



Lesson Plan

3 of 8

Pre-Production

Created: 02/2020 by the National FFA Organization

Description: Valent USA is a leader in sustainable solutions for a changing world, and maintaining the ability to continue feeding the growing population requires sustainability. Through this lesson series, students will have the opportunity to learn about the importance of sustainability throughout the Agriculture, Food and Natural Resources Value Chain.

STUDENT LEARNING OBJECTIVES:

After completing these activities, students will ...

1. Analyze results from their consumer research surveys (from Lesson 2).
2. Develop a new food product based on results from the consumer research survey.
3. Determine source(s) of the products for the new food product.

TIME REQUIRED: 90 minutes

RESOURCES:

1. Valent USA, <https://www.valentsustainablesolutions.com/>
2. Infographic templates, available free online in a variety of formats
3. Food Science and Technology CDE — Ingredient Costs and Nutrition, <https://FFA.app.box.com/s/4getspt1bphbl7th35gnyklmjmkvplo>
4. Video: "Here's How Drastically Cell Phones Have Changed Over the Past 40 Years," <https://www.businessinsider.com/cell-phone-history-cars-mobile-motorola-apple-bell-labs-samsung-google-2017-7>

EQUIPMENT AND SUPPLIES NEEDED:

1. A copy of the "Everything Changes" worksheet for each student
2. A variety of food add-ins for trail mix development (Examples: dried fruits, nuts, coconut, chocolate candies, etc.)
3. Internet access for students to review the Valent Sustainable Solutions website
4. A copy of the "Trail Mix Challenge: Product Development" worksheet for each student

THIS QUICK LESSON PLAN WOULD WORK WELL:

1. For analyzing results for product development in agricultural business.
2. As a lesson in determining where food comes from at a local, state, national and global level.

THESE ACTIVITIES ARE ALIGNED TO THE FOLLOWING STANDARDS:

AFNR Performance Element

- CS.06: Analyze the interaction among AFNR systems in the production, processing and management of food, fiber and fuel and the sustainable use of natural resources.

FFA Precept

- FFA.PL-A.Action: Assume responsibility and take the necessary steps to achieve the desired results, no matter what the goal or task at hand.
- FFA.PL-C.Vision: Visualize the future and how to get there.
- FFA.PL-E.Awareness: Understand personal vision, mission and goals.
- FFA.PG-I.Professional Growth: Assume responsibility for attaining and improving upon the skills needed for career success.
- FFA.PG-J.Mental Growth: Embrace cognitive and intellectual development relative to reasoning, thinking and coping.
- FFA.CS-M.Communication: Effectively interact with others in personal and professional settings.
- FFA.CS-N.Decision Making: Analyze a situation and execute an appropriate course of action.

Common Career Technical Core

- AG6: Analyze the interaction among AFNR systems in the production, processing, and management of food, fiber, and fuel and the sustainable use of natural resources.

Common Core – Reading: Informational Text

- CCSS.ELA-Literacy.RI.9-10.2: Determine a central idea of a text and analyze its development over the course of the

text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.

- CCSS.ELA-Literacy.RI.9-10.3: Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.
- CCSS.ELA-Literacy.RI.9-10.4: Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).
- CCSS.ELA-Literacy.RI.9-10.8: Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.

Common Core – Speaking and Listening

- CCSS.ELA-Literacy.SL.9-10.2: Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.
- CCSS.ELA-Literacy.SL.9-10.4: Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.

Common Core – Science & Technical Subjects

- CCSS.ELA-Literacy.RST.9.10.9: By the end of grade 10, read and comprehend science/technical texts in the grades 9-10 text complexity band independently and proficiently.

Common Core – Literacy in Science & Technical Subjects: Writing

- CCSS.ELA-Literacy.WHST.9.10.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Common Core – Math Practices

- CCSS.MP1: Make sense of problems and persevere in solving them.
- CCSS.MP3: Construct viable arguments and critique the reasoning of others.
- CCSS.MP5: Use appropriate tools strategically.
- CCSS.MP6: Attend to precision.

Green/Sustainability Knowledge and Skill Statements

- AFNR Career Cluster, Statement 7: Demonstrate an understanding of green and sustainability trends that are impacting processes and markets in AFNR.

AFNR Career Ready Practices

- CRP.02: Apply appropriate academic and technical skills. Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive.
- CRP.04: Communicate clearly, effectively, and with reason. Career-ready individuals communicate thoughts, ideas and action plans with clarity, whether using written, verbal and/or visual methods.
- CRP.05: Consider the environmental, social and economic impact of decisions. Career-ready individuals understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organizations and the environment.
- CRP.06: Demonstrate creativity and innovation. Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization.
- CRP.07: Employ valid and reliable research strategies. Career-ready individuals are discerning in accepting and using new information to make decisions, change practices or inform strategies.
- CRP.08: Utilize critical thinking to make sense of problems and persevere in solving them. Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem.

Partnership for 21st Century Skills

- Communication
- Critical Thinking and Problem Solving
- Flexibility and Adaptability
- Initiative and Self-Direction
- Leadership and Responsibility
- Think Creatively

LESSON PLAN:

1. *Bell Ringer:* (10 minutes) **Everything Changes**

- a. Give each student a copy of the “Everything Changes” handout. The instructor may also display the pictures from the handout on the board. Give students some time to review the pictures and watch the video “Here’s How Drastically Cell Phones Have Changed Over the Past 40 Years” (<https://www.businessinsider.com/cell-phone-history-cars-mobile-motorola-apple-bell-labs-samsung-google-2017-7>). Then lead a class discussion. Ask students to describe the differences they see in the appearance and functionality of the cell phones, and ask them to consider why the look and function of the devices have changed over time.
- b. After the class discussion, give students a few minutes to respond to the questions on the handout.

