



VIRGINIA  

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FFA ASSOCIATION

# Floriculture Handbook 2017-2021

## Purpose

*The Virginia FFA Floriculture Career Development Event is designed to create an interest in career preparation for all current and future aspects of the floriculture industry through leadership development and hands on technical skill development using industry standards which are delivered through the agriculture education curriculum.*

Floriculture is a discipline of horticulture concerned with the cultivation of flowering and ornamental plants for gardens and the floral industry.

The floriculture industry encompasses the following:

- Greenhouse and field production and management.
- Garden center and floral shop management.
- Floral design and management.

## Objectives

- Identify plant materials, supplies, and equipment utilized in the floriculture industry.
- Demonstrate an understanding of the biological and scientific principles and develop the skills underlying propagation, variety development, growth requirements, growing techniques, harvesting, marketing and maintenance of established floriculture plants.
- Identify and recommend solutions for plant disorders.
- Demonstrate the use of principles of design and develop related skills.
- Identify, select, operate and maintain appropriate supplies and equipment for floriculture production, design and marketing.
- Demonstrate the use of safety procedures and practices in floriculture operations.
- Operate, manage and maintain facilities for floriculture operations.
- Demonstrate interpersonal skills necessary for successful employment in the floriculture industry.
- Demonstrate proper sales and customer service skills.
- Demonstrate general business practices appropriate to the floriculture industry.
- Effectively work together as a team.

## Event Rules

*Each team will be comprised of four members.*

- All four scores will be used to determine total team score.
- It is highly recommended that participants wear FFA Official Dress for this event.
- Under no circumstances will any participant be allowed to touch or handle plant material during the event except when instructed by the event staff.
- Any communication between participants during the event will be sufficient cause to eliminate the team from the event. The exception to this is the team activity.
- Any participant caught cheating during the event will be expelled from the event.
- All participants are expected to be prompt at their stations throughout the event. No provision will be made for tardiness, which will in most cases cause the late participant to lose event points.
- The event superintendent will assign the participants to group leaders who will escort them to various event-staging sites. Participants must know their participant number and stay in their assigned group at all times or until told to change leaders by the event superintendent.
- Any assistance given to a participant from any source during the event, other than a floriculture official, will be sufficient cause to eliminate the team from the event.
- All participants will be given an identification number by which they will be designated throughout the event.
- Various computer applications may be utilized throughout the floriculture event.
- Any participant in possession of an electronic and/or communication device in the event area is subject to disqualification.

## Event Format

Materials students need to provide:

- Clean clipboard, free of notes
- Two sharpened No. 2 pencils
- Calculator- Should be battery operated, non-programmable and non-scientific (basic five function only). No other calculators are allowed to be used during the event.
- Participants may also bring an apron, and/or a tool belt and towels.

## INDIVIDUAL ACTIVITIES

### IDENTIFICATION OF PLANT MATERIALS (200 POINTS)

Fifty specimens from the floriculture plant identification list will be displayed for participants to identify by technical and common names. A number will designate each specimen. Four points will be awarded for each specimen that is correctly identified. Each participant will be allowed 50 minutes to complete this phase of the event.

### GENERAL KNOWLEDGE EXAMINATION (200 POINTS)

Participants will answer 50 multiple choice questions that cover all areas of the floriculture industry as reflected in the event objectives. This phase of the event will test participants' knowledge and understanding of basic biological and scientific principles of producing and marketing flowers, plants and foliage. Each participant will be allowed 50 minutes to complete the exam. Each answer has a value of four points.

### ANNUAL PRACTICUMS (300 POINTS)

Each participant will complete three annual practicums:

1. Floral arrangement

### FLORAL ARRANGEMENT (100 POINTS)

Make a \$35 floral arrangement (The \$35 cost will include both labor and tax and be within fifty cents either way of the \$35). The event superintendent will announce the type of arrangement during the team orientation meeting. Using the materials provided, participants will be allowed 30 minutes to complete their arrangements and itemized bills. The event assistant at the beginning of the practicum will provide participants the retail price of the flowers and foliage that they will use in their arrangements. The markup will be built into the retail price. When the participant has determined the total arrangement cost, he or she has included the markup. Retail cost of flowers and foliage given to the participant will be determined after polling florists to determine their current retail prices on the flowers and foliage used in the event. Scoring criteria are presented on the floral arrangement practicum scorecard which will be recorded by a judge.

#### Explanation of Floral Arrangement Terms

**Design:** Category Interpretation: Design is the overall shape or form of composition; a planned relationship of the parts. The elements of design include: line (linear patterns attracting the eye to the focal point); form (three dimensional shape); texture (surface appearance of materials); color (use of tints, tones, shades of hues, as well as black, gray and white); the pleasing way in which lines, textures, sizes and colors are blended or contrasted and the tying together of the parts by the combination of good design, balance and harmony.

**Balance:** Physical and visual stability, regardless of whether design is symmetrical or asymmetrical determined by the relative sizes of material and relative darkness of lightness and the placement of them.

**Creativity:** Artistic inventiveness

**Depth:** Placement of materials at different levels throughout the arrangement

**Focal Emphasis:** Design has one area of design that attracts the eye to it

**Line:** Movement

**Mechanics:** Professional techniques and application

**Scale:** Proportion

**Unity:** Cohesiveness of design

## Scoring

| PHASE                            | Individual Points | Team Points |
|----------------------------------|-------------------|-------------|
| Identification of Plant Material | 200               | 800         |
| General Knowledge Exam           | 200               | 800         |
| Annual Practicums                | 100               | 400         |
| Total                            | 500               | 2,000       |

## TIEBREAKERS

### INDIVIDUAL

If ties occur the following events will be used in order to determine award recipients:

1. Written Exam
2. Plant Identification
3. Floral Arrangement Practicum

### TEAM

If ties occur the following events will be used in order to determine award recipients:

1. Written Exam
2. Plant Identification

## Awards

*Awards will be presented to individuals and/or teams based upon their rankings at an awards ceremony.*

## References

*This list of references is not intended to be all-inclusive.*

- Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation.
- National FFA Core Catalog—Past CDE Q&A's (<http://shop.FFA.org/cde-qas-c1413.aspx>)
- Principal of Floral Design, Pat Diehl Scace, James M. DelPrince – Goodheart Wilcox Publisher [www.g-w.com](http://www.g-w.com)
- The AIFD Guide to Floral Design: Terms, Techniques, and Traditions – The American Institute of Floral Design
- Introduction to Horticulture Science and Technology. – 5th edition 2015 Schroeder, Seagle Felton, Ruter, Interstate Publishers, Inc.
- Introductory Horticulture – Carroll Shry, Edward Reiley – Eight Edition
- Greenhouse Operation and Management – Paul V. Nelson – Seventh Edition (Specific Reference for the disorders rotational practicum)
- Ball Publishing: Ball Redbook, Volume 1&2, 18th Edition
- National FFA Resume Generator <https://resumegenerator.ffa.org/>

