

Curriculum development was supported by the USDA National Institute of Food and Agriculture.	 Kansas Foundation for AGRICULTURE IN THE CLASSROOM	<u>Curriculum Development Team</u> Chelsea McCall Emily Duello Katie Hutchison Celsey Crabtree
--	---	--

Course:	Biology 9-12	Unit:	Vertical Gardening - Agriculture Careers
Lesson Title:	Introduction to Product Marketing: How to develop your “brand”		
Estimated Time:	6 class periods of 40 minutes		

Objectives:

- 1) Describe the role of each member of a marketing team
- 2) Collaborate with team members to create a marketing presentation

Equipment Needed:

Projector or device to access and show [Lesson 7 slide](#) and [Shark Tank Video](#)

Supplies Needed:

Paper copies of [Food Science Lab Reflection](#) (1 per student)
Paper or device for students to do essential question
Paper copies of the [Marketing Team Project description](#) (1 per student or group)

Accessibility Options

Students can access information visually through online videos with subtitles and auto-translations. Utilize Speech-to-Text and text-to-speech [add-ons](#) for reading/listening/writing support (Updated 7/17/23)

For more suggestions, please visit:

<https://www.washington.edu/doit/equal-access-science-and-students-sensory-impairment>

Instructor Directions & Estimated Time	Procedures
Day 1 40 minute period	Reflect on the food science lab and start to “market” a product.
Day 2 40 minute period	Research and create a presentation for the project.

Day 3 40 minute period	Continue to develop presentation
Day 4 40 minute period	Present Project

No.	9-12 Next Generation Science Standards		
HS-ETS1-4	Engineering Design: Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.		
	Disciplinary Core Ideas	Science and Engineering Practices	Cross-Cutting Concepts
	ETS1.B Developing Possible Solutions	Developing and Using Models	Stability and change

No.	9-12 National Agriculture Literacy Outcomes
T5. 9-12 d,e,&h	<p>d. Describe essential agricultural careers related to production, consumption, and regulation</p> <p>e. Discuss how agricultural practices have increased agricultural productivity and have impacted (pro and con) the development of the global economy, population, and sustainability</p> <p>h. Explain how comparative and absolute advantage in agriculture impacts supply and demand in relation to trade</p>

Vocabulary	
Overhead Costs	the ongoing business expenses not directly attributed to creating a product or service
Fixed Costs	the cost of a business expense that doesn't change even with an increase or decrease in the number of goods and services produced or sold
Variable Costs	a corporate expense that changes in proportion to how much a company produces or sells. Variable costs increase or decrease depending on a company's production or sales volume—they rise as production increases and fall as production decreases.

Marginal Costs	the change in total production cost that comes from making or producing one additional unit
Profit Margin	The degree to which a company or a business activity makes money. It represents what percentage of sales has turned into profits.

Careers Mentioned	
Business Manager	Responsible for overseeing business operations across departments.
Project Manager	Responsible for planning and overseeing projects to ensure they are completed in a timely fashion and within budget.

Day 1

Essential Question: How does the food industry successfully market its products? ([See Lesson 7 slides](#))

Discuss in small groups: What did we learn from our food science lab? **Pass out a Food Science Lab Reflection** to each student. Give them 3 minutes to record their answers, 2 minutes to discuss in small groups, and 3 minutes as a whole class to share answers.

Click here for the [Google Doc version](#)

Food Science Lab Reflection

What we learned/observed	What went well	What we would do differently

Tell students: “Now that we have created our products, we need to collect data to determine whom we should market our product to. You will work in marketing teams to perform market research, analyze data, and create an advertisement to “sell” your product.”

