

Lesson Plan: Developing an Upcycled Grain Nutrition Bar Business

Grade Level: 10th-12th Grade Culinary Students

Lesson Duration: 5 Days (45 minutes each)

Subject: Culinary Arts & Entrepreneurship

Standards

- **Family and Consumer Sciences (FACS) Standards:** Food Science, Business & Marketing, Sustainability
 - **ProStart Standards:** Business Concepts, Menu Development, Costing, Sustainability
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Lesson Objectives

By the end of this lesson, students will be able to:

1. Understand the concept of upcycling and sustainability in food production.
 2. Apply the Business Model Canvas (BMC) to develop a nutrition bar company.
 3. Create a prototype recipe using spent grain from microbreweries.
 4. Analyze cost structures, marketing strategies, and distribution channels.
 5. Present their business model and product concept to the class.
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Materials Needed

- **Business Model Canvas (BMC) Handouts**
- **Spent grain** (pre-sourced from a local brewery)
- **Ingredients for nutrition bars** (oats, nuts, dried fruit, natural sweeteners, etc.)

- **Mixing bowls, measuring tools, baking sheets** (if baking is required)
 - **Sample packaging materials** (eco-friendly wrappers, labels, boxes)
 - **Computers/tablets** for research and presentation preparation
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Day 1: Introduction & Business Model Canvas

Objective: Introduce the concept of upcycling and sustainability in food production and guide students through the process of completing a Business Model Canvas (BMC).

Bell Ringer (5 minutes):

- *Discussion Prompt:* “Think about how much food is wasted in the foodservice industry each day. What are some ways we can reduce food waste?”
- *Instructions:* Write down ideas on how food waste could be reduced, especially in the context of a food-based business.

Mini-Lesson (15 minutes):

- **Topic:** *What is Upcycling? How can spent grains be repurposed?*
 - Explain the concept of upcycling and its role in sustainability.
 - Discuss spent grains from microbreweries and their potential uses in food products.
 - Provide examples of other food-based upcycling projects to inspire students.

Activity (25 minutes):

- **Business Model Canvas Worksheet:**
 - Provide each student or group with a Business Model Canvas worksheet.
 - Students will brainstorm ideas for their upcycled grain nutrition bar business.
 - They should focus on the following elements of the BMC:

- *Value Proposition*: What problem does your product solve?
 - *Customer Segments*: Who are your target customers?
 - *Revenue Streams*: How will you generate revenue?
 - *Distribution Channels*: How will you deliver your product to customers?
 - *Key Resources & Partnerships*: What will you need to make this business successful?
 - *Key Activities*: What are the most important activities to run your business?
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Day 2 and 3: Recipe Development & Costing

Objective: Students will develop a recipe for their nutrition bar using spent grains and other ingredients, and calculate the cost per bar and determine a selling price.

Bell Ringer (5 minutes):

- *Discussion Prompt*: “Nutrition bars come in many forms: energy bars, protein bars, meal replacement bars. What are the key differences between these types, and which one might you want to create?”
- *Instructions*: Write down what type of nutrition bar you want to create (energy, protein, meal replacement) and explain why.

Mini-Lesson (10 minutes):

- **Topic**: *Different Types of Nutrition Bars*
 - Review the types of nutrition bars (energy, protein, meal replacement).
 - Discuss the key ingredients of each type of bar and how they align with students' target market.
 - Explain the nutritional benefits that will be highlighted in the bars, such as high fiber or protein.

Lab Activity: Recipe Development (30 minutes):

- **Objective:** Create a prototype recipe for your nutrition bar.
 - Students will work in groups to develop their bars using the spent grains and additional ingredients such as oats, nuts, dried fruits, natural sweeteners, etc.
 - **Instructions:**
 1. Measure and mix the ingredients, ensuring that the recipe is well-balanced and nutritionally beneficial.
 2. Test different flavor combinations and textures.
 3. If applicable, bake or shape the bars according to the recipe developed.
 - Students should document their recipe and make sure it aligns with their business concept.

Costing Worksheet (20 minutes):

- **Objective:** Calculate the cost per bar and determine a selling price.
 - Use the following process:
 1. List the ingredients and their costs.
 2. Determine the total cost for the batch.
 3. Calculate the cost per individual bar (using the number of bars produced in one batch).
 4. Research local market prices for similar bars to determine an appropriate selling price.
 - Students should also calculate their desired profit margin.
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Day 4 and 5: Marketing & Presentation

Objective: Students will design the branding and packaging for their product and prepare to present their business model and product concept to the class.

Day 4: Marketing & Branding

Bell Ringer (5 minutes):

- *Discussion Prompt:* “Why are branding and packaging so important when selling a food product? How do they influence customer choice?”
- *Instructions:* Write down your thoughts on the importance of branding and packaging.

Mini-Lesson (10 minutes):

- **Topic:** *Branding and Packaging Importance*
 - Explain the role of branding and packaging in attracting customers.
 - Discuss how the branding can communicate the sustainability aspect of the product.
 - Show examples of branding and packaging for sustainable food products.

Activity: Branding & Packaging Design (30 minutes):

- **Objective:** Design a logo and packaging for the nutrition bars.
 - Students will work in groups to create a brand logo and packaging design for their bars.
 - They should consider eco-friendly packaging materials, color schemes, and design elements that align with the sustainability focus of the business.
 - Provide materials for drawing and mock-up designs (or use software if available).
 - Have students explain how their branding communicates the values of sustainability and health.

Day 5: Presentations

Bell Ringer (5 minutes):

- *Discussion Prompt:* “What makes a great pitch? Think of a product you like. What made its presentation stand out to you?”

- *Instructions:* Write down qualities of a great pitch that would grab your attention.

Activity: Presentations (35 minutes):

- **Objective:** Groups will pitch their business model and product concept to the class.
 - Each group will have 5-7 minutes to present their:
 1. Business Model Canvas
 2. Nutrition bar prototype
 3. Branding and packaging design
 4. Cost structure and pricing strategy
 5. Marketing and distribution plan
 - Allow for Q&A after each presentation (2-3 minutes).
 - Evaluate presentations based on clarity, creativity, and how well they align with the sustainable, upcycled concept.
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Assessment

- **Business Model Canvas Worksheet (20 points):** Completed with thoughtfulness and detail.
- **Recipe Prototype & Cost Analysis (30 points):** Clear calculation of costs and a well-developed, functional recipe.
- **Marketing Pitch & Presentation (50 points):** A clear, engaging pitch that demonstrates your business concept, product, and sustainability efforts.