# Floriculture Plant Identification List

|     |                                   |                         |
|-----|-----------------------------------|-------------------------|
| 101 | Aechmea fasciata cv.              | Silver Vase Bromeliad   |
| 102 | Ageratum houstonianum             | Ageratum                |
| 103 | Alstroemeria hybrid cv.           | Peruvian Lily           |
| 104 | Anemone coronaria                 | Anemone                 |
| 105 | Anethum graveolens cv.            | Dill                    |
| 106 | Angelonia hybrid cv.              | Angelonia               |
| 107 | Anthurium x andraeanum cv.        | Flamingo Plant          |
| 108 | Antirrhinum majus cv.             | Snapdragon              |
| 109 | Aphelandra squarrosa cv.          | Zebra Plant             |
| 110 | Araucaria heterophylla            | Norfolk Island Pine     |
| 111 | Asparagus densiflorus             | Sprengeri Fern          |
| 112 | Aster pringlei                    | Monte Cassino Aster     |
| 113 | Astilbe hybrid cv.                | Astilbe                 |
| 114 | Begonia x semperflorens –cultorum | Wax Begonia             |
| 115 | Begonia x tuberhybrida cv.        | Tuberous Begonia        |
| 116 | Caladium x hortulanum cv.         | Caladium                |
| 117 | Calibrachoa hybrid cv.            | Million Bells           |
| 118 | Callistephus chinensis cv.        | China Aster             |
| 119 | Campanula hybrid cv.              | Campanula               |
| 120 | Canna x generalis cv.             | Garden Canna            |
| 121 | Capsicum annum                    | Ornamental Pepper Plant |
| 122 | Catharanthus roseus               | Vinca                   |
| 123 | Celosia argentea cv.              | Cockscomb               |
| 124 | Chamaedorea elegans               | Parlor Palm             |
| 125 | Chamelaucium uncinatum            | Waxflower               |
| 126 | Cholorophytum comosum cv.         | Spider Plant            |
| 127 | Chrysanthemum x morifolium        | Florist's Chrysanthemum |
| 128 | Clematis hybrid cv.               | Clematis                |
| 129 | Codiaeum variegatum pictum        | Croton                  |
| 130 | Crassula argentea                 | Jade Plant              |
| 131 | Cycas revoluta cv.                | Sago Palm               |
| 132 | Cyclamen x persicum cv.           | Florist's Cyclamen      |
| 133 | Cymbidium cv.                     | Cymbidium Orchid        |
| 134 | Cymbopogon cv.                    | Lemongrass (herb)       |
| 135 | Dahlia hybrid cv.                 | Dahlia                  |
| 136 | Delphinium consolida cv.          | Larkspur                |
| 137 | Dendrobium cv.                    | Dendrobium Orchid       |
| 138 | Dianthus caryophyllus cv.         | Carnation               |
| 139 | Dracaena cincta                   | Red Edge Dracaena       |

|     |                               |                          |
|-----|-------------------------------|--------------------------|
| 140 | Echinocactus cv.              | Barrel Cactus            |
| 141 | Epipremnum aureum cv.         | Golden Pothos            |
| 142 | Erica carnea cv.              | Spring Heather           |
| 143 | Eucalyptus polyanthemos       | Silver Dollar Eucalyptus |
| 144 | Euphorbia pulcherrima cv.     | Poinsettia               |
| 145 | Eustoma grandiflorum          | Lisianthus               |
| 146 | Exacum affine                 | Persian Violet           |
| 147 | Ficus benjamina cv            | Benjamin Fig             |
| 148 | Ficus elastica cv             | Rubber Plant             |
| 149 | Fragaria x ananassa cv.       | Strawberry Plant         |
| 150 | Freesia x hybrida             | Freesia                  |
| 151 | Gardenia jasminoides          | Gardenia                 |
| 152 | Gerbera jamesonii             | Gerbera Daisy            |
| 153 | Gladiolus x hortulanus cv.    | Garden Gladiolus         |
| 154 | Gomphrena hybrid cv.          | Globe Amaranths          |
| 155 | Gypsophila elegans cv.        | Baby's Breath            |
| 156 | Hedera helix cv.              | English Ivy              |
| 157 | Helianthus annuus             | Sunflower                |
| 158 | Hemerocallis cv.              | Daylily                  |
| 159 | Hippeastrum hybrid cv.        | Amaryllis                |
| 160 | Hosta cv.                     | Hosta                    |
| 161 | Hoya carnosa                  | Wax Plant                |
| 162 | Hyacinthus orientalis cv.     | Hyacinth                 |
| 163 | Hydrangea macrophylla         | Big Leaf Hydrangea       |
| 164 | Impatiens hybrid cv.          | Impatiens                |
| 165 | Impomoea batatas cv.          | Ornamental Sweet Potato  |
| 166 | Iris x xiphium cv.            | Dutch Iris               |
| 167 | Senecio cineraria             | Dusty Miller             |
| 168 | Justica brandegeana           | Shrimp Plant             |
| 169 | Kalanchoe x blossfeldiana cv. | Kalanchoe                |
| 170 | Leucanthemum x superbum       | Shasta Daisy             |
| 171 | Leucospermum hybrid cv.       | Pin Cushion Protea       |
| 172 | Liatris spicata               | Liatris                  |
| 173 | Lilium hybrid cv.             | Asiatic or Oriental Lily |
| 174 | Limonium sinuatum             | Statice                  |
| 175 | Lobularia maritima            | Alyssum                  |
| 176 | Maranta leuconeura            | Prayer Plant             |
| 177 | Matthiola incana cv.          | Stock                    |
| 178 | Monstera deliciosa            | Split Leaf Philodendron  |

|     |                                     |                               |
|-----|-------------------------------------|-------------------------------|
| 179 | Narcissus hybrid cv.                | <i>Daffodil or Narcissus</i>  |
| 180 | Nephrolepis exaltata cv.            | <i>Boston Fern</i>            |
| 181 | Ocimum basilicum cv.                | <i>Basil</i>                  |
| 182 | Opuntia cv.                         | <i>Cactus</i>                 |
| 183 | Paeonia cv.                         | <i>Peony</i>                  |
| 184 | Paphiopedilum hybrid cv.            | <i>Lady'slipper Orchid</i>    |
| 185 | Pelargonium x hortorum cv.          | <i>Zonal Geranium</i>         |
| 186 | Pelargonium peltatum cv.            | <i>Ivy Geranium</i>           |
| 187 | Pentas hybrid cv.                   | <i>Pentas</i>                 |
| 188 | Petroselinum crispum cv.            | <i>Parsley</i>                |
| 189 | Petunia x hybrida cv.               | <i>Petunia</i>                |
| 190 | Phalaenopsis cv.                    | <i>Moth Orchid</i>            |
| 191 | Philodendron scandens<br>oxycardium | <i>Heartleaf Philodendron</i> |
| 192 | Pilea cadierei                      | <i>Aluminum Plant</i>         |
| 193 | Portulaca oleracea cv.              | <i>Portulaca</i>              |
| 194 | Primula malacoides cv.              | <i>Primrose</i>               |
| 195 | Ranunculus hybrid cv.               | <i>Ranunculus</i>             |
| 196 | Rhododendron simsii cv.             | <i>Florist Azalea</i>         |
| 197 | Rosa hybrid cv                      | <i>Hybrid Tea Rose</i>        |
| 198 | Rumohra adiantiformis               | <i>Leatherleaf Fern</i>       |
| 199 | Saintpaulia ionantha cv.            | <i>African Violet</i>         |

