## LESSON A1–1: The Horticulture Industry

<table>
<thead>
<tr>
<th><strong>Instructional Time</strong></th>
<th>4 days</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Laboratory Time</strong></td>
<td>2 days</td>
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<tr>
<td><strong>NGSS Performance Expectations</strong></td>
<td>None applicable</td>
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<tr>
<td><strong>Common Core State Standard</strong></td>
<td>CCSS.ELA-Literacy.RI.9-10.2</td>
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</tbody>
</table>
| **National AFNR Standards** | CS.02.02.01.a  
CS.02.02.01.b |
| **Essential Question** | How does the horticulture industry impact society? |
| **Student Learning Objectives** | Instruction in this lesson should result in students achieving the following objectives:  
1. Define horticulture, and describe its relationship to science and technology.  
2. Examine pomology and its importance.  
3. Assess olericulture and its importance.  
4. Describe ornamental horticulture and its importance. |
| **ENGAGING Activities: Teacher** | *(Opening activity or interest approach—access prior learning / stimulate interest / generate questions)* |

1. Begin the lesson by having the students look through available horticulture magazines. After giving them several minutes, ask what they think horticulture is and how they think it relates to their idea of agriculture. Expect a variety of responses. Follow up the responses with the correct definition and an explanation of the relationship. Continue with the lesson.

2. Display examples of horticulture products. These could include flowering and/or foliage plants from the greenhouse, fruits, nuts, and vegetables. Have the class determine which areas of horticulture deal with these particular examples.

3. Assign the “Horticulture in Your Community” activity.

### ANSWER KEY for “Horticulture in Your Community”

Answers will vary, but here are some possible responses. It is likely that some students will fall short of 12 examples.

1. lawn-care service  
2. vegetable garden
3. perennial garden  
4. local golf course  
5. garden center  
6. nursery  
7. tree trimming company  
8. village park  
9. greenhouse  
10. landscaper  
11. florist  
12. bedding plant sales

**EXPLORING Activities: Teacher**  
*(Lesson description; materials needed / probing or clarifying questions; students think, plan, investigate, and then organize collected information; rubrics)*

1. Ask the students to come up with questions that must be answered to demonstrate understanding of the horticulture industry. List the questions provided for all to see. Lead a discussion during which the students group similar questions and prioritize the questions in terms of what ones need to be answered first. Keep this list readily available, and refer to it as the lesson proceeds.

2. Assign the reading of the corresponding E-unit.

3. Conduct the lab activity “Exploring the Horticulture Industry.”

**TEACHER NOTES for “Exploring the Horticulture Industry”**

**Helpful Hint:**

Provide time in class so the students can get started with their research under teacher supervision.

**Anticipated Findings:**

Findings will vary among the students. However, the students should provide answers to the questions in the lab activity.

**EXPLAINING Activities: Teacher**  
*(Concepts explained and vocabulary defined; students analyze their exploration)*

1. Key Terms Defined:

   - **arboretum**: a botanical collection composed exclusively of trees used in part for scientific study  
   - **botanical garden**: a collection of a wide range of plant species for exhibition and scientific study  
   - **floriculture**: the cultivation of flowers, which includes the production, distribution, and processing of flowering and foliage plants
**foliage plant**: a plant grown and used for its colorful greenery or leaves

**garden center**: a retail outlet that sells plants grown in nurseries, along with garden supplies

**greenhouse**: a structure whose walls and roof are covered with a transparent material, such as glass, and in which climatic conditions can be controlled for plant growth

**horticulture**: the science and art of growing plants for use and beauty; an important segment of the agriculture industry

**landscape horticulture**: the production and use of plants to beautify the outdoor environment

**landscaping**: the improvement of the appearance of land through the shaping of the topography, the planting of trees and other plants, and the installation of hardscape materials

**nursery**: a place that specializes in starting plants and growing them until they are ready to be transplanted to landscapes

**olericulture**: the planting, harvesting, storing, processing, and marketing of vegetable crops

**ornamental horticulture**: the growth and use of plants for their beauty

**pomology**: the planting, harvesting, storing, processing, and marketing of fruit and nut crops

**turfgrass management**: the establishment and care of a grass surface in a residential, business, sports-facility, or park setting

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2. Have the students write a research report for the lab completed.

3. Have the students deliver an oral report to the class on the results of their lab work. Encourage the use of multimedia technology.

4. Return to the list of questions the students created at the beginning of the lesson. Be sure all have been answered satisfactorily.

5. Assign the “**Horticulture Sales Diagrams**” activity.

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**ANSWER KEY for “Horticulture Sales Diagrams”**

1. What are the top five states in horticulture sales?
   - California, Florida, Oregon, Michigan, Texas

2. Where are the top 10 states in terms of horticulture sales located geographically?
   - On the perimeter of the United States, near the oceans, and near the Great Lakes

3. Why do you suppose the greatest horticulture sales are associated with those states?
   - The climate is favorable for horticulture production in those states.
   - Those states are among the most densely populated in the country or are close to densely populated states (close to markets).

