### LESSON F4–1: The International Flower Market

<table>
<thead>
<tr>
<th>Instructional Time</th>
<th>3 days</th>
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<tbody>
<tr>
<td>Laboratory Time</td>
<td>1 day</td>
</tr>
<tr>
<td>NGSS Performance Expectations</td>
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<tr>
<td>Common Core State Standard</td>
<td>CCSS.ELA-Literacy.RST.11-12.2</td>
</tr>
<tr>
<td>National AFNR Standards</td>
<td>ABS.05.01.a, ABS.05.01.b</td>
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<tr>
<td>Essential Question</td>
<td>How does the international flower market function?</td>
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<tr>
<td>Student Learning Objectives</td>
<td>Instruction in this lesson should result in students achieving the following objectives:</td>
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<tr>
<td></td>
<td>1. Describe the scope of the international flower market in the floral industry.</td>
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<td>2. Explain international flower imports to the United States.</td>
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</tbody>
</table>

**ENGAGING Activities: Teacher**

1. Have the students go to the Internet and select a floral design that they like. The design should have at least four different flowers. Students should identify the flowers used and research where the flowers grow natively. Then, have students research which countries grow and export the selected flowers.

2. Assign the “Floriculture Industry Survey” activity. Have a variety of fresh flowers available to display.

**ANSWER KEY for “Floriculture Industry Survey”**

Answers will vary. Since this is an introductory survey, the teacher should consider the responses as a guide to understanding students’ current knowledge. Noting students’ prior knowledge can help drive focus on the unit content.
### Exploring Activities: Teacher

1. Ask the students to come up with questions that must be answered to demonstrate mastery of the international flower market. List the questions 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. Have the students design a lab to expand their understanding of the international flower market. Suggested research topics include:
   - How does floriculture impact the US economy?
   - How are flowers exported? How do they get to the consumer?
   - What are the processes and functions of international floral auctions?
   - What factors determine which floral crop should be produced?
   - Describe the floral imports and exports of a specific country.

4. Have students present their research to an appropriate audience.

5. Arrange a field trip to local wholesale or retail florists. Students should prepare questions in advance on the florists’ understanding of the international flower market.

6. Arrange for a guest speaker from the floriculture industry.

7. Organize a job shadow day for students to shadow a person in the floral industry.

8. Conduct the lab activities (1) “Floriculture Flowchart” and (2) “Florist Interview.”

### Teacher Notes for Lab Activities

#### Helpful Hints:

**Lab Activity 1**

- Preview the videos and links in the E-unit and lesson.
- Check for current USDA statistics.
- This lab is based on research.

**Lab Activity 2**

- This lab is experience based, but it is only an option in areas with a florist or nursery.
- The goal is for the student to interview a wholesaler, a local florist, or someone else involved in floriculture. This added local connection is intended to give the students a real-world experience.
Anticipated Findings:

Lab Activity 1
Results will vary, but should contain a flowchart with clear categories and connections between subcategories. The size of the chart and number of categories/subcategories is at your discretion.

Lab Activity 2
Students should provide a thorough report on their interview.

Ideas for Additions to the Lab Activities:

- Students could interview or research people with careers in each step of the floriculture chain, including a research/development professional, grower, exporter, buyer, broker, wholesaler, and retailer.
- Students could create an infographic explaining the journey of a specific flower, from origin to delivery at the interviewed florist’s store.
- If your area has no florists, students could create and administer a survey about the general public's perception of the international flower market. They could include questions concerning the general public’s knowledge of where locally purchased flowers actually come from.