|     |  |                         |
|-----|--|-------------------------|
| 200 | Salvia splendens cv.                   | <i>Salvia</i>           |
| 201 | Sansevieria trifasciata cv.            | <i>Snake Plant</i>      |
| 202 | Schefflera arboricola                  | <i>Dwarf Schafflera</i> |
| 203 | Schlumbergera bridgesii                | <i>Christmas Cactus</i> |
| 204 | Sempervivum hybrid cv.                 | <i>Hens and Chicks</i>  |
| 205 | Senecio x hybridus cv.                 | <i>Cineraria</i>        |
| 206 | Sinningia speciosa Fyiana Group<br>cv. | <i>Florist Gloxinia</i> |
| 207 | Solidago hybrid cv                     | <i>Solidago</i>         |
| 208 | Solenostemon scutellarioides           | <i>Coleus</i>           |
| 209 | Spathiphyllum                          | <i>Peace Lily</i>       |
| 210 | Stephanotis floribunda                 | <i>Stephanotis</i>      |
| 211 | Strelitzia reginae                     | <i>Bird of Paradise</i> |
| 212 | Syngonium podophyllum                  | <i>Nephtytis</i>        |
| 213 | Tagetes species cv.                    | <i>Marigold</i>         |
| 214 | Tradescantia zebrina                   | <i>Wandering Jew</i>    |
| 215 | Tulipa cv.                             | <i>Tulip</i>            |
| 216 | Verbena hybrid cv.                     | <i>Verbena</i>          |
| 217 | Viola x wittrockiana cv.               | <i>Pansy</i>            |
| 218 | Zantedeschia hybrid cv.                | <i>Calla Lily</i>       |
| 219 | Zinnia cv.                             | <i>Zinnia</i>           |



# Floral Arrangement Practicum Rubric

100 points

| NAME                        |             |             | MEMBER NUMBER     |              |
|-----------------------------|-------------|-------------|-------------------|--------------|
| CHAPTER                     |             | STATE       |                   | TEAM NUMBER  |
| POSSIBLE SCORE              | Excellent   | Good        | Needs Improvement | Member Score |
| Arrangement                 |             | 85          |                   |              |
| Category Interpretation     | 7-15 points | 6-10 points | 0-5 points        |              |
| Balance                     | 7-10 points | 4-6 points  | 0-3 points        |              |
| Creativity                  | 7-10 points | 4-6 points  | 0-3 points        |              |
| Depth                       | 7-10 points | 4-6 points  | 0-3 points        |              |
| Focal Emphasis.             | 7-10 points | 4-6 points  | 0-3 points        |              |
| Line                        | 7-10 points | 4-6 points  | 0-3 points        |              |
| Mechanics                   | 7-10 points | 4-6 points  | 0-3 points        |              |
| Scale                       | 4-5 points  | 2-3 points  | 0-1 points        |              |
| Unity                       | 4-5 points  | 2-3 points  | 0-1 points        |              |
| Itemized List of Costs      |             | 15          |                   |              |
| Price Range                 | 4-5 points  | 2-3 points  | 0-1 points        |              |
| Identification and Accuracy | 7-10 points | 4-6 points  | 0-3 points        |              |
| Total Possible:             |             |             |                   | 100          |

## EXPLANATION OF FLORAL ARRANGEMENT TERMS

**Category Interpretation:** Design follows objective scenario given

**Balance:** Physical and Visual

**Creativity:** Artistic inventiveness

**Depth:** Placement of materials at different levels throughout the arrangement

**Focal Emphasis:** Design has one area of design that attracts the eye to it

**Line:** Movement

**Mechanics:** Professional techniques and application

**Scale:** Proportion

**Unity:** Cohesiveness of design

JUDGE'S NAME

JUDGE'S SIGNATURE

DATE

# Floral Arrangement Itemized List of Costs

NAME

MEMBER NUMBER

CHAPTER

STATE

TEAM NUMBER

| Quantity                           | FLOWER/FOLIAGE | Unit Cost | Total |
|------------------------------------|----------------|-----------|-------|
|                                    |                |           |       |
|                                    |                |           |       |
|                                    |                |           |       |
|                                    |                |           |       |
|                                    |                |           |       |
|                                    |                |           |       |
| TOTAL FLOWER/FOLIAGE MATERIAL COST |                |           |       |

| Quantity              | MATERIAL USED | Unit Cost | Total |
|-----------------------|---------------|-----------|-------|
|                       |               |           |       |
|                       |               |           |       |
|                       |               |           |       |
| TOTAL HARD GOODS COST |               |           |       |

Total Plant Material Cost

Total Hard Goods Cost

Container Cost

Sub Total

TOTAL ARRANGEMENT COST\*

\* Participants will be provided the retail price of flowers and foliage that they will use in their arrangement by the event official at the beginning of the practicum. The markup is built into the retail price of the flowers and the foliage used in the arrangement.

# Agriculture, Food and Natural Resources Content Standards

| Measurement Assessed  | Where measured in event   | Academic Content Standards Addressed  |
|---|---|---|
| <b>ABS.01.01. Performance Indicator: Apply micro- and macroeconomic principles to plan and manage inputs and outputs in an AFNR business.</b>   |   |   |
| ABS.01.01.01.b. Apply microeconomic principles to calculate values associated with different inputs and outputs in AFNR businesses (e.g., price, point of equilibrium, opportunity costs, marginal costs, etc.).                                      | Exam, Problem Solving/Decision Making, Selling One-on-one, Floral Design, Mixed Combo Planter and Corsage | CCSS.ELA-Literacy.L.9-10.6<br>CCSS.ELA-LITERACY.L.11-12.6<br>CCSS.ELA-LITERACY.RST.9-10.4<br>CCSS.ELA-LITERACY.RST.11-12.4<br>CCSS.MATH.CONTENT.HSS.ID.C.7<br>CCSS.MATH.CONTENT.HSS.IC.B.6<br>Financial Investing: Benchmarks: Grade 12, Statement 9  |
| ABS.04.03.02.a. Research and summarize examples that illustrate the importance of risk and uncertainty within AFNR businesses.  | Selling One-on-One  | Financial Investing: Benchmarks: Grade 12, Statement 11<br>Protecting and Insuring: Benchmarks: Grade 12, Statements 2<br>Protecting and Insuring: Benchmarks: Grade 12, Statements 3<br>Protecting and Insuring: Benchmarks: Grade 12, Statements 4  |
| ABS.05.02.02.b. Assess different responses/customer reactions that could be presented during different types of sales calls used in AFNR businesses (e.g., competitor prices, competing products, post-sale service, complaints about product, etc.). | Selling One-on-One  | CCSS.ELA-LITERACY.SL.9-10.6<br>CCSS.ELA-LITERACY.SL.11-12.6<br>CCSS.ELA-LITERACY.RH.9-10.7<br>CCSS.ELA-LITERACY.RH.11-12.7<br>Buying Goods & Services: Benchmarks: Grade 12, Statements 1<br>Buying Goods & Services: Benchmarks: Grade 12, Statements 3<br>Buying Goods & Services: Benchmarks: Grade 12, Statements 4<br>Buying Goods & Services: Benchmarks: Grade 12, Statements 5  |
| <b>ABS.05.03. Performance Indicator: Assess marketing principles and develop marketing plans to accomplish AFNR business objectives.</b>  |   |   |
| ABS.05.03.02.a. Examine and categorize strategies used in marketing programs for AFNR businesses (e.g., Internet, direct to customer, social media, etc.).  | Selling   | CCSS.ELA-LITERACY.L.9-10.6<br>CCSS.ELA-LITERACY.L.11-12.6<br>CCSS.ELA-LITERACY.RST.9-10.4<br>CCSS.ELA-LITERACY.RST.11-12.4<br>CCSS.ELA-LITERACY.W.9-10.2<br>CCSS.ELA-LITERACY.W.11-12.2<br>CCSS.ELA-LITERACY.RH.9-10.7<br>CCSS.ELA-LITERACY.RH.11-12.7<br>CCSS.ELA-LITERACY.SL.9-10.6<br>CCSS.ELA-LITERACY.SL.11-12.6<br>Buying Goods & Services: Benchmarks: Grade 12, Statements 1<br>Buying Goods & Services: Benchmarks: Grade 12, Statements 3<br>Buying Goods & Services: Benchmarks: Grade 12, Statements 4<br>Buying Goods & Services: Benchmarks: Grade 12, Statements 7 |
| <b>BS.02.02. Performance Indicator: Implement standard operating procedures for the proper maintenance, use and sterilization of equipment in a laboratory.</b>   |   |   |
| BS.02.02.03.c. Perform sterilization techniques for equipment in a laboratory using standard operating procedures.  | Growing Procedures (asexual propagation)  | HS-ETS1-2   |