2. **Introduction:** (20 minutes)
 - a. During the last lesson, students learned about the process of product research and development. In this lesson's bell ringer activity, they consider how the function and look of a product changes over time based on innovation and consumer demand. In order for a company to continue to be successful, the company must innovate and develop products that are continually meeting the needs of the consumer.
 - b. In partners or small teams, have students visit the Valent Sustainable Solutions website found at <http://www.valentsustainablesolutions.com/>. Students should spend 10 minutes reviewing the website and looking for evidence of how Valent uses innovation and consumer demand to develop new sustainable products. Students should write down any thoughts on the back of the "Everything Changes" handout or on a scrap piece of paper.
 - c. Write each of the following questions on its own individual tear sheet (flip chart paper) and hang them around the classroom: (1) How does Valent use innovation to develop more sustainable products? (2) How does Valent use consumer demand to develop new sustainable products? and (3) Why is it important to be innovative in product development? Have students take a marker and move slowly throughout the room, leaving responses on each of the sheets. Once students have commented, they should return to the tear sheets to read what others have said and then share more thoughts on the paper. When students have finished, bring the questions to the front of the classroom and debrief what was shared.
 - d. Explain to students that just as companies respond to consumer demand, today they will analyze the results of their consumer surveys to determine what the needs of their customers are related to trail mix and they will be challenged to begin developing a new and innovative trail mix.
3. **Activity 1:** (30 minutes) **Trail Mix Consumer Research Analysis**
 - a. Students will need to have the completed surveys from the previous lesson.
 - b. Students are to analyze the surveys and identify common themes. Example: What are two items consumers most enjoy in their trail mix? What are two items consumers never want in their trail mix? What problems/challenges do consumers have with the current trail mix options available?
 - c. Based on the results of the survey analysis, students will brainstorm and develop a new trail mix product.
4. **Activity 2:** (30 minutes) **Try It Out**
 - a. Based on the results of the survey analysis, students will brainstorm and develop a new trail mix product. Give each student a copy of the "Trail Mix Challenge: Product Development" worksheet.
 - b. The instructor should have a variety of food add-ins available for students to select from (coconut flakes, a variety of nuts, chocolate candies, a variety of dried fruits, etc.).
 - c. Using the recipe students developed for a new trail mix product, they will now create a test version of their trail-mix.
 - d. Once students have created a test version of their trail mix, they will research where the components of their trail mix are sourced from across the globe and identify if they can be sustainably produced. Students will use the map to identify the location of origin for the product and then identify how the product is sustainably produced.
 - i. The teacher will set a minimum number of ingredients that students must research.
5. **Follow-up:** Have students develop and deliver a two-minute "elevator speech" to describe the results of their surveys and how they are going to use those results to develop their products.
6. **Leveling Up:**
 - a. Students will create an infographic of their survey results. Examples of free infographic makers are Piktochart, <https://piktochart.com/formats/infographics/>, and Canva, <https://www.canva.com/create/infographics/>. Please note that these two resources do require students to set up a free account.
 - b. Students will determine the costs to produce their new food products and create a nutrition label. The teacher may utilize resources from the food science and technology career development event (CDE) found at <https://FFA.app.box.com/s/4qetspt1bphbl7th35gnyklmjmkvplo>.
7. **Exit Ticket:** Students will turn in their trail mix recipes as their exit tickets for the day.

NAME: _____

Everything Changes

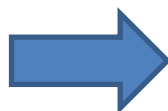
DIRECTIONS:

Watch the video "Here's How Drastically Cell Phones Have Changed Over the Past 40 Years,"

<https://www.businessinsider.com/cell-phone-history-cars-mobile-motorola-apple-bell-labs-samsung-google-2017-7>. Review the following pictures and consider the changes in a cell phone over time.



Identify what has changed among the four phones pictured above and what has remained the same.



Explain why the phone has changed over time.

You have been asked to respond to a consumer survey regarding modern cell phones. What improvements to the device and/or the technology would you recommend?

As a product developer, how will you utilize consumer survey results to improve a product?

Trail Mix Challenge: Product Development

DIRECTIONS:

Based on the consumer research you have completed, create a trail mix using the ingredients your instructor has made available. As you develop this new trail mix product, keep track of the amount and kind of ingredients you use. The new trail mix is to weigh no more than one pound.

My Trail Mix Recipe:

AMOUNT	INGREDIENT

Explain how this recipe reflects the results from your consumer research survey.

Now that you have created your recipe, determine where the components for your trail mix come from. Using the map, place a star on the country or part of the United States the product is sourced from. By the star, include the product name (example: almond) and why the product is considered sustainably produced.

Map of the World Showing Major Countries



Why is it important to know where and how different food products are produced?

Describe how the origin of products affects pricing.

Key: Everything Changes

DIRECTIONS:

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Identify what has changed among the four phones pictured above and what has remained the same.

Answers will vary.

Explain why the phone has changed over time.

Answers will vary.

You have been asked to respond to a consumer survey regarding modern cell phones. What improvements to the device and/or the technology would you recommend?

Answers will vary.

As a product developer, how will you utilize consumer survey results to improve a product?

Answers will vary.