Assess the completed lab reports for (1) “Floriculture Flowchart” and (2) “Florist Interview” using the “Lab Report Scoring Rubric” provided, or modify the scoring rubric for your situation. [The lab report is assigned in the next section, “Explaining.” You can find the instructions for a lab report in My Community under “How to Use the NGSS Curriculum.”]
<table>
<thead>
<tr>
<th>Possible Points</th>
<th>Sections</th>
<th>Section Score</th>
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<tbody>
<tr>
<td>2</td>
<td>Title:</td>
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<tr>
<td></td>
<td>✓ The title is concise and appropriate.</td>
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<td>8</td>
<td>Introduction:</td>
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<tr>
<td></td>
<td>✓ The research problem is defined.</td>
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<td></td>
<td>✓ The objectives and purpose of the research are clearly explained.</td>
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<td>20</td>
<td>Data or Statistics:</td>
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<tr>
<td></td>
<td>✓ The data or statistics are stated with sufficient clarity.</td>
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<tr>
<td></td>
<td>✓ All sources are cited and appropriate.</td>
<td></td>
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<tr>
<td>15</td>
<td>Findings or Results:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ Data generated from the research is well presented.</td>
<td></td>
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<tr>
<td></td>
<td>✓ Tables, graphs, or similar summary formats are used effectively.</td>
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<tr>
<td>15</td>
<td>Conclusions:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>✓ The meanings of the results are clearly explained and are supported by the data collected.</td>
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<tr>
<td></td>
<td>✓ Conclusions are clearly stated and identify trends.</td>
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<td>15</td>
<td>Experience:</td>
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<tr>
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<td>✓ Student has included their experience, interview, and/or research.</td>
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<tr>
<td>5</td>
<td>References:</td>
<td></td>
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<tr>
<td></td>
<td>✓ Citations and references adhere to the proper format.</td>
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<td>20</td>
<td>Presentation:</td>
<td></td>
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<tr>
<td></td>
<td>✓ Spelling and grammar are correct.</td>
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<td>✓ The overall appearance is attractive.</td>
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<td>✓ The report is clear and concise.</td>
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<td>✓ The report reflects thoughtful scientific inquiry.</td>
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<td>✓ Images have been included and cited.</td>
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</tbody>
</table>

| Total Score | F 0–59 | D 60–69 | C 70–79 | B 80–89 | A 90–100 |
EXPLAINING
Activities: Teacher
(Concepts explained and vocabulary defined; students analyze their exploration)

1 Key Terms Defined:
   - **broker**: a person who purchases and trades on behalf of a company
   - **export**: a good or commodity shipped from one country to another
   - **import**: a good or commodity brought into one country from another
   - **mass merchant**: a company that sells a wide variety of products to a large group of people
   - **perishable**: inclined to degrade over time
   - **retail florist**: a florist that sells directly to the consumer
   - **wholesale florist**: a florist that purchases cut flowers, cut foliage, and hard goods in bulk for resale to retail florists

2 Have the students write a report for each of the completed lab activities.

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 “Exploring the International Flower Market” activity.

ANSWER KEY for “Exploring the International Flower Market”

**PART A:**
Students will create varied infographics relating to the international flower market. Have them present their graphics and research to the class.

**PART B:**
1. The Netherlands (Holland)
2. **export**
3. The United States
4. **import**
5. **Roses**
6. The Netherlands (Holland)
7. Columbia
8. **Japan**
9. transportation
10. Aalsmeer
11. 31.3 billion
12. **energy**
13. Miami
14. **44%**
ELABORATING Activities: Teacher


2. Assign the “Floriculture Website Investigation” activity.

ANSWER KEY for “Floriculture Website Investigation”

Answers will vary. However, students should provide a detailed description of processes and information from at least five of the websites and five of the videos.

EVALUATING Activities: Teacher

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

ANSWER KEY for “Checking Your Knowledge”

<table>
<thead>
<tr>
<th>Part One: Matching</th>
<th>Part Two: Multiple Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. d</td>
<td>1. b</td>
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<tr>
<td>2. e</td>
<td>2. a</td>
</tr>
<tr>
<td>3. a</td>
<td>3. c</td>
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<tr>
<td>4. b</td>
<td>4. c</td>
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<tr>
<td>5. f</td>
<td>5. c</td>
</tr>
<tr>
<td>6. c</td>
<td>6. c</td>
</tr>
<tr>
<td>7. g</td>
<td>7. b</td>
</tr>
</tbody>
</table>

Part Three: True/False

1. T
2. T
3. F
4. T
5. T
6. T
7. F
8. T
9. F
10. T

2. 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.
1. **What happened that caused cut flower production to shift from the United States to Colombia, as well as other regions of Central and South America?**

   Over time, rising energy costs and other unfavorable economic factors caused many American growers to leave the business. As US floriculture was taking a downturn, horticulturists discovered the near-perfect climate conditions for year-round flower growth near Bogota, Colombia. The US government encouraged the growth of the Central and South American floral industry when it reduced tariffs on floral imports in the 1990s.