**BS.02.04. Performance Indicator: Safely manage and dispose of biological materials, chemicals and wastes according to standard operating procedures.**

|  |  |   |
|--|--|---|
| BS.02.04.01.b. Assess the need for personal protective equipment and select the appropriate equipment to wear when working with biological and chemical materials. | Equipment list/Handling Hazards Situations | CCSS.ELA-Literacy.RST.9-10.4<br>CCSS.ELA-Literacy.RST.11-12.4 |
| BS.02.04.02.a. Classify and describe hazards associated with biological and chemical materials.  | Handling Hazards Situations                | CCSS.ELA-Literacy.RST.9-10.4<br>CCSS.ELA-Literacy.RST.11-12.4 |
| BS.02.04.03.a. Summarize what happens to waste after it leaves the laboratory and examine opportunities to reduce waste and unnecessary costs.                     | Handling Hazards Situations                | CCSS.ELA-Literacy.RST.9-10.4<br>CCSS.ELA-Literacy.RST.11-12.4 |

**CS.01.01. Performance Indicator: Examine issues and trends that impact AFNR systems on local, state, national and global levels.**

|   |                 |  |
|---|-----------------|--|
| CS.01.01.01.b. Analyze and document AFNR issues and their impact on local, state, national and global levels.               | Problem Solving |  |
| CS.01.01.02.b. Analyze current trends in AFNR systems and predict their impact on local, state, national and global levels. | Problem Solving |  |

**CS.01.02. Performance Indicator: Examine technologies and analyze their impact on AFNR systems.**

|   |                                  |  |
|---|----------------------------------|--|
| CS.01.02.01.b. Apply appropriate use of technologies in AFNR workplace scenarios.       | Written Exam, Growing procedures |  |
| CS.01.02.02.b. Analyze how technology is used in AFNR systems to maximize productivity. | Written Exam, Growing procedures |  |

**CS.02.01. Performance Indicator: Research geographic and economic data related to AFNR systems.**

|   |  |  |
|---|--|--|
| CS.02.01.02.c. Devise a strategy to solve a problem in an AFNR system using a set of economic data. | Problem Solving, Team Activity-media selling |  |
|---|--|--|

**CS.02.02. Performance Indicator: Examine the components of the AFNR systems and their impact on the local, state, national and global society and economy.**

|   |                                  |  |
|---|----------------------------------|--|
| CS.02.02.01.c. Devise a strategy for explaining components of AFNR systems to audiences with limited knowledge.     | Team Activity, Written Exam      |  |
| CS.02.02.02.c. Evaluate how society traditions, customs or policies have resulted from practices with AFNR systems. | Written Exam                     |  |
| CS.02.02.03.b. Assess the economic impact of an AFNR system on a local, state, national and global level.           | Written Exam, Selling one on one |  |

**CS.03.01. Performance Indicator: Identify required regulations to maintain and improve safety, health and environmental management systems.**

|  |   |  |
|--|---|--|
| CS.03.01.01.c. Evaluate how AFNR organizations/businesses promote improved health, safety and environmental management.                      | Hazard materials, Plant Disorders, Written Exam                     |  |
| CS.03.01.02.c. Construct and implement methods to evaluate compliance with required safety, health and environmental management regulations. | Problem Solving, Plant Disorders, Hazardous Materials, Written Exam |  |

**CS.03.02. Performance Indicator: Develop a plan to maintain and improve health, safety and environmental compliance and performance.**

|  |                               |                                  |
|--|-------------------------------|----------------------------------|
| CS.03.02.01.c. Create a plan to improve safety, health and environmental management regulations in an AFNR business.   | Hazardous Materials Situation | AFNR Career Cluster, Statement 6 |
| CS.03.02.02.c. Devise a strategy to educate employees on environmental compliance and performance in an AFNR business. | Hazardous Materials Situation | AFNR Career Cluster, Statement 6 |

**CS.03.03. Performance Indicator: Apply health and safety practices to AFNR worksites.**

|   |   |  |
|---|---|--|
| CS.03.03.01.b. Analyze and summarize current health and safety practices of AFNR business.                                  | Hazardous Materials Situation               |  |
| CS.03.03.02.c. Create a plan to communicate appropriate responses for health and safety situations within an AFNR business. | Hazardous Materials Situation               |  |
| CS.03.03.03.b. Assess first aid knowledge and procedures relevant to AFNR worksites.  | Written Exam, Hazardous Materials Situation |  |
| CS.03.03.04.c. Create a plan to mitigate the level of contamination or injury identified as a risk in the workplace.        | Hazardous Materials Situation               |  |

**CS.03.04. Performance Indicator: Use appropriate protective equipment and demonstrate safe and proper use of AFNR tools and equipment.**

|  |  |  |
|--|--|--|
| C3.03.04.01.c. Design plans to ensure the use of appropriate protective equipment when using various AFNR tools and equipment. | Written Exam, Hazardous Materials Situation, Plant and Tool ID |  |
| C3.03.04.02.c. Evaluate and select appropriate tools and equipment to complete AFNR tasks.                                     | Written Exam, Hazardous Materials Situation, Plant and Tool ID |  |
| CS.03.04.03.b. Assess and demonstrate appropriate operation, storage and maintenance techniques for AFNR tools and equipment.  | Hazardous Material Situation                                   |  |

**CS.04.01. Performance Indicator: Identify and implement practices to steward natural resources in different AFNR systems.**

|   |   |  |
|---|---|--|
| CS.04.01.01.b. Analyze available practices to steward natural resources in AFNR systems (e.g., wildlife and land conservation, soil and water practices, ecosystem management, etc.). | Plant and Tool ID, Growing Procedures               | AFNR Career Cluster, Statement 2<br>AFNR Career Cluster, Statement 3 |
| CS.04.01.02.b. Analyze and assess sustainability practices that can be applied in AFNR systems (e.g., energy efficiency, recycle/reuse/repurpose, green resources, etc.).             | Plant and Tool ID, Growing Procedures, Written Exam | AFNR Career Cluster, Statement 2<br>AFNR Career Cluster, Statement 3 |

**CS.04.02. Performance Indicator: Assess the natural resource related trends, technologies and policies that impact AFNR systems.**

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| CS.04.02.01.b. Analyze natural resources trends and technologies and document how they impact AFNR systems (e.g., climate change, green technologies, water resources, etc.). | Written Exam | AFNR Career Cluster, Statement 7 |
|---|--------------|----------------------------------|

