ Adapt to Change
- ☐ Be Flexible

Initiative and Self-Direction
- ☐ Mange Goals and Time
- ☐ Work Independently
- ☐ Be Self-Directed Learners

Social and Cross-Cultural
- ☑ Interact Effectively with Other
- ☑ Work Effectively in Diverse Teams

Productivity and Accountability
- ☐ Manage Projects
- ☑ Produce Results

Leadership and Responsibility
- ☑ Guide and Lead Others
- ☑ Be Responsible to Others

Unit 18 HORTICULTURE CAREERS

Hours: 10

Performance Assessment(s):

Horticulture I-II
•Identify 10 horticulture careers and what the major tasks are for each.
•Make a list of colleges in your area that provide classes in the horticulture/ agriculture fields.

Leadership Alignment:

Leadership:
The student will identify and analyze the characteristics of a variety of Agriculture careers and communicate clearly, access and evaluate information, use and manage information and work effectively in diverse teams to create a media presentation of two Agriculture careers to a small group.
The student will conduct self in a professional manner communicating clearly and creatively to business and industry members while collecting information for the careers project.
SAE Sample: Pesticide applicator Wholesale nursery
Retail nursery worker
Crop production manager.
Animal production.
FFA CDE Nursery Landscape or Floriculture

Standards and Competencies

CS.01.03: Vision: Establish a clear image of what the future should look like.

Level 1

CS.01.03.01.a. Identify the benefits of developing vision.

CS.01.03.02.a. Use various conceptualizing tools

CS.01.03.04.a. Describe techniques used to build consensus.

Level 2

CS.01.03.02.b. Compare conceptualizing tools to use in a given situation.

CS.01.04: Character: Conduct professional and personal activities based on virtues.

Level1

CS.01.04.02.a. Describe personal values.

CS.01.04.03.a. Identify the consequences of personal actions.

CS.01.04.04.a. Explain the benefits of mutual respect.

CS.01.04.06.a. Describe the benefits of serving others.

Level 2

CS.01.04.01.b. Explain a personal decision where integrity played a role in the decision.

CS.01.04.04.b. Analyze how respect is given.

CS.01.04.05.b. Differentiate between habits, practices and behaviors consistent with principles of self-discipline.

Level 3

CS.01.04.01.c. Perform tasks with integrity.

CS.01.04.02.c. Assess personal values.

CS.01.04.04.c. Demonstrate respect for others.

CS.03.01: Communication: Demonstrate oral, written and verbal skills

Level1

CS.03.01.01.a. Use basic technical and business writing skills. Level I

CS.03.01.02.a. Describe the various types and uses of resumes.

CS.03.01.03.a. Develop an outline or plan for a business presentation.

Level 2

CS.03.01.01.b. Select the appropriate form of technical and business writing or communication for a specific situation.

CS.03.01.02.b. Prepare a resume.

Level 3

CS.03.01.01.c. Demonstrate technical and business writing skills to communicate effectively with co-workers and supervisors.

CS.03.01.02.c. Demonstrate effective use of a resume as part of an effort to obtain a job.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

CC: College and Career Readiness Anchor Standards for Speaking and Listening

Comprehension and Collaboration

1 - Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

Health and Fitness

Language

Mathematics

CC: Number and Quantity (N)

The Real Number System (N-RN)

1 - Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. For example, we define 5^(1/3) to be the cube root of 5 because we want [5^(1/3)]^3 = 5^[(1/3) x 3] to hold, so [5^(1/3)]^3 must equal 5.

Quantities (N-Q)

1 - Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.*

Reading

Science

Social Studies

Writing

CC: Writing (11-12)

Text Types and Purposes

1 - Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

1a - Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence.

2 - Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

2a - Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- [x] Think Creatively
- [ ] Work Creatively with Other
- [ ] Implement Innovations

Creative Thinking and Problem Solving
- [ ] Reason Effectively
- [ ] Use Systems Thinking
- [ ] Make Judgements and Decisions
- [ ] Solve Problems

Communication and Collaboration
- [x] Communicate Clearly
- [ ] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- [x] Access and Evaluate Information
- [x] Use and Manage Information

Media Literacy
- [ ] Analyze Media
- [x] Create Media Products

Information, Communications, and Technology (ICT Literacy)
- [ ] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- [x] Adapt to Change
- [x] Be Flexible

Initiative and Self-Direction
- [ ] Mange Goals and Time
- [x] Work Independently
- [ ] Be Self-Directed Learners

Social and Cross-Cultural
- [ ] Interact Effectively with Other
- [x] Work Effectively in Diverse Teams

Productivity and Accountability
- [x] Manage Projects
- [ ] Produce Results

Leadership and Responsibility
- [ ] Guide and Lead Others
- [ ] Be Responsible to Others

Unit 19 LEADERSHIP

Hours: 15

Performance Assessment(s):

Horticulture I-II
•Identify positive leaders in history.
•Work in a group planning an activity.