2. **What are the commonalities in the four rising flower-growing countries?**

   Common themes in these four rising countries are low production costs, favorable climates, large farm sizes, and increases in efficiency and quality. These countries are poorer and less industrialized than Holland, which creates issues, such as very little domestic demand, limited airfreight capacities, volatile exchange rates, and high transportation costs. There are also challenging political and social circumstances.

3. **List the steps of the broker process for flowers, from beginning to end. Use a scenario that starts on a Monday.**

   - Monday: Gladioli grown in Israel, tulips grown in Holland, and carnations from Italy are harvested and shipped to auction houses.
   - Tuesday: Brokers representing wholesale florists in the United States inspect and buy flowers at early-morning auctions. Once purchased, the flowers are quickly packed and shipped (usually by air) to the United States. The flowers arrive later that same day and are trucked to the wholesale house.
   - Wednesday: The wholesaler sells to retail florists, garden centers, grocers, and mass merchants.
   - Thursday: The wholesalers repackage and deliver the product to retailers.

4. **What has made the growth of the international trade of cut flowers possible?**

   The growth of trade comes from the growth of transportation systems.

5. **Why are cut-flower imports checked by CBP agricultural specialists?**

   CBP agricultural specialists inspect all imports for pests and diseases at US air and border ports. Pests and diseases carried by cut flowers are a concern, because of their ability to spread into American crops.
Floriculture Industry Survey

Instructions: To the best of your ability answer the following questions.

1. Have you ever received flowers? If so, how did you feel when you received them? If not, how do you imagine you would feel?

2. Have you ever given flowers? How did you feel when they were received?

3. What countries do you think produce flowers for sale or export?

4. Which countries do you think produced the flowers on display?

5. Have you ever visited a retail florist? What types of flowers did you see?
Floriculture Flowchart

PURPOSE

The purpose of this activity is to learn about the many parts of the floriculture industry.

OBJECTIVE

Create a flowchart of floriculture categories after online research.

MATERIALS

- device with Internet access
- paper
- pen or pencil

PROCEDURE

1. Individually, brainstorm what you know about the floriculture industry. Write down your thoughts. Consider what the industry is, whom it involves, why it exists, etc.

2. Share your thoughts with your lab partner, compare your lists, and merge list items.

3. Conduct Internet research about the industry. Research the items on your merged list, and add more items as you find them. Start with these websites:
   - https://cutflowers.ces.ncsu.edu/welcome/brief-history-of-specialty-cut-flower-production/
   - https://www.agmrc.org/commodities-products/specialty-crops/floriculture
   - https://collegegrad.com/careers/floral-designers
   - http://unionfleurs.org/industry/

4. With your lab partner, use your final list to create a flowchart. Include key parts of the floriculture industry and their subcategories. Be sure to use arrows to show connections between categories.
Florist Interview

PURPOSE

The purpose of this activity to gain a better understanding of the floral industry.

OBJECTIVE

Interview a person in the floral industry.

MATERIALS

- device(s) with Internet access, camera, and recording capabilities
- notebook (or paper)
- pen or pencil

PROCEDURE

1. Identify and locate a local representative of the floriculture industry. They could work for a greenhouse, wholesaler, retailer, or marketing firm.

2. Politely arrange for a time and location to meet for a brief interview.

3. Create a set of appropriate questions. Consider asking about their job responsibilities, working environment, and the floral industry. Include information about international markets. If they are a wholesaler or retailer, find out where their different flowers come from (countries, auction houses, etc.).

4. Conduct the interview. Record their responses with audio or video equipment (hand-held, phone, or camera). During the interview, draw connections between what you have learned in this lesson and what the interviewee is sharing.

5. After or during the interview, ask if you can take pictures of flowers (or floral-related items).

6. Using the pictures, recording, and notes you have gathered, create a presentation for the class.
Exploring the International Flower Market

PART A:


2. Examine the data points and graphics on the map.

3. With your lab partner, select a data topic to explore further.

4. Research online for more current and/or additional data. Remember, the information on the map you downloaded is from a private company in 2015. See if you find information that agrees with or disputes these findings. Make sure any numbers you find are the most current available.

5. Create an infographic to present your findings. This can be a collage of information, a graph, a pie chart, a flowchart, or other images.

6. Present your infographic and research to your classmates.

PART B:

Fill in the blanks for the following statements. Answers can be found online or in your E-unit.