**CS.05.01. Performance Indicator: Evaluate the steps and requirements to pursue a career opportunity in each of the AFNR career pathways (e.g., goals, degrees, certifications, resumes, cover letter, portfolios, interviews, etc.).**

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| CS.05.01.01.c. Evaluate progress toward AFNR career goals and identify opportunities for improvement and necessary adjustments to one's plan of action   | Job Interview  |  |
| CS.05.01.02.c. Implement one's personal plan of action for obtaining the required education, training and experiences and evaluate progress to identify opportunities for improvement and necessary adjustments.       | Job Interview  |  |
| CS.05.01.03.c. Evaluate, update and improve a set of personal tools to reflect current skills, experiences, education, goals, etc. and complete the processes needed to pursue and obtain a career in an AFNR pathway. | Media Selling, Corsage, floral arrangement, asexual propagation, team activity, Selling one on one |  |

**CS.05.02. Performance Indicator: Examine careers in each of the AFNR pathways.**

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| CS.05.02.01.c. Interpret and evaluate the results of a personal career assessment and connect them to potential careers in AFNR pathways. | Job Interview |  |
| CS.05.02.02.c. Conduct interviews with career professionals within AFNR pathways and summarize the results.                               | Job interview |  |

**CS.06.01. Performance Indicator: Explain foundational cycles and systems of AFNR.**

CS.06.01.01.c. Teach others about the impact of foundational cycles within AFNR systems.

Team Activity/Written Exam

**CRP.01.01. Performance Indicator: Model personal responsibility in the workplace and community.**

CRP.01.01.01.c. Evaluate past workplace and community situations and determine how personal responsibility positively or negatively impacted outcomes.

Team Activity

CRP.01.01.02.c. Model personal responsibility in workplace and community situations.

Team Activity, Sales, Job Interview

**CRP.01.02 Performance Indicator: Evaluate and consider the near-term and long-term impacts of personal and professional decisions on employers and community before taking action.**

CRP.01.02.01.c. Make and defend personal decisions after analyzing their near- and long-term impacts on self and others.

Problem Solving, Job Interview

CRP.01.02.02.c. Make and defend professional decisions after evaluating their near- and long-term impacts on employers and community.

Job Interview

**CRP.02.01. Performance Indicator: Use strategic thinking to connect and apply academic learning, knowledge and skills to solve problems in the workplace and community.**

CRP.02.01.01.c. Apply academic knowledge and skills to solve problems in the workplace and reflect upon the results achieved. Problem Solving, Team Activity, Hazardous Situation, Plant Disorder,

Media Selling

CRP.02.01.02.c. Apply academic knowledge and skills to solve problems in the community and reflect upon results achieved.

Media Selling

**CRP.02.02. Performance Indicator: Use strategic thinking to connect and apply technical concepts to solve problems in the workplace and community.**

CRP.02.02.01.b. Assess workplace problems and distinguish the most appropriate technical concepts to apply.

Problem Solving, Plant Disorders

**CRP.03.01. Performance Indicator: Design and implement a personal wellness plan.**

CRP.03.01.02.b. Analyze the relationship between personal wellness and workplace performance.

Job Interview, Floral Design

**CRP.03.02. Performance Indicator: Design and implement a personal financial management plan.**

CRP.03.02.01.a. Research and examine components in a personal financial management plan (e.g., income, expense, budgeting, savings, credit, etc.).

Corsage, Floral Arrangement, Asexual Propagation

CRP.03.02.02.a. Examine and categorize personal financial practices (e.g., earning, spending, use of management tools, credit, etc.).

Corsage, Floral Arrangement, Asexual Propagation

**CRP.04.01. Performance Indicator: Speak using strategies that ensure clarity, logic, purpose and professionalism in formal and informal settings.**

CRP.04.01.01.c. Evaluate other's verbal and non-verbal communications (e.g., speeches, presentations, oral reports, etc.) and propose recommendations for improvement in clarity, logic, purpose and professionalism.

Job Interview, Team Activity, One on One Selling, Growing Procedure

CRP.04.01.02.c. Evaluate personal strengths and areas for growth with regard to speaking formally and informally with clarity, logic, purpose and professionalism, and identify ways to improve.

Job Interview, Team Activity, One on One Selling, Growing Procedure

**CRP.04.02. Performance Indicator: Produce clear, reasoned and coherent written communication in formal and informal settings.**

CRP.04.02.01.c. Evaluate the effectiveness of different forms of written communication for achieving their intended purpose.

Job Interview/Media Selling

CRP.04.02.02.c. Compose clear and coherent written documents (e.g., agendas, audio-visuals, drafts, forms, etc.) for formal and informal settings.

Job Interview/Media Selling

**CRP.04.03. Performance Indicator: Model active listening strategies when interacting with others in formal and informal settings.**

CRP.04.03.01.c. Evaluate personal effectiveness and devise a plan to improve active listening skills.

One on one selling

CRP.04.03.02.c. Model active listening strategies in formal and informal settings.

One on one selling, Job Interview

**CRP.05.01. Performance Indicator: Assess, identify and synthesize the information and resources needed to make decisions that positively impact the workplace and community.**

CRP.05.01.01.c. Evaluate workplace and community decision-making processes and devise strategies for improvement.

Team Activity



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| CRP.05.01.02.c. Evaluate workplace and community situations and recommend the information and resources needed to support good decisions.   | Team Activity   |  |
| CRP.05.01.03.c. Synthesize information and resources and apply to workplace and community situations to make positive decisions.  | Team Activity   |  |
| <b>CRP.05.02. Performance Indicator: Make, defend and evaluate decisions at work and in the community using information about the potential environmental, social and economic impacts.</b> |                 |  |
| CRP.05.02.01.c. Evaluate and defend decisions applied in the workplace and community situations.  | Team Activity   |  |
| CRP.05.02.02.c. Evaluate workplace and community situations and propose decisions to be made based upon the positive impact made on environment, social and economic areas.                 | Team Activity   |  |
| <b>CRP.06.01. Performance Indicator: Synthesize information, knowledge and experience to generate original ideas and challenge assumptions in the workplace and community.</b>              |                 |  |
| CRP.06.01.01.b. Synthesize information, knowledge and experiences to generate ideas for workplace and community situations.   | Team Activity   |  |
| <b>CRP.06.02. Performance Indicator: Assess a variety of workplace and community situations to identify ways to add value and improve the efficiency of processes and procedures.</b>       |                 |  |
| CRP.06.02.02.b. Predict and communicate potential gains in efficiency and value-added from implementing an improved process or procedure.   | Team Activity   |  |
| <b>CRP.06.03. Performance Indicator: Create and execute a plan of action to act upon new ideas and introduce innovations to workplace and community organizations.</b>                      |                 |  |
| CRP.06.03.02.b. Elicit and assimilate input and feedback from individuals and organizations about new ideas or innovations for the workplace or community.                                  | Team Activity   |  |
| <b>CRP.07.01. Performance Indicator: Select and implement reliable research processes and methods to generate data for decision-making in the workplace and community.</b>                  |                 |  |
| CRP.07.01.01.c. Evaluate business' and organizations' use of research methods and processes and propose recommendations for improvement.  | Plant Disorders |  |