Leadership Alignment:

Leadership:
The student will implement innovations, make judgments and decisions, problem solve and communicate clearly while working in groups to solve/ or plan a class leadership activity.
The student will demonstrate self-advocacy skills by achieving planned, individual goals.
The student will demonstrate a working knowledge of parliamentary procedure.
The student will access and evaluate information, apply technology effectively, interact effectively with others, work effectively in diverse teams to present their SAE projects.
The student will analyze the roles and responsibilities of citizenship while planning a school plant fundraiser.
The student will understand how to guide and lead others, manage a project and produce results using the leaders in history project.
The student will participate in the development of a program of work or strategic plan and will work to implement the organization's goals using various FFA activates in class and out of class.
SAE Sample: Manage a business
Selling crops
Selling Bonsai
FFA CDE Nursery Landscape
Floriculture CDE

Standards and Competencies

CS.01.01: Action: Exhibit the skills and competencies needed to achieve a desired result.

Level 1

CS.01.01.01.a. Work productively with a group or independently.

CS.01.01.04.a. Explore available resources to assist in meeting project needs.

Level 2

CS.01.01.01.b. Demonstrate the ability to complete a task without assistance.

CS.01.01.07.b. Use a variety of strategies to evaluate goals (e.g., observe, apply, and demonstrate).

CS.01.04: Character: Conduct professional and personal activities based on virtues.

Level1

CS.01.04.02.a. Describe personal values.

CS.01.04.05.a. Practice self-discipline.

Level 2

CS.01.04.05.b. Differentiate between habits, practices and behaviors consistent with principles of self-discipline.

Level 3

CS.01.04.01.c. Perform tasks with integrity.

CS.02.04: Mental Growth: Demonstrate the effective application of reasoning, thinking, and coping skills.

Level 1

CS.02.04.01.a. Describe the skills necessary to think critically and creatively.

CS.02.04.03.a. Discuss the skills and techniques needed to negotiate effectively.

CS.03.01: Communication: Demonstrate oral, written and verbal skills

Level1

CS.03.01.01.a. Use basic technical and business writing skills. Level I

CS.03.01.02.a. Describe the various types and uses of resumes.

Level 2

CS.03.01.02.b. Prepare a resume.

Level 3

CS.03.01.01.c. Demonstrate technical and business writing skills to communicate effectively with co-workers and supervisors.

CS.03.03: Flexibility / Adaptability: Describe traits that enable one to be capable and willing to accept change

CS.03.03.02.a. Select the appropriate process to initiate effective change for a given situation.

Level 2

CS.03.03.03.b. Differentiate between positive and negative constructive feedback and realize the importance of both.

Level 3

CS.03.03.03.c. Respond to feedback to improve a situation, skill or performance.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Comprehension and Collaboration (9-10)

1 - Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

2 - Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.

5 - Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

Health and Fitness

Language

Mathematics

CC: Number and Quantity (N)

Quantities (N-Q)

1 - Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.*

Reading

Science

Social Studies

Writing

CC: Writing for Literacy in History/Social Studies, Science, and Technical Subjects (11-12)

Text Types and Purposes

1 - Write arguments focused on discipline-specific content.

1a - Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.

1e - Provide a concluding statement or section that follows from or supports the argument presented.

Research to Build and Present Knowledge

8 - Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms o the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- [ ] Think Creatively
- [ ] Work Creatively with Other
- [x] Implement Innovations

Creative Thinking and Problem Solving
- [ ] Reason Effectively
- [ ] Use Systems Thinking
- [x] Make Judgements and Decisions
- [x] Solve Problems

Communication and Collaboration
- [x] Communicate Clearly
- [ ] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- [x] Access and Evaluate Information
- [ ] Use and Manage Information

Media Literacy
- [ ] Analyze Media
- [ ] Create Media Products

Information, Communications, and Technology (ICT Literacy)
- [x] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- [ ] Adapt to Change
- [ ] Be Flexible

Initiative and Self-Direction
- [ ] Mange Goals and Time
- [ ] Work Independently
- [ ] Be Self-Directed Learners

Social and Cross-Cultural
- [x] Interact Effectively with Other
- [x] Work Effectively in Diverse Teams

Productivity and Accountability
- [x] Manage Projects
- [x] Produce Results

Leadership and Responsibility
- [x] Guide and Lead Others
- [x] Be Responsible to Others

Unit 20 HEALTH AND SAFETY — Hours: 15

Performance Assessment(s):

Horticulture I-II
•Demonstrate safe practices while performing specific tasks in the greenhouse and shop.
•Dress appropriately for the job.
•Identify unsafe working conditions and report them properly

Leadership Alignment:

Leadership:
The student will be involved in activities that require managing goals and time, be self-directed learners, work independently and manage goals and time using their safety poster project.
The student will demonstrate the ability to access and evaluate information, apply technology effectively, solve problems and make judgments and decisions while performing a safety inspection of the Horticulture facility and documenting their findings.
Students will reason effectively and problem solve as they make recommendations for a safer environment based on their facility inspection project.
SAE Sample: Pesticide applicator
Landscaper
FFA CDE Nursery Landscape
Floriculture CDE
Public or prepared speaking CDE

Standards and Competencies

CS.01.01: Action: Exhibit the skills and competencies needed to achieve a desired result.
- Level 1
- CS.01.01.01.a. Work productively with a group or independently.
- CS.01.01.03.a. Exhibit good planning skills for a specific task or situation.
- CS.01.01.04.a. Explore available resources to assist in meeting project needs.
- Level 2
- CS.01.01.01.b. Demonstrate the ability to complete a task without assistance.
- CS.01.01.06.b. Assign project parts equitably amongst team members to achieve a given task.
- Level 3
- CS.01.01.01.c. Work independently and in group settings to accomplish a task.
- CS.01.01.02.c. Assess outcomes to determine success for a task.