1. _________________ is the world’s leading exporter of cut flowers.

2. A/An _________________ is a good or commodity shipped from one country to another.

3. _________________ is the top importer of cut flowers.

4. A/An _________________ is a good or commodity brought into a country from another country.

5. _________________ are the most sold flowers in the United States.

6. _________________ is the main supplier of cut flowers in Europe, especially to Germany, Switzerland, France, and the United Kingdom.

7. _________________ stands out as the primary supplier of roses to the United States.
8. _________________________ is the primary center of Asia’s flower market.

9. Today’s _________________________ systems have expanded the international distribution of flowers.

10. The auction in _________________________, Holland, is the primary international outlet for cut flowers.


12. In the 1970s, the majority of flower production shifted from US growers to South and Central American growers, because of rising _________________________ costs and other economic factors.

13. Most of the cut flowers entering the United States pass through _________________________ International Airport.

14. As of 2016, the Dutch share of the cut-flower market in exports was _________________________.
Floriculture Website Investigation

1. Look at the “Companies and Organizations” list. Select five companies/organizations to review. Then, look at the “Specific Videos” list, and select five.
2. Take notes while reading floricultural articles and watching YouTube videos.
3. Pair up with a partner and share your discoveries.
4. Create a format to present your findings.
5. Share your findings with your classmates.

**Companies and Organizations:**

Skyline Flowers
- Website: [http://www.skylineflowers.com/](http://www.skylineflowers.com/)
- YouTube: [https://www.youtube.com/user/SkylineFlowers](https://www.youtube.com/user/SkylineFlowers)

California Cut Flower Commission (CCFC)
- Website: [https://ccfc.org/industry/](https://ccfc.org/industry/)
- YouTube: [https://www.youtube.com/user/CutFlowerCommission](https://www.youtube.com/user/CutFlowerCommission)

Florsani Floricola
- Website: [http://florsani.com/about-us/](http://florsani.com/about-us/)
- YouTube: [https://www.youtube.com/channel/UCozpQVIRbvES7qMVaz6LIXQ](https://www.youtube.com/channel/UCozpQVIRbvES7qMVaz6LIXQ)

Royal FloraHolland
- Website: [https://www.royalfloraholland.com/en](https://www.royalfloraholland.com/en)
- YouTube: [https://www.youtube.com/channel/UCz0jyRiDEe2aXWLP8GyDMZw](https://www.youtube.com/channel/UCz0jyRiDEe2aXWLP8GyDMZw)

New Covent Garden Market
- Website: [https://www.newcoventgardenmarket.com/](https://www.newcoventgardenmarket.com/)
- YouTube: [https://www.youtube.com/user/NewCoventGardenMrkt](https://www.youtube.com/user/NewCoventGardenMrkt)
The Associated Press (AP) Archive (Flower Market Search)

- Website: http://www.aparchive.com/search?startd=&endd=&allFilters=&query=flower+market&advsearchStartDateFilter=&advsearchEndDateFilter=&searchFilterHdSDFormat=All&searchFilterDigitized=All&searchFiltercolorFormat=All&searchFilteraspectratioFormat=All
- YouTube: https://www.youtube.com/results?search_query=AP+archive+flower+market

Kennicott Brothers Company

- Website: https://www.kennicott.com/
- YouTube: https://www.youtube.com/user/kennicottbrothers/featured

Mayesh Wholesale Florist, Inc.

- Website: https://www.mayesh.com/
- YouTube: https://www.youtube.com/user/MayeshWholesale

Russ Wholesale Flowers

- Website: http://russwholesaleflowers.com/
- YouTube: https://www.youtube.com/user/russonflowers

Globalrose

- Website: https://globalrose.com/
- YouTube: https://www.youtube.com/user/GlobalRoses

Equiflor (Rio Roses)

- Website: https://www.rioroses.com/
- YouTube: https://www.youtube.com/user/RioRoses

Specific Videos:

Specialty Cut Flower Growers, “Local Flowers, Local Farmers: A Growing Movement”
  - https://www.youtube.com/watch?v=PEXs9UUqqq

The Story Exchange, “From Flower Farm to Blossoming Business”
  - https://www.youtube.com/watch?v=MrqpAYUMN1Q