4. Rank the share of horticulture sales from highest to lowest.
   - Nursery stock; bedding plants; sod, sprigs, and plugs; potted flowering plants; herbaceous perennials
5. What were the total sales in 2014?
   $10 billion

6. Which category of horticulture sales showed the greatest increase from 2009 to 2014?
   Sod, sprigs, plugs

ELABORATING Activities: Teacher

(Applications and extensions; give students the opportunity to expand and solidify their understanding of the concept and/or apply it to real-world situations)


2. Assign the “Professional Interview” activity.

ANSWER KEY for “Professional Interview”

Answers will vary. The teacher should expect the students to conduct a thorough interview and be able to articulate the responses they obtained through an oral report.

EVALUATING Activities: Teacher

(Summative assessment: scoring tools)

1. Assign the “Checking Your Knowledge” questions from the related E-unit, and grade the answers.

ANSWER KEY for “Checking Your Knowledge”

Part One: Matching

1. d
2. f
3. b
4. c
5. e
6. g
7. a

Part Two: Completion

1. nursery
2. foliage plant
3. garden center
4. botanical garden
5. arboretum
6. greenhouse
7. Landscaping

Part Three: True/False

1. F
2. F
3. T
4. F
5. T
6. F
7. T
Administer a written test to determine mastery of terms and concepts. A sample test has been provided in the “Assessing What You’ve Learned” activity.

ANSWER KEY for “Assessing What You've Learned”

1. **Give four reasons why horticulture is popular.**
   - The horticulture industry provides economic value to local communities and to the country.
   - A healthy industry creates job opportunities.
   - Horticultural practices provide high-quality food for people.
   - Horticulture offers an increase in aesthetic pleasure that supports psychological well-being.

2. **Which three states account for the greatest production of fruits and vegetables?**
   - California, Florida, and Washington

3. **What types of plants are associated with floriculture?**
   - Types of plants associated with floriculture are bedding and garden plants, foliage plants, potted flowering plants, cut flowers, and cut cultivated greens.

4. **What does landscape horticulture entail?**
   - The term *landscape horticulture* is a broad one that includes landscaping; nursery management; garden center management; educational gardens, such as arboretums and botanical gardens; and turfgrass management.

5. **To what extent do U.S. households participate in lawn and garden activities?**
   - Based on 2016 figures, 74% of U.S. households participate in lawn and garden activities.
Horticulture in Your Community

Instructions: In five minutes, list all the examples of horticultural activities and horticulture-related businesses that can be found in your community.

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
Exploring the Horticulture Industry

PURPOSE
The purpose of this activity is to explore an area within the horticulture industry.

OBJECTIVE
Research and report on an area within the horticulture industry.

MATERIALS
• device with Internet access
• lab sheet

PROCEDURE
1. Select one of the areas of horticulture from the list below.
   • arboretum / botanical garden
   • floral design
   • garden center management
   • greenhouse management
   • landscaping
   • nursery management
   • olifericulture
   • pomology
   • turfgrass management

2. Using printed and online resources, research your chosen area so you can respond to the following:
   a. Which area of horticulture did you choose, and why?
   b. Give a brief description of the area of horticulture chosen.
   c. Is this area of horticulture practiced in our community?
   d. How is this area of horticulture applied in our community?

3. Prepare an oral report on your findings to be delivered to the class.
Horticulture Sales Diagrams

Instructions: Answer the questions following each chart.

1. What are the top five states in horticulture sales?

2. Where are the top 10 states in terms of horticulture sales located geographically?

3. Why do you suppose the greatest horticulture sales are associated with those states?

Top 10 States in Total Horticulture Sales, 2014

These states account for 65% of all sales in the U.S.

- California: $2.9 Bil
- Florida: $1.8 Bil
- Oregon: $932 Mil
- Michigan: $645 Mil
- Texas: $594 Mil
- North Carolina: $571 Mil
- Ohio: $392 Mil
- Arizona: $389 Mil
- Washington: $366 Mil
- New Jersey: $356 Mil

U.S. Total = $13.8 Bil

(Courtesy, USDA National Agricultural Statistics Service)
4. Rank the share of horticulture sales from highest to lowest.

5. What were the total sales in 2014?

6. Which category of horticulture sales showed the greatest increase from 2009 to 2014?
Professional Interview

Instructions:

1. Identify a professional in the horticulture industry who works in your area.

2. Contact that person, and request an interview. To avoid overwhelming the interviewee, coordinate the interview with other students in your class, and conduct the interview as a group.

3. Find answers to the following questions and to questions of your own.
   a. What is the segment of the horticulture industry in which you work?
   b. Why is this segment of the horticulture industry important to the community?
   c. What have been the trends in this segment of the horticulture industry? Is consumer demand growing, declining, or staying about the same? Why?
   d. What factors influence the success of this area of horticulture?
   e. Are you a member of any state or national organizations related to your field? If so, what are they, and how do you benefit as a member?

4. Prepare and deliver an oral report to be given to your class.
Assessing What You’ve Learned

ESSAY QUESTIONS

Instructions: Provide a detailed explanation of the processes or principles in answering the following questions.

1. Give four reasons why horticulture is popular.
2. Which three states account for the greatest production of fruits and vegetables?
3. What types of plants are associated with floriculture?
4. What does landscape horticulture entail?
5. To what extent do U.S. households participate in lawn and garden activities?