CS.01.05: Awareness: Desire purposeful understanding related to professional and personal activities
- Level1
- CS.01.05.01.a. Discuss trends and issues important to the community.

CS.02.04: Mental Growth: Demonstrate the effective application of reasoning, thinking, and coping skills.
- Level 1
- CS.02.04.01.a. Describe the skills necessary to think critically and creatively.
- Level 2
- CS.02.04.01.b. Discuss the benefits of thinking critically and creatively.

CS.03.02: Decision Making: Analyze situations and execute an appropriate course of action.
- Level 1
- CS.03.02.01.a. Analyze the steps in the decision-making process.
- CS.03.02.02.a. Select resources to help in the problem-solving process.
- Level 2

CS.03.02.01.b. Utilize the process used to reach a conclusion for a decision.

CS.03.02.03.b. Practice ethical behaviors.

Level 3

CS.03.02.01.c. Make decisions for a given situation by applying the decision making process.

CS.03.02.02.c. Use problem-solving skills

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Health 2.1: Understands dimensions and indicators of health.

2.1.1 Evaluates dimensions of health and relates to personal health behaviors.

Health 2.3: Understands the concepts of prevention and control of disease.

2.3.2 Analyzes personal health practices, and how they affect non-communicable diseases.

Health 2.4: Acquires skills to live safely and reduce health risks.

2.4.2 Evaluates emergency situations, ways to prevent injuries, and demonstrates skills to respond appropriately and safely.

Health 3.1: Understands how family, culture, and environmental factors affect personal health.

3.1.2 Analyzes how environmental factors impact health.

Language

Mathematics

Reading

CC: Reading for Literacy in Science and Technical Subjects

Key Ideas and Details (11-12)

3 - Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

Craft and Structure (11-12)

4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.

Science

Social Studies

Writing

CC: Writing (11-12)

Text Types and Purposes

1 - Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- ☐ Think Creatively
- ☐ Work Creatively with Other
- ☐ Implement Innovations

Creative Thinking and Problem Solving
- ☑ Reason Effectively
- ☐ Use Systems Thinking
- ☑ Make Judgements and Decisions
- ☑ Solve Problems

Communication and Collaboration
- ☐ Communicate Clearly
- ☐ Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- ☑ Access and Evaluate Information
- ☐ Use and Manage Information

Media Literacy
- ☐ Analyze Media
- ☐ Create Media Products

Information, Communications, and Technology (ICT Literacy)
- ☑ Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- ☐ Adapt to Change
- ☐ Be Flexible

Initiative and Self-Direction
- ☑ Mange Goals and Time
- ☑ Work Independently
- ☑ Be Self-Directed Learners

Social and Cross-Cultural
- ☑ Interact Effectively with Other
- ☑ Work Effectively in Diverse Teams

Productivity and Accountability
- ☐ Manage Projects
- ☐ Produce Results

Leadership and Responsibility
- ☐ Guide and Lead Others
- ☐ Be Responsible to Others

Unit 21 LEGAL ASPECTS OF EMPLOYMENT — Hours: 5

Performance Assessment(s):

Horticulture I-II
•Describe relationships between work, management, laborers, and company owners.
•Model written conflict negotiation and resolution.

Leadership Alignment:

Leadership:
The student will demonstrate knowledge of a professional working environment by developing a conflict management and resolution project.
The student will understand and utilize conflict negotiation while working creatively with others, interacting effectively with others, being responsible to others and communicating clearly while applying technology effectively to present a solution to a business conflict or produce results by presenting their negotiation plan.
Students will work effectively in diverse teams to discuss and problem solve a business conflict
SAE Sample: Plant Broker
WSDA worker
FFA CDE Nursery Landscape or Floriculture

Standards and Competencies

CS.01.05: Awareness: Desire purposeful understanding related to professional and personal activities
- Level1
- CS.01.05.02.a. Identify civic leadership role opportunities.
- Level 2
- CS.01.05.02.b. Demonstrate responsible citizenship.
- Level 3
- CS.01.05.02.c. Perform leadership tasks associated with citizenship.

CS.01.06: Continuous Improvement: Pursue learning and growth opportunities related to professional and personal aspirations.
- Level 1
- CS.01.06.01.a. Explain the reasons for having a leadership/personal growth plan.
- Level 2
- CS.01.06.03.b. Utilize a problem-solving model to solve a given problem.

CS.03.01: Communication: Demonstrate oral, written and verbal skills
- Level1
- CS.03.01.02.a. Describe the various types and uses of resumes.
- Level 2
- CS.03.01.02.b. Prepare a resume.