Each team will consist of:

- 1) Project Manager- Gathers and organizes materials, sets/adjusts deadlines, and helps team members reach their goals
- 2) Finance Officer- Determines the costs of components/ingredients and decides what to charge in order to make a profit
- 3) Public Relations Officer- Creates marketing materials and works with team to design product packaging
- 4) Food Scientist- researches and describes the quality of ingredients and explains why they were chosen

To get an idea of what it looks like to pitch your brand, watch the first 5 minutes of this clip from Shark Tank:

Shark Tank US | Uprising Food Drives Mark Nuts

<https://www.youtube.com/watch?v=0qJ0Imx4HYA>

As you watch, record your observations about the following:

- 1) What products are they selling?
- 2) Who is their target audience?
- 3) What ingredients did they use and why?
- 4) What challenges do they face as they try to sell their product?
- 5) If you could change something about their product or their marketing strategy, what would you change and why?

Discuss the Shark Tank Video as a class (5 minutes)

In groups, students first will list their strengths/skills. (See example skills inventory at

<https://sl.d.umn.edu/skills-inventory/index.php>

After students share their skills, they should each choose 1 or 2 jobs they think they are best suited for and explain how they could help their team be successful (15 minutes)

Preview the [Marketing Team Project description](#) with the class. They should discuss what their goal grade will be based on the project rubric.

Days 2 & 3

Essential question: How can we work as a team to develop our brand?

1) Give students time to work on their individual project components. The Project Manager will help each team member set a goal for the day. You may want to hold small group informational sessions based on each student's job. For example, the finance officers and food scientists may need instruction on how to use online unit converters.

2) Each group should receive an electronic copy of the [Marketing Team Project description](#). It contains links to helpful resources.

3) At the end of each class period, have students complete an **exit slip**: 1) What did you do well today? 2) What was difficult or challenging? 3) What are your next steps? 4) What questions or concerns do you have?

Day 4

Students practice presentations and receive class feedback. Use this [Food Product Presentation Listening Chart](#) to help students listen carefully to each group's presentation and critique them.

Day 5

Students will spend a day making their chosen food product from the recipe chosen in Lesson 6.

Day 6

Students will present their food product and Food Product Presentation to a panel. The panel may consist of students, other teachers, administrators, or community members. The panelists will then give the students feedback on the quality of their product and presentation.

Main topics teachers should know:

Overhead cost refers to the ongoing expenses required to run a business that aren't tied directly to the production of specific products. In the food industry, overhead costs might include rent for facilities, utilities, administrative expenses, and other general operating costs. These expenses do not fluctuate because they are essential expenses and are not based on the number of items sold. Fixed costs are expenses that remain the same no matter the production volume. The fixed cost could be the monthly salary for staff and stays the same if you sell 10 items or 1000 items. This impacts the pricing and profit, especially if sales are lower. Variable costs change depending on the quality of goods produced. This can include ingredients, packaging, or direct labor costs that increase as more products are made. Managing these costs efficiently can keep production costs low and profit margins higher. Marginal costs are the expenses of producing one additional unit of a product which includes supplies it takes to make the product and package it. Knowing the marginal costs helps a business determine if it is profitable to increase production and can impact pricing strategies. Profit margin is the percent of revenue left after all of the costs are subtracted. This shows how much profit your business makes on each sale. Achieving a good profit margin is essential for staying competitive while being affordable for customers.

The goal of creating a good brand for a business is to create a memorable brand that attracts customers. This includes appealing packaging, strategic pricing, and advertising the product. It is important to market the product to the targeted audience and communicate with them what makes the product unique and better than the competition. Effective marketing highlights the health benefits, taste, convenience, or sustainability to align with customer values.

Business Managers and Project Managers are essential for effectively managing costs and building a strong brand in the food industry. Business Managers oversee operations, ensuring that overhead, fixed, variable, and marginal costs are controlled to maximize profit margins. They analyze financial data to develop pricing strategies and allocate resources efficiently, keeping the business competitive. Project Managers play a key role in executing specific initiatives, such as launching a new product line or rebranding. They coordinate teams to manage budgets, timelines, and marketing campaigns, ensuring that packaging, advertising, and promotions align with the target audience. Together, these professionals ensure a balance between financial sustainability and customer satisfaction, driving business growth and brand success.