Virginia Farm Bureau, “Cut Flower Farming”
  - https://youtu.be/GWiiQEE25QI

Floret Flower Farm, “A Day in the Life at Floret Flower Farm”
  - https://youtu.be/9Zm3reeR0PU
“Can You Make a Living As a Farmers Market Vendor?”
  • [https://www.youtube.com/watch?v=fcCWYYqN4fw](https://www.youtube.com/watch?v=fcCWYYqN4fw)

BBC, “The World’s Biggest Flower Market”
  • [https://www.youtube.com/watch?v=GDQHzXxk03U](https://www.youtube.com/watch?v=GDQHzXxk03U)

“Aalsmeer Flower Market, Holland”
  • [https://www.youtube.com/watch?v=sljWMuKwa0](https://www.youtube.com/watch?v=sljWMuKwa0)

Bulbs4Kids, “Dutch Flowerbulbs Documentary”
  • [https://www.youtube.com/watch?v=8ngKpn7x5Wo](https://www.youtube.com/watch?v=8ngKpn7x5Wo)

Iskam Da Letya, “Aalsmeer Royal Holland Flower Auction by Iskamdaletya”
  • [https://www.youtube.com/watch?v=qtGgxhzgYTtw](https://www.youtube.com/watch?v=qtGgxhzgYTtw)

Jose Azout, “Cutting, Grading, Bunching, and Packing Garden Roses”
  • [https://www.youtube.com/watch?v=o2nTTm_2csw](https://www.youtube.com/watch?v=o2nTTm_2csw)

The Quint, “The Dounan: Asia’s Biggest Wholesale Flower Market”
  • [https://www.youtube.com/watch?v=T3tEZWZwO7U](https://www.youtube.com/watch?v=T3tEZWZwO7U)

J Schwanke, “J tours the Vancouver Flower Auction, with Marcy Emery from Florist Supply Ltd!”
  • [https://www.youtube.com/watch?v=qCeEiQmbeP4](https://www.youtube.com/watch?v=qCeEiQmbeP4)

Center for Growing Talent by PMA, “How the Floral Supply Chain Works Together”
  • [https://www.youtube.com/watch?v=o7E1vsFkkls](https://www.youtube.com/watch?v=o7E1vsFkkls)

ISRAEL Agriculture Technology, “Cut Flower Production Industry: Tulips, Rose, Lily, Anthurium”
  • [https://www.youtube.com/watch?v=u0dO4wiR_O8](https://www.youtube.com/watch?v=u0dO4wiR_O8)

CNN, “Colombia’s Flower Industry Blossoming”
  • [https://www.youtube.com/watch?v=X43U6trzjDE](https://www.youtube.com/watch?v=X43U6trzjDE)

National Geographic, “Do You Know Where Your Roses Come From?”
  • [https://www.youtube.com/watch?v=wyf4HsxvZAM](https://www.youtube.com/watch?v=wyf4HsxvZAM)

National Geographic, “See How Valentine’s Day Roses Make It From Ecuador to You”
  • [https://www.youtube.com/watch?v=_eu3k8u0h2A](https://www.youtube.com/watch?v=_eu3k8u0h2A)

Travelocity, “Making Silletas for the Medellin Flower Fair”
  • [https://www.youtube.com/watch?v=o-ZHPTp6kn8](https://www.youtube.com/watch?v=o-ZHPTp6kn8)
Univision Noticias, “Follow the Flower: What It Takes to Import Flowers for Valentine’s Day”
  • https://www.youtube.com/watch?v=Ali--oaCz9E

CGTN America, “Ecuador’s Flower Exports Keep Its Economy Blooming”
  • https://www.youtube.com/watch?v=YXJFiPsklvq

  • https://www.youtube.com/watch?v=kZlZtbyCZz4

“Ecuador Roses 2014”
  • https://www.youtube.com/watch?v=l7y7a5JyUKs
Assessing What You’ve Learned

ESSAY QUESTIONS

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

1. What happened that caused cut flower production to shift from the United States to Colombia, as well as other regions of Central and South America?

2. What are the commonalities in the four rising flower-growing countries?

3. List the steps of the broker process for flowers, from beginning to end. Use a scenario that starts on a Monday.

4. What has made the growth of the international trade of cut flowers possible?

5. Why are cut-flower imports checked by CBP agricultural specialists?