CS.03.02: Decision Making: Analyze situations and execute an appropriate course of action.
- Level 1
- CS.03.02.01.a. Analyze the steps in the decision-making process.
- Level 2
- CS.03.02.02.b. Determine information that is critical to solving problems.
- Level 3
- CS.03.02.01.c. Make decisions for a given situation by applying the decision making process.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Language

Mathematics

Reading

CC: Reading for Literacy in Science and Technical Subjects

Key Ideas and Details (9-10)

3 - Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks attending to special cases or exceptions defined in the text.

Integration of Knowledge and Ideas (9-10)

7 - Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.

Key Ideas and Details (11-12)

2 - Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.

Science

Social Studies

Writing

CC: Writing for Literacy in History/Social Studies, Science, and Technical Subjects (11-12)

Text Types and Purposes

1 - Write arguments focused on discipline-specific content.

1a - Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.

2 - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

2e - Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).

Research to Build and Present Knowledge

7 - Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- [ ] Think Creatively
- [x] Work Creatively with Other
- [ ] Implement Innovations

Creative Thinking and Problem Solving
- [ ] Reason Effectively
- [ ] Use Systems Thinking
- [ ] Make Judgements and Decisions
- [x] Solve Problems

Communication and Collaboration
- [x] Communicate Clearly
- [ ] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- [x] Access and Evaluate Information
- [ ] Use and Manage Information

Media Literacy
- [ ] Analyze Media
- [ ] Create Media Products

Information, Communications, and Technology (ICT Literacy)
- [x] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- [ ] Adapt to Change
- [ ] Be Flexible

Initiative and Self-Direction
- [ ] Mange Goals and Time
- [ ] Work Independently
- [ ] Be Self-Directed Learners

Social and Cross-Cultural
- [x] Interact Effectively with Other
- [x] Work Effectively in Diverse Teams

Productivity and Accountability
- [x] Manage Projects
- [x] Produce Results

Leadership and Responsibility
- [ ] Guide and Lead Others
- [x] Be Responsible to Others

Unit 22 JOB RELATED SKILLS

Hours: 8

Performance Assessment(s):

Horticulture I-II
•Write a memo to accurately convey a specific message using proper writing skills
•State information in a logical manner in a letter to an employer.
Student career cursing project outlining 5 careers in the Northwest in Agriculture that they want to know more about.

Leadership Alignment:

Leadership:
The student will reason effectively, make judgments and decisions, communicate clearly, access and evaluate information effectively while writing business and industry (work-related) memos and complaints. .
The student will demonstrate social responsibility, adapt to change, be flexible, work independently, self directed learners and be responsible to others while writing business letters to potential employers.
Students will interact effectively with others, be responsible to others and guide an lead others in their job/ careers cursing project.
SAE Sample: Pesticide applicator Wholesale nursery
Retail nursery worker
FFA CDE Nursery Landscape or Floriculture

Standards and Competencies

CS.01.01: Action: Exhibit the skills and competencies needed to achieve a desired result.
- Level 1
- CS.01.01.01.a. Work productively with a group or independently.
- CS.01.01.03.a. Exhibit good planning skills for a specific task or situation.
- CS.01.01.04.a. Explore available resources to assist in meeting project needs.
- Level 2
- CS.01.01.01.b. Demonstrate the ability to complete a task without assistance.
- Level 3
- CS.01.01.01.c. Work independently and in group settings to accomplish a task.
- CS.01.01.03.c. Implement an effective project plan.

CS.02.02: Social Growth: Interact with others in a manner that respects the differences of a diverse and changing society.
- Level 1
- CS.02.02.01.a. Discover the different cultures that exist in one's community.
- CS.02.02.02.a. Demonstrate proper conduct and appearances for various settings.
- CS.02.02.01.b. Compare and contrast the customs of different cultures.
- Level 3
- CS.02.02.01.c. Engage in a project that educates others about different cultures from within the community.

CS.02.03: Professional Growth: Develop awareness and apply skills necessary for achieving career success.
- Level 1
- CS.02.03.01.a. Explore various career interests/options.
- CS.02.03.03.a. Identify the skills required for various careers.
- Level 2
- CS.02.03.01.b. Make decisions to plan for a personal career.
- CS.02.03.03.b. Develop skills required for a specific career.
- Level 3
- CS.02.03.03.c. Demonstrate employability skills for a specific career.

CS.03.01: Communication: Demonstrate oral, written and verbal skills

Level1

CS.03.01.01.a. Use basic technical and business writing skills. Level I

CS.03.01.02.a. Describe the various types and uses of resumes.

Level 2

CS.03.01.02.b. Prepare a resume.

Level 3

CS.03.01.02.c. Demonstrate effective use of a resume as part of an effort to obtain a job.

CS.03.03: Flexibility / Adaptability: Describe traits that enable one to be capable and willing to accept change

Level 1

CS.03.03.01.a. Research current and emerging technologies in AFNR.

Level 2

CS.03.03.03.b. Differentiate between positive and negative constructive feedback and realize the importance of both.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Comprehension and Collaboration (9-10)

4 - Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.

Comprehension and Collaboration (11-12)

1 - Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11–12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

Presentation of Knowledge and Ideas (11-12)

4 - Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range or formal and informal tasks.