- <https://blog.hubspot.com/marketing/what-is-marketing#:~:text=Marketing%20is%20the%20process%20of.methods%2C%20sales%2C%20and%20advertising.>
- <https://www.khanacademy.org/economics-finance-domain/ap-microeconomics/production-cost-and-the-perfect-competition-model-temporary/short-run-production-costs/v/fixed-variable-and-marginal-cost>
- <https://www.investopedia.com/ask/answers/041615/how-do-fixed-and-variable-costs-each-affect-marginal-cost-production.asp>
- <https://grasshopper.com/academy/creating-a-business-idea/pitching-your-idea/>

Suggestions for instruction:

When choosing groups, pairing students together that you know will work well together for the product marketing project is suggested. A panel of other teachers and administrators on the final day is a great way to give students valuable feedback on the quality of their work. Make sure the students choose recipes that can be made and served the following day without spoiling. Have containers or storage bags available to store their food products overnight. Place food products in a refrigerator if required. When students are preparing to present their food product to the panel, ask them to reflect on how the presentation of their food product may affect the perception of the food product. Students may consider creating their own packaging or plating their product in a way that makes the product more desirable. For example, one group made crepes, and when they presented their product to the panel, they rolled their crepes and dusted them with powdered sugar when plated. Panelists were given the opportunity to taste test the product in addition to watching student presentations. Plan to have disposable utensils and plates for food product testing day unless you have access to a kitchen for washing used plates and silverware.

Economic Impact of Kansas Agriculture on Kansas Economy

Agriculture is the largest economic driver in Kansas, with a total contribution of \$76 billion to the Kansas economy. The agriculture sector in Kansas supports more than 256,000 jobs through direct, indirect, and induced effect careers or about 14% percent of the entire workforce in the state.

In Kansas, there are 45,759,319 acres of farmland, which accounts for 87.5 percent of all Kansas land. More than 21 million acres in Kansas are harvested for crops and over 14 million are pastureland for grazing animals. Agriculture in Kansas is not just about growing crops and raising animals. The Kansas agricultural sector includes renewable energy production, food processing, research and education, agribusiness, and more.



www.agclassroom.org/ks

Kansas is part of the animal health corridor. Between Columbia, Missouri, and Manhattan, Kansas sits on the single largest concentration of animal health interests in the world.

For more information visit:

A Look at Kansas Agriculture (2023)

<https://cdn.agclassroom.org/nat/data/stats/all.pdf>

Careers:

Business Manager:

Description: A business manager is responsible for overseeing business operations across departments. Their duties include hiring new staff, conducting office meetings, and coming up with proactive strategies to improve productivity and employee morale. A manager may have the following responsibilities: supervise clerical staff and other employees, design work schedules and organize employee training, resolve employee and client issues, ensure the work facility is safe, free of security issues, and in compliance with all government regulations, work with outside vendors to maintain necessary business supplies, maintain a good working relationship with executives and other managers, and design and implement procedures to improve profitability.

Education: A bachelor's degree in business or a related field is usually a requirement to work as a Business Manager. An MBA may be required for candidates wishing to work at a higher level. A job seeker with a high school diploma may be considered if they have significant work experience or special certifications. Some businesses may require a Certified Facilities Management (CFM) certification. Certifications in records management may also be helpful.

Salary: The average Business Manager salary in the United States is \$79,883 as of February 2025, but the salary range typically falls between \$64,481 and \$95,575. The actual salary for a qualified employee may vary from this average depending on their educational background, years of business experience, special certifications, and unique skills.

Links: <https://www.indeed.com/hire/job-description/business-manager>
<https://www.salary.com/research/salary/listing/business-manager-salary>



Project Manager

Description: Project managers are responsible for planning and overseeing projects to ensure they are completed in a timely fashion and within budget. Project managers plan and designate project resources, prepare budgets, monitor progress, and keep stakeholders informed the entire way. This is all done within the confines of a company's goals and vision. Project managers are needed on a wide variety of projects, including construction, IT, HR, and marketing. Job responsibilities for a project manager may include: determining and defining project scope and objectives, predicting resources needed to reach objectives and managing resources effectively and efficiently, preparing a budget based on the scope of work and resource requirements, tracking project costs to meet budget, develop and manage a detailed project schedule and work plan, provide project updates consistently to various stakeholders about strategy, adjustments, and progress, manage contracts with vendors and suppliers by assigning tasks and communicating expected deliverables, utilize industry best practices, techniques, and standards throughout entire project execution, and monitor progress and make adjustments as needed.