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| CRP.07.01.02.b. Assess the positives and negatives of using different research strategies and methods to generate data for workplace and community decisions.                                  | Plant Disorders                      |  |
| <b>CRP.07.02. Performance Indicator: Evaluate the validity of sources and data used when considering the adoption of new technologies, practices and ideas in the workplace and community.</b> |                                      |  |
| CRP.07.02.02.b. Assimilate data to assist in making a decision about the adoption of a new technology, practice or idea by workplaces and community organizations.                             | Plant Disorders                      |  |
| <b>CRP.08.01. Performance Indicator: Apply reason and logic to evaluate workplace and community situations from multiple perspectives.</b>   |                                      |  |
| CRP.08.01.01.c. Evaluate how applying critical thinking skills can impact workplace and community situations.  | Problem Solving/Team Activity        |  |
| CRP.08.01.02.b. Assess solutions to workplace and community problems for evidence of reason, logic and consideration of multiple perspectives.   | Job Interview, Plant Disorders       |  |
| <b>CRP.08.02. Performance Indicator: Investigate, prioritize and select solutions to solve problems in the workplace and community.</b>  |                                      |  |
| CRP.08.02.01.c. Devise strategies to evaluate the effectiveness of solutions for resolving workplace and community problems.   | Problem Solving, Team Activity       |  |
| CRP.08.02.02.c. Evaluate and select solutions with greatest potential for success to solve workplace and community problems.   | Problem Solving, Team Activity       |  |
| <b>CRP.08.03. Performance Indicator: Establish plans to solve workplace and community problems and execute them with resiliency.</b>   |                                      |  |
| CRP.08.03.01.c. Evaluate the effectiveness of different problem-solving models for reaching a solution to workplace and community issues.  | Hazardous Situation, Problem Solving |  |
| CRP.08.03.02.c. Implement and evaluate plans to solve workplace and community problems.  | Hazardous Situation, Problem Solving |  |
| <b>CRP.09.01. Performance Indicator: Model characteristics of ethical and effective leaders in the workplace and community (e.g. integrity, self-awareness, self-regulation, etc.).</b>        |                                      |  |
| CRP.09.01.01.c. Evaluate ethical and effective leadership characteristics demonstrated by others.  | Job Interview, Team Activity         |  |
| CRP.09.02.01.c. Evaluate opportunities to apply personal management skills into daily tasks and responsibilities.  | Team Activity                        |  |

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| CRP.09.02.02.c. Model personal management skills and identify opportunities for continuous improvement.  | Team Activity |  |
| <b>CRP.09.03. Performance Indicator: Demonstrate behaviors that contribute to a positive morale and culture in the workplace and community (e.g., positively influencing others, effectively communicating, etc.).</b>                             |               |  |
| CRP.09.03.01.b. Analyze the relationship between demonstrating respectful and purposeful behaviors (e.g., collaborative, clear expectations, etc.) and increased influence in the workplace and community.   | Team Activity |  |
| CRP.09.03.02.b. Devise strategies for continuation and improvement of respectful and purposeful behaviors that contribute to positive morale and culture in workplace and community (e.g., recognize others' skills, promote collaboration, etc.). | Team Activity |  |
| <b>CRP.10.01. Performance Indicator: Identify career opportunities within a career cluster that match personal interests, talents, goals and preferences.</b>  |               |  |
| CRP.10.01.01.c. Plan a career path based on personal interests, goals, talents and preferences.  | Job Interview |  |
| CRP.10.01.02.c. Match potential career opportunities in career clusters with personal interests, talents, goals and preferences.   | Job Interview |  |
| <b>CRP.10.02. Performance Indicator: Examine career advancement requirements (e.g., education, certification, training, etc.) and create goals for continuous growth in a chosen career.</b>   |               |  |
| CRP.10.02.01.c. Devise and implement plans to complete the requirements for career advancement.  | Job Interview |  |
| CRP.10.02.02.b. Create goals for personal improvement and continuous growth in a career area.  | Job Interview |  |
| <b>CRP.10.03. Performance Indicator: Assimilate input and/or advice from experts (e.g., counselors, mentors, etc.) to plan career and personal goals in a chosen career area.</b>  |               |  |
| CRP.10.03.01.b. Assess career and personal goals and determine additional information career area experts could provide.   | Job Interview |  |

**CRP.10.04. Performance Indicator: Identify, prepare, update and improve the tools and skills necessary to pursue a chosen career path.**

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| CRP.10.04.01.c. Select and use appropriate tools to pursue career advancement opportunities and assimilate feedback from the process to identify improvements for the future.                        | Entire Event |  |
| CRP.10.04.02.c. Apply skills to complete common processes involved in pursuing a career and assimilate input and feedback from experts (e.g., mentors, teachers, business persons, etc.) to improve. | Entire Event |  |

**CRP.11.01. Performance Indicator: Research, select and use new technologies, tools and applications to maximize productivity in the workplace and community.**

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| CRP.11.01.01.b. Analyze advantages and disadvantages of new technologies, tools and applications to maximize productivity in the workplace and community. | Plant Disorders, Written Exam |  |
| CRP.11.01.02.b. Select, apply and use new technologies, tools and applications in workplace and community situations to maximize productivity.            | Plant Disorders, Written Exam |  |

**CRP.12.01. Performance Indicator: Contribute to team-oriented projects and builds consensus to accomplish results using cultural global competence in the workplace and community.**

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| CRP.12.01.01.c. Evaluate the effectiveness of team-oriented projects at work and in the community and make recommendations for future improvements.             | Team Activity |  |
| CRP.12.01.02.c. Devise and implement methods to obtain feedback from team members on their experiences after completing workplace and community projects.       | Team Activity |  |
| CRP.12.01.03.c. Evaluate personal level of cultural and global competence and implement plans for growth and improvement in workplace and community situations. | Team Activity |  |

**CRP.12.02. Performance Indicator: Create and implement strategies to engage team members to work toward team and organizational goals in a variety of workplace and community situations (e.g., meetings, presentations, etc.).**