Health and Fitness

Language

Mathematics

Reading

CC: Reading for Literacy in Science and Technical Subjects

Key Ideas and Details (9-10)

1 - Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

Science

Social Studies

Writing

CC: Writing for Literacy in History/Social Studies, Science, and Technical Subjects (9-10)

Text Types and Purposes

1c - Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.

Production and Distribution of Writing

4 - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- ☐ Think Creatively
- ☐ Work Creatively with Other
- ☐ Implement Innovations

Creative Thinking and Problem Solving
- ☑ Reason Effectively
- ☐ Use Systems Thinking
- ☑ Make Judgements and Decisions
- ☐ Solve Problems

Communication and Collaboration
- ☑ Communicate Clearly
- ☐ Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- ☑ Access and Evaluate Information
- ☐ Use and Manage Information

Media Literacy
- ☑ Analyze Media
- ☐ Create Media Products

Information, Communications, and Technology (ICT Literacy)
- ☐ Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- ☑ Adapt to Change
- ☑ Be Flexible

Initiative and Self-Direction
- ☑ Mange Goals and Time
- ☑ Work Independently
- ☑ Be Self-Directed Learners

Social and Cross-Cultural
- ☑ Interact Effectively with Other
- ☑ Work Effectively in Diverse Teams

Productivity and Accountability
- ☑ Manage Projects
- ☑ Produce Results

Leadership and Responsibility
- ☑ Guide and Lead Others
- ☑ Be Responsible to Others

Unit 23 JOB SEARCH TECHNIQUES

Hours: 5

Performance Assessment(s):

Horticulture I-II
•Fill out a job application effectively.
•Write a cover letter to a business requesting a job.
•Write a thank you letter for someone who gave a recommendation.
Interview peers for a specific job.

Leadership Alignment:

Leadership:
The student will conduct self in a professional manner in practical career applications, organizational forums, and decision-making bodies using the business thank you letter writing excursive.
Students will demonstrate effective reasoning, clear communication, use and manage information, manage goals and time while producing results when they hand in their job requesting letters.
Students will work independently, adapt to change, be flexibile,manage goals and time well by completing a formal job application.
Students will interact effectively with others, work effectively in diverse teams, guide and lead others and be responsible to others using the team interview project in class
SAE Sample: Employment office worker
Manage a web site for Ag.
Ag. Advertisement
FFA CDE Nursery Lanscape or Floriculture

Standards and Competencies

CS.01.05: Awareness: Desire purposeful understanding related to professional and personal activities

Level1

CS.01.05.03.a. Explain benefits and challenges of working in a diverse group.

CS.01.05.02.b. Demonstrate responsible citizenship.

Level 3

CS.01.05.02.c. Perform leadership tasks associated with citizenship.

CS.02.03: Professional Growth: Develop awareness and apply skills necessary for achieving career success.

Level 1

CS.02.03.01.a. Explore various career interests/options.

CS.02.03.03.a. Identify the skills required for various careers.

Level 2

CS.02.03.01.b. Make decisions to plan for a personal career.

Level 3

CS.02.03.01.c. Implement a plan to achieve career goals and priorities.

CS.03.01: Communication: Demonstrate oral, written and verbal skills

Level1

CS.03.01.01.a. Use basic technical and business writing skills. Level I

CS.03.01.02.a. Describe the various types and uses of resumes.

Level 2

CS.03.01.02.b. Prepare a resume.

Level 3

CS.03.01.02.c. Demonstrate effective use of a resume as part of an effort to obtain a job.

CS.03.02: Decision Making: Analyze situations and execute an appropriate course of action.

Level 1

CS.03.02.01.a. Analyze the steps in the decision-making process.

CS.03.02.02.a. Select resources to help in the problem-solving process.

Level 2

CS.03.02.01.b. Utilize the process used to reach a conclusion for a decision.

CS.03.02.04.b. Assess personal skills to set goals for success in a career.

Level 3

CS.03.02.04.c. Implement appropriate preparation plans for a career path based on passion, abilities, aptitude, opportunities.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Language

Conventions of Standard English (9-10)

1 - Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

Knowledge of Language (9-10)

3a - Write and edit work so that it conforms to the guidelines in a style manual (e.g., MLA Handbook, Turabian's Manual for Writers) appropriate for the discipline and writing type.

Vocabulary Acquisition and Use (9-10)

4 - Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies.

Mathematics

Reading

Science

Social Studies

Writing

CC: Writing for Literacy in History/Social Studies, Science, and Technical Subjects (9-10)

Text Types and Purposes

1 - Write arguments focused on discipline-specific content.