Education: Unlike many professional positions, there is no specific degree required to be a project manager. However, most hiring managers require or prefer that a candidate hold a bachelor's degree and/or Project Management Professional (PMP) certification.

Salary: The average Project Manager I salary is \$66,654 as of July 25, 2023, but the range typically falls between \$59,290 and \$75,394. Salary ranges can vary widely depending on many important factors, including education, certifications, additional skills, and the number of years you have spent in your profession.

Links:

<https://www.purdue.edu/projectmanagementcertification/news/project-manager-job-description-career-outlook/>

<https://www.salary.com/research/salary/benchmark/project-manager-i-salary/topeka-ks>



Take a look at the [Career Glossary](#) to find other related careers!

“Business Manager Job Description.” *Indeed*, 7 March. 2025,
www.indeed.com/hire/job-description/business-manager.

“Project Manager Job Description.” *Project Management Certification Online*, Purdue University, 10 May 2023,
www.purdue.edu/projectmanagementcertification/news/project-manager-job-description-career-outlook/.

Salary.com. “Business Manager Salary.” *Salary.Com*,
www.salary.com/research/salary/listing/business-manager-salary. Accessed 3 Dec. 2024.

Salary.com. “Project Manager 1 Salary.” *Salary.Com*, 1 Dec. 2024,
www.salary.com/research/salary/benchmark/project-manager-i-salary/topeka-ks.

Shark Tank US. “Uprising Food Drives Mark Nuts.” *YouTube*, 4 July 2022,
www.youtube.com/watch?v=0qJ0Imx4HYA.

“Skills Inventory.” *Career Center*, San Jose University,
www.sjsu.edu/careercenter/docs/0-explore-your-options/skills-inventory.pdf.
Accessed 3 Dec. 2024.

Stahl, Lucas. “Finding Your Marketing Compass.” *Stahlwalker*, 21 Aug. 2019,
stahlwalker.org/marketing/compass.

Tuovila, Alicia. “Overhead: What It Means in Business, Major Types, and Examples.” *Investopedia*, Investopedia, 14 Oct. 2024,
www.investopedia.com/terms/o/overhead.asp.

Appendix E - Recipes

Recipes that Use a Skillet

[Whole Wheat Tortilla Recipe](#)

[Flour Tortilla Recipe](#)

[Corn Tortilla Recipe](#)

[Good Old-Fashioned Pancakes Recipe](#)

[100% Whole Wheat Pancakes Recipe](#)

[Griddle Corn Cakes](#)

[Frying Pan Bread](#)

[Fried Bread](#)

Market Planning Exit Slip

- 1) What did you do well today?
- 2) What was difficult or challenging?
- 3) What are your next steps?
- 4) What questions or concerns do you have?

Marketing Project

Goals:

- 1) Work as a team to create a **marketing presentation** for potential investors
- 2) Synthesize information from **multiple reliable sources** and communicate it to a specific audience to support your claims
- 3) Set goals and practice **time management skills** as you work on a project with short term and long term deadlines



Goal grade: Please highlight the boxes that correspond with your goal grade.

Category	10	7.5	6
<u>Marketing materials</u> Demonstrate professional, formal writing (Proper use of capital letters, punctuation, correct spelling) It is evident that images, font and colors were chosen to target a specific audience Finished products are neat in appearance and easy to understand			
<u>Team work</u> I consistently communicate clearly and respectfully with my team members I use my time constructively to complete my tasks I ask other for help or offer help when needed			
<u>Citing sources</u> List website links for each information or image source.	I use 5+ different reliable sources for my research	I use 3-4 reliable sources for my research	I use 2 reliable sources for my research

Deadlines: (These may be subject to change). Remember that a student doing “A” work does more than the minimum.