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| CRP.12.02.01.c. Create novel strategies to engage team members based on the situation. | Team Activity |  |
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| CRP.12.02.02.c. Evaluate the effectiveness of strategies to engage team members in a variety of workplace and community situations.   | Team Activity                               |   |
| <b>ESS.01.01. Performance Indicator: Analyze and interpret laboratory and field samples in environmental service systems.</b>   |   |   |
| ESS.01.01.01.c. Collect and prepare sample measurements using appropriate data collection techniques.   | Growing Process and Asexual Propagation     | CCSS.ELA-LITERACY.SL.11-12.5<br>CCSS.ELA-LITERACY.RST.11-12.9<br>CCSS.MATH.CONTENT.HSN.Q.A.1<br>CCSS.MATH.CONTENT.HSN.Q.A.2<br>CCSS.MATH.CONTENT.HSN.Q.A.3<br>CCSS.MATH.CONTENT.HSS.ID.A.2<br>CCSS.MATH.CONTENT.HSS.ID.B.5<br>HS-ESS2-2   |
| <b>ESS.01.02. Performance Indicator: Properly utilize scientific instruments in environmental monitoring situations (e.g., laboratory equipment, environmental monitoring instruments, etc.).</b>   |   |   |
| ESS.01.02.02.a. Identify basic environmental monitoring instruments and explain their uses.   | Equipment ID                                |   |
| <b>ESS.04.01. Performance Indicator: Use pollution control measures to maintain a safe facility and environment.</b>  |   |   |
| ESS.04.01.03.c. Construct a plan for handling hazardous waste in given situations.  | Handling Hazardous Situations               | HS-ETS1-2   |
| <b>NRS.01.02. Performance Indicator: Classify different types of natural resources in order to enable protection, conservation, enhancement and management in a particular geographical region.</b> |   |   |
| NRS.01.02.02.b. Apply identification techniques to determine the species of an herbaceous plant.  | Plant Identification                        | AFNR Career Cluster – Natural Resources Systems Pathway, Statement 3<br>CCSS.ELA-LITERACY.RST.11-12.1<br>CCSS.ELA-LITERACY.RST.11-12.7<br>CCSS.ELA-LITERACY.RST.11-12.8<br>CCSS.ELA-LITERACY.WHST.9-10.2<br>CCSS.ELA-LITERACY.WHST.11-12.2<br>CCSS.ELA-LITERACY.WHST.9-10.7<br>CCSS.ELA-LITERACY.WHST.11-12.7<br>CCSS.ELA-LITERACY.WHST.9-10.9<br>CCSS.ELA-LITERACY.WHST.11-12.9<br>CCSS.MATH.CONTENT.HSN-Q.A.1<br>CCSS.MATH.CONTENT.HSN-Q.A.2<br>HS-ESS3-2 |
| NRS.01.02.03.b. Apply identification techniques to determine the species of wildlife or insect.   | Identifying and controlling Plant Disorders | AFNR Career Cluster – Natural Resources Systems Pathway, Statement 3<br>CCSS.ELA-LITERACY.RST.11-12.1<br>CCSS.ELA-LITERACY.RST.11-12.7<br>CCSS.ELA-LITERACY.RST.11-12.8<br>CCSS.ELA-LITERACY.WHST.9-10.2<br>CCSS.ELA-LITERACY.WHST.11-12.2<br>CCSS.ELA-LITERACY.WHST.9-10.7<br>CCSS.ELA-LITERACY.WHST.11-12.7<br>CCSS.ELA-LITERACY.WHST.9-10.9<br>CCSS.ELA-LITERACY.WHST.11-12.9<br>CCSS.MATH.CONTENT.HSN-Q.A.1<br>CCSS.MATH.CONTENT.HSN-Q.A.2              |

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|  |   | HS-ESS3-2   |
| NRS.01.02.05.a. Research and examine the characteristics used to identify non-living resources (e.g., soil types, climate, geography, etc.).   | Equipment Identification                        | AFNR Career Cluster – Natural Resources Systems Pathway, Statement 3<br>CCSS.ELA-LITERACY.RST.11-12.1<br>CCSS.ELA-LITERACY.RST.11-12.7<br>CCSS.ELA-LITERACY.RST.11-12.8<br>CCSS.ELA-LITERACY.WHST.9-10.2<br>CCSS.ELA-LITERACY.WHST.11-12.2<br>CCSS.ELA-LITERACY.WHST.9-10.7<br>CCSS.ELA-LITERACY.WHST.11-12.7<br>CCSS.ELA-LITERACY.WHST.9-10.9<br>CCSS.ELA-LITERACY.WHST.11-12.9<br>CCSS.MATH.CONTENT.HSN-Q.A.1<br>CCSS.MATH.CONTENT.HSN-Q.A.2<br>HS-ESS3-2 |
| <b>NRS.04.02. Performance Indicator: Diagnose plant and wildlife diseases and follow protocols to prevent their spread.</b>  |   |   |
| NRS.04.02.01.b. Analyze a plant disease based on its symptoms, identify if the disease needs to be reported to authorities and determine which authorities it should be reported to. | Identifying and Controlling Plant and Disorders | CCSS.ELA-LITERACY.RST.11-12.7<br>CCSS.ELA-LITERACY.RST.11-12.8<br>CCSS.ELA-LITERACY.WHST.11-12.2<br>CCSS.ELA-LITERACY.WHST.11-12.7<br>CCSS.ELA-LITERACY.WHST.11-12.8<br>CCSS.ELA-LITERACY.WHST.11-12.9<br>CCSS.MATH.CONTENT.HSN-Q.A.1<br>CCSS.MATH.CONTENT.HSN-Q.A.2<br>CCSS.MATH.CONTENT.HSN-Q.A.3<br>HS-LS2-7   |
| <b>PS.01.01. Performance Indicator: Determine the influence of environmental factors on plant growth.</b>  |   |   |
| PS.01.01.01.c. Analyze plant responses to varied light color, intensity and duration and recommend modifications to light for desired plant growth.                                  | Plant Disorder                                  |   |
| PS.01.01.02.c. Design, implement and evaluate a plan to maintain optimal air and temperature conditions for plant growth.  | Exam – Growing Practicum – Disorder             |   |
| PS.01.01.03.c. Analyze plant responses to water conditions and recommend modifications to water for desired plant growth.  | Exam – Growing Practicum – Disorder             |   |
| <b>PS.01.02. Performance Indicator: Prepare and manage growing media for use in plant systems.</b>   |   |   |
| PS.01.02.01.c. Formulate and prepare growing media for specific plants or crops.   | Exam, Growing, Mixed Combo                      |   |
| PS.01.02.02.c. Determine the hydraulic conductivity for soil and how the results influence irrigation practices.   | Exam and Growing                                |   |

**PS.01.03. Performance Indicator: Develop and implement a fertilization plan for specific plants or crops.**

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| PS.01.03.01.c. Monitor plants for signs of nutrient deficiencies and prepare a scouting report to correct elements negatively affecting plant growth in a field or greenhouse. | Exam, Disorder and Growing         | CCSS.MATH.CONTENT.HSN.Q.A.2<br>CCSS.MATH.CONTENT.HSN.Q.A.3 |
| PS.01.03.02.c. Adjust the pH of growing media for specific plants or crops.  | Exam and Disorder                  | CCSS.MATH.CONTENT.HSN.Q.A.2<br>CCSS.MATH.CONTENT.HSN.Q.A.3 |
| PS.01.03.03.c. Prescribe fertilizer applications based on the results of a laboratory analysis of soil and plant tissue samples.   | Exam, Disorder and Problem Solving | CCSS.MATH.CONTENT.HSN.Q.A.2<br>CCSS.MATH.CONTENT.HSN.Q.A.3 |
| PS.01.03.05.b. Assess production methods for their short- and long-term effects on soil.   | Exam and Disorder                  | CCSS.MATH.CONTENT.HSN.Q.A.2<br>CCSS.MATH.CONTENT.HSN.Q.A.3 |
| PS.01.03.06.c. Devise a plan to meet plant nutrient needs based on environmental factors present.  | Disorders and Exam                 | CCSS.MATH.CONTENT.HSN.Q.A.2<br>CCSS.MATH.CONTENT.HSN.Q.A.3 |

**PS.02.01. Performance Indicator: Classify plants according to taxonomic systems.**

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| PS.02.01.02.c. Identify and describe important plants to agricultural and ornamental plant systems by scientific names. | ID and Exam |  |
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**PS.02.02. Performance Indicator: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems.**

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| PS.02.02.01.b. Compare and contrast mitosis and meiosis.   | Exam                            | HS-LS1-4 |
| PS.02.02.03.c. Evaluate the function of the xylem, phloem and cambium tissues and the impact on plant systems.             | Exam                            | HS-LS1-4 |
| PS.02.02.04.c. Devise a plan for plant management practices that takes into account leaf structure and functions.          | Team activity and Crop Schedule | HS-LS1-4 |
| PS.02.02.05.c. Evaluate flower structures and analyze the impact of plant structure on plant breeding, production and use. | Exam                            | HS-LS1-4 |
| PS.02.02.06.b. Analyze and categorize the major types of seeds and fruit.  | Exam                            | HS-LS1-4 |