Production and Distribution of Writing

4 - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- [ ] Think Creatively
- [ ] Work Creatively with Other
- [ ] Implement Innovations

Creative Thinking and Problem Solving
- [x] Reason Effectively
- [ ] Use Systems Thinking
- [ ] Make Judgements and Decisions
- [ ] Solve Problems

Communication and Collaboration
- [x] Communicate Clearly
- [ ] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- [ ] Access and Evaluate Information
- [x] Use and Manage Information

Media Literacy
- [x] Analyze Media
- [ ] Create Media Products

Information, Communications, and Technology (ICT Literacy)
- [x] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- [x] Adapt to Change
- [x] Be Flexible

Initiative and Self-Direction
- [x] Mange Goals and Time
- [x] Work Independently
- [x] Be Self-Directed Learners

Social and Cross-Cultural
- [x] Interact Effectively with Other
- [x] Work Effectively in Diverse Teams

Productivity and Accountability
- [x] Manage Projects
- [x] Produce Results

Leadership and Responsibility
- [x] Guide and Lead Others
- [x] Be Responsible to Others

Unit 24 SCIENCE PROCEDURES

Hours: 7

Performance Assessment(s):

Horticulture I-II
Given a Hypothesis students must write lab procedures to state sscience standard.
Given procedures and data, students must write a lab conclusion to state science standard.

Leadership Alignment:

Students will think creatively, use systems thinking, communicate clearly, access and evaluate information and problem solve using the formal lab write up project.
Students will demonstrate their ability to work independently, manage goals and time , be flexible and access and evaluate information while producing results while using the formal lab conclusion exercise in class.

FFA related extended learning opportunities include regional, state, and national conferences; SAE, and the Career Development Events such as but not limited to Agronomy, Nursery/Landscape, Ag Issues, Environmental and Natural, Extemporaneous and Prepared Public Speaking.
FFA CDE Nursery Landscape or Floriculture

Standards and Competencies

CS.01.01: Action: Exhibit the skills and competencies needed to achieve a desired result.
- Level 1
- CS.01.01.01.a. Work productively with a group or independently.
- CS.01.01.02.a. Create a task analysis.
- CS.01.01.04.a. Explore available resources to assist in meeting project needs.
- Level 2
- CS.01.01.02.b. Create measurable objectives for a given situation.
- Level 3
- CS.01.01.06.c. Develop strengths and talents of team members so that all can achieve success.

CS.07.03: Follow appropriate procedures in case of an emergency.
- Level 1
- CS.07.03.01.a. Evaluate the emergency response procedures for a natural disaster.

CS.11.01: Recognize the questions and theory needed to guide scientific investigations
- Level 1
- CS.11.01.01.a. Formulate a testable hypothesis.
- Level 2
- CS.11.01.01.b. Design an experiment to test a hypothesis.
- Level 3
- CS.11.01.01.c. Demonstrate procedures and a conceptual understanding of scientific investigation.

CS.11.02: Design and conduct a scientific investigation
- Level 1
- CS.11.02.01.a. Design an experiment or scientific inquiry for a specific project.
- Level 2
- CS.11.02.01.b. Implement an experimental design to test a formulated hypothesis.
- Level 3
- CS.11.02.01.c. Propose additional studies based on the results of an experiment.

CS.01.01: Action: Exhibit the skills and competencies needed to achieve a desired result.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Language

CC: College and Career Readiness Anchor Standards for Language

Vocabulary Acquisition and Use

4 - Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.

Mathematics

Reading

CC: Reading Informational Text

2 - Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.

Craft and Structure (9-10)

4 - Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).

Science

Crosscutting Concepts

4. Systems and system models.

6. Structure and function.

Life Sciences

HS-LS1-3. Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

HS-LS2 Ecosystems: Interactions, Energy, and Dynamics

HS-LS2-3. Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.

HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

Social Studies

Writing

CC: Writing for Literacy in History/Social Studies, Science, and Technical Subjects (9-10)

Production and Distribution of Writing

4 - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Research to Build and Present Knowledge

7 - Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- [x] Think Creatively
- [ ] Work Creatively with Other
- [ ] Implement Innovations

Creative Thinking and Problem Solving
- [ ] Reason Effectively
- [x] Use Systems Thinking
- [ ] Make Judgements and Decisions
- [x] Solve Problems

Communication and Collaboration
- [x] Communicate Clearly
- [ ] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- [x] Access and Evaluate Information
- [ ] Use and Manage Information

Media Literacy
- [ ] Analyze Media
- [ ] Create Media Products

Information, Communications, and Technology (ICT Literacy)
- [ ] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- [ ] Adapt to Change
- [x] Be Flexible

Initiative and Self-Direction
- [x] Mange Goals and Time
- [x] Work Independently
- [ ] Be Self-Directed Learners

Social and Cross-Cultural
- [ ] Interact Effectively with Other
- [ ] Work Effectively in Diverse Teams

Productivity and Accountability
- [ ] Manage Projects
- [x] Produce Results

Leadership and Responsibility
- [ ] Guide and Lead Others
- [ ] Be Responsible to Others

Unit 25 GENETICS

Hours: 10

Performance Assessment(s):

Horticulture I-II
Lab: Mendelian Laws and Probability
Complete a model showing the different patterns of inheritance Monohybrid
Formal written assessment/ genetics research project

Leadership Alignment:

Students will think creatively, solve problems, access and evaluate information and manage goals and time using the inheritance model project.
Students will demonstrate the ability to work independently, manage goals and time and produce results using the genetics research project.