Step 1: Date completed _____ by _____ (student name)

Decide on your target audience. Why would they buy your product?

In 3 minutes list everything you know about your audience including their ages, where they live, things they like, things they dislike, and how they learn new information (Pictures, videos, text, conversations, etc.). Use the chart below to help you.

Target Audience Information Chart

Age group and location	Things they like	Things they dislike	How they learn new information


Step 2: Date completed _____ by _____ (student name)

Design your product packaging. Use colors, images, and text that are easy to read. These should attract your customer's attention in the grocery store. Think about the [labels](#) we have discussed on agricultural products. Create a draft of your packaging and explain at least 3 of your design choices. Example: I chose the color _____ because it represents _____.

Draft of Product Packing Design	Explanation of Design Choices
	We used _____ to symbolize/represent/attract _____

Step 3: Date completed _____ by _____ (student name)

Compile your ingredient list. What are all of the ingredients you used? Be specific about the product you chose. (Describe the brand, quantity, quality- fresh, dried, etc.) Include a picture for each ingredient. Describe why you chose each ingredient. Did the product labels ("natural", "organic", "Non-GMO" influence your decisions?) For example: We used 1 teaspoon of Morton's Iodized salt. We chose this instead of store-brand table salt because we know it is _____.

Ingredient and Picture	Quantity and Quality (Use a unit conversion tool to help you)	Reason why you chose this as opposed to another variety
Morton Iodized Table Salt 	1 Teaspoon (0.17 ounces)	We chose this instead of _____ because _____

--	--	--

Step 4: Date completed _____ by _____ (student name)

Calculate your product cost and price. If your recipe yields 10 tortillas, how much does it cost to make them? Calculate the cost based on the quantity of each ingredient. Use a unit conversion tool to help you. After you have calculated the total cost, decide on a reasonable price that your target audience would pay.

For example:

Ingredient	Quantity used in recipe	Price for bulk quantity	Price per ounce	Cost of ingredient in recipe
Salt https://www.walmart.com/ip/Morton-Salt-Plain-26-Ounce/10318919	1 teaspoon (0.17 ounces)	\$1.43 for 26 ounces	5.5 cents per ounce	\$0.94

*Students may need help with unit conversions and calculating the cost of each ingredient

Step 5: Date completed _____ by _____ (student name)

Nutritional Content: Use the [nutritional labels](#) on your ingredients to calculate the nutritional information based on quantities used in your recipe.

Ingredient	Fat (grams) ~9 Calories/gram	Carbohydrates (grams) ~4 Calories/gram	Protein (grams) ~4 Calories/gram
Totals for Recipe			
Total Calories	Fat=	Carbs=	Protein=

*If your recipe yields 10 tortillas, how many grams of each macromolecule are there in 1 tortilla?

Step 6: Date completed _____ by _____ (student name)

Market Research Survey for taste test- Create a list of questions for your judges to complete while testing your product. How can you have them give each category a score? Consider appearance, texture, flavor, etc. See page 6 of this **Taste Test guide** for an example:

<https://dpi.wi.gov/sites/default/files/imce/team-nutrition/pdf/homegrown-taste-test-guide.pdf>

Step 7: Final Presentation. Just like on Shark Tank, you will be “pitching” your new product to a group of potential investors. Collaborate with your team to create a 5-10 minute presentation that must include:

- 1) Your team members’ names, product name, and product picture
- 2) Ingredient list with quantities and quality descriptions as well as nutritional information
- 3) Product cost chart
- 4) Target Audience background information

5) Taste test and collect market research survey data

6) Would you invest with us? Give audience a rubric with areas for feedback on presentation, product design and product flavor.

Extension: Include professional **marketing vocabulary** such as wholesale, profit margin, etc. in your presentation. (See the quizlet link: <https://quizlet.com/37929304/marketing-vocabulary-words-flash-cards/>)

Project Work Log

Date	Work Goal	Sources used (Link research document, etc. and)	Next steps
	Today we will...	We used these resources...	Next we need to...
	Today we will...	We used these resources...	Next we need to...
	Today we will...	We used these resources...	Next we need to...