**PS.02.03. Performance Indicator: Apply knowledge of plant physiology and energy conversion to plant systems.**

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| PS.02.03.01.c. Evaluate the impact of photosynthesis and the factors that affect it on plant management, culture and production problems. | Disorders, Team activity/Crop Schedule, Problem Solving and Exam | HS-LS1-5 |
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| PS.02.03.02.c. Evaluate the impact of plant respiration on plant growth, crop management and post-harvest handling decisions.                   | Floral Arrangement, Team activity Exam and Problem Solving | HS-LS1-5  |
| <b>PS.03.01. Performance Indicator: Demonstrate plant propagation techniques in plant system activities.</b>                                    |  |   |
| PS.03.01.01.b. Examine and describe the process of plant pollination and/or fertilization.  | Exam   |   |
| PS.03.01.03.c. Evaluate asexual propagation practices based on productivity and efficiency.   | Growing Procedure  |   |
| <b>PS.03.02. Performance Indicator: Develop and implement a management plan for plant production.</b>   |  |   |
| PS.03.02.01.b. Inspect propagation material for evidence of pests or disease.   | Disorders, Growing Procedure                               | CCSS.ELA-Literacy.RI.9-10.1<br>CCSS.ELA-Literacy.RI.9-10.8<br>CCSS.ELA-Literacy.RST.9-10.3<br>CCSS.ELA-Literacy.WHST.9-10.2<br>CCSS.ELA-Literacy.WHST.9-10.4<br>CCSS.ELA-Literacy.WHST.9-10.9 |
| PS.03.02.02.b. Prepare soil and growing media for planting with the addition of amendments.   | Growing Procedure, Team activity                           | CCSS.ELA-Literacy.RI.9-10.1<br>CCSS.ELA-Literacy.RI.9-10.8<br>CCSS.ELA-Literacy.RST.9-10.3<br>CCSS.ELA-Literacy.WHST.9-10.2<br>CCSS.ELA-Literacy.WHST.9-10.4<br>CCSS.ELA-Literacy.WHST.9-10.9 |
| PS.03.02.05.c. Prepare plant production schedules utilizing plant growth knowledge to get plants to their optimal growth stage at a given time. | Team activity  | CCSS.ELA-Literacy.RI.9-10.1<br>CCSS.ELA-Literacy.RI.9-10.8<br>CCSS.ELA-Literacy.RST.9-10.3<br>CCSS.ELA-Literacy.WHST.9-10.2<br>CCSS.ELA-Literacy.WHST.9-10.4<br>CCSS.ELA-Literacy.WHST.9-10.9 |
| PS.03.02.06.b. Compare and contrast the types of technologies used for controlled atmosphere production.  | Exam, Equipment ID   | CCSS.ELA-Literacy.RI.9-10.1<br>CCSS.ELA-Literacy.RI.9-10.8<br>CCSS.ELA-Literacy.RST.9-10.3<br>CCSS.ELA-Literacy.WHST.9-10.2<br>CCSS.ELA-Literacy.WHST.9-10.4<br>CCSS.ELA-Literacy.WHST.9-10.9 |
| PS.03.02.07.b. Compare and contrast the types of systems used in hydroponic and aquaponic plant production.                                     | Exam, Equipment ID   | CCSS.ELA-Literacy.RI.9-10.1<br>CCSS.ELA-Literacy.RI.9-10.8<br>CCSS.ELA-Literacy.RST.9-10.3<br>CCSS.ELA-Literacy.WHST.9-10.2<br>CCSS.ELA-Literacy.WHST.9-10.4<br>CCSS.ELA-Literacy.WHST.9-10.9 |
| <b>PS.03.03. Performance Indicator: Develop and implement a plan for integrated pest management for plant production.</b>                       |  |   |
| PS.03.03.01.c. Devise solutions for plant pests, diseases and disorders.  | Exam and Disorders   |   |
| PS.03.03.02.b. Predict pest and disease problems based on environmental conditions and life cycles.   | Exam, Disorders and Problem Solving                        |   |



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| PS.03.03.04.b. Examine and apply procedures for the safe handling, use and storage of pesticides including personal protective equipment and reentry interval.  | Handling Hazardous Situations  |  |
| <b>PS.03.05. Performance Indicator: Harvest, handle and store crops according to current industry standards.</b>  |  |  |
| PS.03.05.01.b. Assess the stage of growth to determine crop maturity or marketability and demonstrate proper harvesting techniques.   | Mixed Combo  | CCSS.ELA-Literacy.RST.9-10.3<br>CCSS.ELA-Literacy.RST.9-10.4<br>CCSS.ELA-Literacy.WHST.9-10.2a   |
| PS.03.05.03.b. Research and analyze practices used to maintain a safe product through harvest, processing, storage and shipment (e.g., Food Safety Modernization Act, Good Agricultural Practices, etc.). | Team activity and Handling Hazardous Situations                            | CCSS.ELA-Literacy.RST.9-10.3<br>CCSS.ELA-Literacy.RST.9-10.4<br>CCSS.ELA-Literacy.WHST.9-10.2a   |
| PS.03.05.04.b. Analyze the proper conditions required to maintain the quality of plants and plant products held in storage and during shipping.   | Team activity  | CCSS.ELA-Literacy.RST.9-10.3<br>CCSS.ELA-Literacy.RST.9-10.4<br>CCSS.ELA-Literacy.WHST.9-10.2a   |
| PS.03.05.05.b. Demonstrate techniques for grading, handling and packaging plants and plant products for distribution.   | Team activity  | CCSS.ELA-Literacy.RST.9-10.3<br>CCSS.ELA-Literacy.RST.9-10.4<br>CCSS.ELA-Literacy.WHST.9-10.2a   |
| <b>PS.04.01. Performance Indicator: Evaluating, identifying and preparing plants to enhance an environment.</b>   |  |  |
| PS.04.01.01.c. Implement a design that uses the proper plants based on the situation and environment.   | Mixed Combo, Floral Arrangement, Team activity, Growing Procedure, Corsage |  |
| PS.04.01.02.c. Evaluate a design and provide feedback and suggestions for improvement (e.g., a floral arrangement, a landscape or a landscape plan, etc.).  | Mixed Combo, Floral Arrangement, Team activity and Corsage                 |  |
| <b>PS.04.02. Performance Indicator: Create designs using plants.</b>  |  |  |
| PS.04.02.01.c. Analyze designs to identify use of design principles and elements.   | Mixed Combo, Floral Arrangement, TA, Growing Procedure, Corsage            | AFNR Career Cluster – Natural Resources Systems Pathway, Statement 3<br>AFNR Career Cluster – Plant Systems Pathway, Statement 2<br>STEM Career Cluster, Statement 4 |
| PS.04.02.02.c. Evaluate the proper use of design tools in creating designs.   | Mixed Combo, Floral Arrangement, TA, Growing Procedure, Corsage            | AFNR Career Cluster – Natural Resources Systems Pathway, Statement 3<br>AFNR Career Cluster – Plant Systems Pathway, Statement 2<br>STEM Career Cluster, Statement 4 |