The above performance assessments will embed instruction and assessment of
FFA related extended learning opportunities include regional, state, and national conferences; SAE, and the Career Development Events such as but not limited to Agronomy, Nursery/Landscape, Ag Issues, Environmental and Natural, Extemporaneous and Prepared Public Speaking, Livestock Judging.
FFA CDE Nursery Landscape or Floriculture

Standards and Competencies

PS.01.02: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems

PS.01.02.06.a.Explain the functions and components of seeds and fruit

Level 2

PS.01.02.01.b.Compare and contrast mitosis and meiosis

Level 3

PS.01.02.05.c Apply the knowledge of flower structure to plant breeding, production and use.

CS.11.01: Recognize the questions and theory needed to guide scientific investigations

Level 1

CS.11.01.01.a. Formulate a testable hypothesis.

Level 2

CS.11.01.01.b. Design an experiment to test a hypothesis.

Level 3

CS.11.01.01.c. Demonstrate procedures and a conceptual understanding of scientific investigation.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Comprehension and Collaboration (9-10)

Comprehension and Collaboration (11-12)

1 - Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11–12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

Presentation of Knowledge and Ideas (11-12)

4 - Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range or formal and informal tasks.

Health and Fitness

Language

CC: College and Career Readiness Anchor Standards for Language

Conventions of Standard English

1 - Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

Vocabulary Acquisition and Use

4 - Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.

Mathematics

CC: Mathematical Practices (MP)

1 - Make sense of problems and persevere in solving them.

2 - Reason abstractly and quantitatively.

Reading

CC: Reading for Literacy in Science and Technical Subjects

Key Ideas and Details (9-10)

2 - Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.

Craft and Structure (11-12)

4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.

Science

Life Sciences

HS-LS1 From Molecules to Organisms: Structures and Processes

HS-LS1-1. Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.

HS-LS2 Ecosystems: Interactions, Energy, and Dynamics

HS-LS2-5. Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere.

HS-LS3 Heredity: Inheritance and Variation of Traits

HS-LS3-1. Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.

Social Studies

Writing

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- [x] Think Creatively
- [ ] Work Creatively with Other
- [ ] Implement Innovations

Creative Thinking and Problem Solving
- [ ] Reason Effectively
- [ ] Use Systems Thinking
- [ ] Make Judgements and Decisions
- [x] Solve Problems

Communication and Collaboration
- [ ] Communicate Clearly
- [ ] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- [x] Access and Evaluate Information
- [ ] Use and Manage Information

Media Literacy
- [ ] Analyze Media
- [ ] Create Media Products

Information, Communications, and Technology (ICT Literacy)
- [ ] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- [ ] Adapt to Change
- [ ] Be Flexible

Initiative and Self-Direction
- [x] Mange Goals and Time
- [x] Work Independently
- [ ] Be Self-Directed Learners

Social and Cross-Cultural
- [ ] Interact Effectively with Other
- [ ] Work Effectively in Diverse Teams

Productivity and Accountability
- [ ] Manage Projects
- [x] Produce Results

Leadership and Responsibility
- [ ] Guide and Lead Others
- [ ] Be Responsible to Others

Unit 26 ECOLOGY

Hours: 10

Performance Assessment(s):

Horticulture I-II
Field Study: Population density. Present finding to class
Evaluate conditions needed for population growth and explain factors that limit population growth
Field Study: Life in a square meter

Leadership Alignment:

Students will think creatively, work creatively with others, communicate clearly and collaborate with others using the field study and density project.
Students will demonstrate the use and management of information application of technology effectively and ability to work effectively in diverse teams creating the presentations for the population density project.
FFA related extended learning opportunities include regional, state, and national conferences; SAE, and the Career Development Events such as but not limited to Agronomy, Nursery/Landscape, Ag Issues, Environmental and Natural, Extemporaneous and Prepared Public Speaking.
FFA CDE Nursery Landscape or Floriculture

Standards and Competencies

PS.02.02: Prepare growing media for use in plant Systems
- Level 1
- 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
- Level 3
- PS.02.02.02.c. Determine the hydraulic conductivity for soil and how the results influence irrigation practices

CS.01.01: Action: Exhibit the skills and competencies needed to achieve a desired result.
- Level 1
- CS.01.01.01.a. Work productively with a group or independently.
- CS.01.01.03.a. Exhibit good planning skills for a specific task or situation.
- Level 2
- CS.01.01.01.b. Demonstrate the ability to complete a task without assistance.
- Level 3
- CS.01.01.01.c. Work independently and in group settings to accomplish a task.

CS.11.02: Design and conduct a scientific investigation
- Level 1
- CS.11.02.01.a. Design an experiment or scientific inquiry for a specific project.
- Level 2
- CS.11.02.01.b. Implement an experimental design to test a formulated hypothesis.
- Level 3
- CS.11.02.01.c. Propose additional studies based on the results of an experiment.

CS.01.01: Action: Exhibit the skills and competencies needed to achieve a desired result.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

CC: College and Career Readiness Anchor Standards for Speaking and Listening

Comprehension and Collaboration

1 - Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

2 - Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

Presentation of Knowledge and Ideas

4 - Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.

Health and Fitness

Language

Vocabulary Acquisition and Use (11-12)

4 - Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 11–12 reading and content, choosing flexibly from a range of strategies.

Mathematics

CC: Mathematical Practices (MP)

1 - Make sense of problems and persevere in solving them.