Name

Date

Class

Food Science Lab Reflection

Instructions: Draw pictures and write descriptions about your food science lab experience.

What we learned/observed	What went well	What we would do differently

Career connection:

a) What do food scientists do?


b) Would you be interested in this career? Why or why not?

Name

Date

Class

Directions: Listen to the presentations, record important information and critique them. You must listen to all presentations to get full points.

Use these descriptions to help you critique the presentations Choose 1 or more descriptions .	Good Presentations 1) Easy to read 2) Interesting pictures 3) A lot of color 4) A lot of information		Bad Presentations 1) Not easy to read 2) Not many pictures 3) Not colorful 4) Not a lot of information	
--	---	---	---	---

Title:			
Column 1: Speakers' Names	Column 2:	Column 3: What is the nutritional content of this product?	Column 4: Critique Was this presentation easy to understand? Why or why not?
1		Protein: Lipids/fats: Carbohydrates:	Yes/No because:
2		Protein: Lipids/fats: Carbohydrates:	Yes/No because:
3		Protein: Lipids/fats: Carbohydrates:	Yes/No because:

4		Protein: Lipids/fats: Carbohydrates:	Yes/No because:
---	--	--	-----------------------------

Reflection:

- 1) Something that I did well on my presentation was....
- 2) Something I can improve is...

Flour Tortillas

Ingredients:

2½ cups unbleached all-purpose flour
(may use half whole wheat flour)
1 teaspoon salt
1 teaspoon baking powder
1 to 1¼ cups warm water (105 °F)
2 tablespoons vegetable oil

Preparation Time: 30 minutes
Baking Time: 1½ to 2 minutes
Makes: 8 tortillas
Serving: 1 tortilla

Directions:

1. Combine flour, salt and baking powder in large mixing bowl.
2. Add warm water and oil to flour mixture. Stir until mixture is blended and sticks together. If dough is too sticky, add small sprinkles of flour. Knead dough lightly to form a smooth dough ball. If dough is dry, add small sprinkles of water.
3. Divide dough into eight pieces; shape each dough piece into a ball. Let rest covered or in plastic bag for 15 to 20 minutes or refrigerate overnight.
4. Flatten each ball into a thin circle about 8 to 10 inches across using a rolling pin or hands.
5. Heat griddle or skillet to medium hot. Bake each tortilla about 1½ to 2 minutes per side or until lightly browned.

Baker's Tip: Tortilla will have brown speckled spots. Stack, cover and keep warm.

Family Activity:

What is your favorite bread?
Let every family member name their favorite. (Answers may include pancakes, tortillas, crackers, raisin bread, sliced bread or buns, muffins, bagels, pita, flat bread...)

Nutrition Facts (1 serving/44g)

Calories: 174, Protein: 4g, Carbohydrates: 30g, Dietary Fiber: 1g, Fat: 3g,
Saturated Fat: 1g, Mono Fat: 2g, Poly Fat: 2g, Calcium: 18mg,
Potassium: 41mg, Sodium: 365mg

Fun Fact:

Tortillas are the cornerstone of the Mexican diet—morning, noon and night. In Mexico, corn tortillas are most commonly eaten. In the U.S., the flour tortilla is the most popular variety.

Vocabulary:

Baker's Dozen:

thirteen items. In feudal times, bakers provided an extra item so the hungry servant who received the court's bread would not be tempted to steal; making the order "short."

Crop Notes Chart

Name

Date

Class

Directions: At each station record the following information for each type of wheat. Write any questions you think of in the box on page 2.

Type of wheat	Where it is grown	Nutritional Contents	Products it is used in	Where it is exported

Type of wheat	Where it is grown	Nutritional Contents	Products it is used in	Where it is exported

Questions I have	Additional information

Reflect: If you were a **crop consultant** and you needed to choose the type of wheat you wanted to grow, which variety would you choose and why?