2 - Reason abstractly and quantitatively.

Reading

CC: Reading for Literacy in Science and Technical Subjects

Key Ideas and Details (11-12)

2 - Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.

Craft and Structure (11-12)

4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.

Science

Earth and Space Sciences

HS-ESS1-5. Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.

HS-ESS2 Earth's Systems

HS-ESS2-5. Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.

HS-ESS3 Earth and Human Activity

HS-ESS3-1. Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.

HS-ESS3-2. Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.

HS-ESS3-6. Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.

Social Studies

Writing

21st Century Skills

LEARNING AND INNOVATION

Creativity and Innovation
- [x] Think Creatively
- [x] Work Creatively with Other
- [ ] Implement Innovations

Creative Thinking and Problem Solving
- [ ] Reason Effectively
- [ ] Use Systems Thinking
- [ ] Make Judgements and Decisions
- [ ] Solve Problems

Communication and Collaboration
- [x] Communicate Clearly
- [x] Collaborate with Others

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

Information Literacy
- [ ] Access and Evaluate Information
- [x] Use and Manage Information

Media Literacy
- [ ] Analyze Media
- [ ] Create Media Products

Information, Communications, and Technology (ICT Literacy)
- [x] Apply Technology Effectively

LIFE AND CAREER SKILLS

Flexibility and Adaptability
- [ ] Adapt to Change
- [x] Be Flexible

Initiative and Self-Direction
- [ ] Mange Goals and Time
- [ ] Work Independently
- [ ] Be Self-Directed Learners

Social and Cross-Cultural
- [ ] Interact Effectively with Other
- [x] Work Effectively in Diverse Teams

Productivity and Accountability
- [ ] Manage Projects
- [x] Produce Results

Leadership and Responsibility
- [ ] Guide and Lead Others
- [ ] Be Responsible to Others

Unit 27 INDUSTRY TRENDS

Hours: 5

Performance Assessment(s):

Horticulture I-II
Research and list two new industry trends within the Agriculture Industry/ Horticulture Science
List the degrees/certification programs for two Agriculture Industry/ Horticulture Science jobs.

Leadership Alignment:

Students will demonstrate the ability to implement innovations, make judgments and decisions, collaborate with othes and communicate clearly using the industry trends project.
Students will work independently, be responsible to others manage goals and time and produce results using and managing information gathered from various colleges and business about agriculture in the Northwest.
Students will use and manage information while producing a media project to present their findings in class of agriculture colleges and Industry.
FFA related extended learning opportunities include regional, state, and national conferences; SAE, and the Career Development Events such as but not limited to Agronomy, Nursery/Landscape, Ag Issues, Environmental and Natural, Extemporaneous and Prepared Public Speaking, Natural Resource, Ag. Communication.
FFA CDE Nursery Landscape or Floriculture

Standards and Competencies

CS.01.01: Action: Exhibit the skills and competencies needed to achieve a desired result.
- Level 1
- CS.01.01.01.a. Work productively with a group or independently.
- CS.01.01.03.a. Exhibit good planning skills for a specific task or situation.
- Level 2
- CS.01.01.01.b. Demonstrate the ability to complete a task without assistance.
- CS.01.01.04.b. Use appropriate and reliable resources to complete an action or project.
- Level 3
- CS.01.01.01.c. Work independently and in group settings to accomplish a task.
- CS.01.01.02.c. Assess outcomes to determine success for a task.

CS.01.06: Continuous Improvement: Pursue learning and growth opportunities related to professional and personal aspirations.
- Level 1
- CS.01.06.04.a. Use various emerging technologies to enhance a program or project.
- Level 2
- CS.01.06.03.b. Utilize a problem-solving model to solve a given problem.
- Level 3
- CS.01.06.04.c. Make recommendations to adopt new emerging technologies.

CS.02.03: Professional Growth: Develop awareness and apply skills necessary for achieving career success.
- CS.02.03.03.a. Identify the skills required for various careers.
- Level 3
- CS.02.03.03.c. Demonstrate employability skills for a specific career.

CS.03.01: Communication: Demonstrate oral, written and verbal skills
- Level1
- CS.03.01.01.a. Use basic technical and business writing skills. Level I
- Level 2
- CS.03.01.01.b. Select the appropriate form of technical and business writing or communication for a specific situation.

Aligned to Washington State Standards

Arts

Communication - Speaking and Listening

Health and Fitness

Language

CC: College and Career Readiness Anchor Standards for Language

Conventions of Standard English

Knowledge of Language

3 - Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

Vocabulary Acquisition and Use

4 - Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.

Mathematics

Reading

Science

Engineering, Technology, and Applications of Science

HS-ETS1 Engineering Design

HS-ETS1-2. Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.

HS-ETS1-3. Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environme

Social Studies

Writing

CC: Writing for Literacy in History/Social Studies, Science, and Technical Subjects (11-12)

Text Types and Purposes

1 - Write arguments focused on discipline-specific content.

1b - Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.

Production and Distribution of Writing

4 - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

21st Century Skills

LEARNING AND INNOVATION

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- [ ] Work Creatively with Other
- [x] Implement Innovations

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- [ ] Reason Effectively
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