Worksheet #1

5D's of Food Product Development

Stage	Explanation	Things To Think About
Decide what the food product will be.	Brainstorm ideas, discuss requirements and determine the feasibility for a particular product concept.	• What's already on the market? • What does the public want/ need? • Market niche not being met. • Future trends.
Discover ways to make it unique.	Identify a consumer need and how you can meet it. Do competitive product analysis. Employ surveys and other research tools, such as focus groups.	• Age group • Gender • Location • Socio/economic group • Activity level (athlete, couch potato, in between)
Define what's going to be in it and who's going to buy it.	Consider formula, flavoring, ingredients, shelf life, packaging, etc.	• Ingredients • Shelf life • Preservatives vs. all-natural
Develop everything about it. Take the product from the idea stage to the final product.	Assemble a prototype, design packaging, undertake sensory analysis with target group and employ quality control.	• Type of packaging • Label • Decorative/ essential information
Deploy the product to market.	Create marketing plan. Decide on production scheduling, pricing, shipping, storage, promotion and advertising.	• E-tailers (internet sales) • Advertising/promotion campaigns • Food service (restaurants) • Retailers (groceries)

Worksheet #2

Brainstorming Guidelines

Each team of students will follow these guidelines and propose at least one idea for a new food product to the class for discussion. Remember, the product must start with an existing food and contain no more than 4 additional ingredients plus herbs and/or spices, and/or food-grade chemicals.

Roles

Designate a leader and recorder, one of whom will be responsible for reporting to the class. ALL ideas must be recorded, but no more than three may be presented to the class.

Ground rules

Students within each team are encouraged to offer any ideas they may have, no matter how funny or outlandish they may appear to be at first. Leader should encourage free-form thinking, joking or whatever else keeps up the creative flow. Team members should observe the following guidelines:

- No evaluation or questions allowed.
- Avoid comments like:
  "That won't work because..."
  "That's a stupid idea...."
  "That didn't work...."
  "Great idea!"
- Think "out of the box."
  Even a crazy idea can be built upon and generate more ideas.

Refine

Once the recorder has listed all ideas on the paper:

- Expand on the ideas.
- Enhance or minimize.

Evaluate

After all ideas have been generated:

- Group similar ideas together.
- Cross out ideas that won't work within current parameters (remember the criteria).
- Arrange the ideas in logical order.
- Prioritize.

Report

Reporter summarizes up to three suggestions offered by the team. Students may clarify any that need further explanation.

Class will evaluate

Review and discuss the ideas reported by each team and come to consensus on which new food product students will investigate as part of this project.

Worksheet #3

Supermarket Safari:

A competitive product review of _____

Name of product

Competitor's Brand Name/Price	Product Forms: fresh, processed dried, frozen, canned, etc.	Packaging & Sizes: box, glass, pouch, etc.	Flavors or Varieties	Main Ingredient	Location self-service, frozen case, refrigerated case, etc. Shelf Position: top, middle, lower	In-Store Location aisle, row front of store, end of aisle, stand-alone

1. Does one of these competing products stand out?_____ Why or why not?_____

2. Where in the store were most of these types of products located?_____

   If one product was easier to find, where was it located?_____

3. How many different forms or sizes of this product were there?_____ What were they?_____

4. Which product was the most expensive?_____ Why?_____

5. Which product was the least expensive?_____ Why?_____

6. Which packaging stood out the most?_____ Why?_____

7. What can be done to get our product to stand out from the rest of the competition?_____

Write a summary of your findings to present to the class.

Worksheet #4

Screening Tool: Conducting A Market Survey

Use these guidelines to help you formulate your own questions for a screening tool to help determine the target market for your product. Remember to set up your questions so that people respond according to the categories you establish, rather than give open-ended answers. For your report, you may write a summary or develop a bar graph.

Sample Questions

Age group: under 15 ☐ 16-18 ☐ **Sex:** M ☐ F ☐

Employment (if any): _____

_____

Education: _____

_____

Area in which you live (location, urban/rural/suburban): _____

_____

Lifestyle (activity/hobby/clubs or organizations): _____

_____

_____

Product (frequency of product purchase, use): _____

_____

_____

Likes/dislikes: _____

_____

_____

Decision-making status (who does the grocery shopping for the household?): _____

_____

_____

Place of purchase (supermarket, local grocery, gourmet shop, on-line, etc.): _____

Brand(s) purchased: _____

_____

Worksheet #5

Formula For Success

Ingredients for your formula must consist of existing foods. Remember, only 4 additional ingredients plus herbs, spices and/or food-grade chemicals are allowed.

Formula name:		Initial
Formula #	Date:	
Batch size:	Batch #:	
Ingredients:	Weight	%
1.		
2.		
3.		
4.		
Other		
Total	100.00	100.00

Weight:_____ **Yield:**_____

Worksheet #6

Sensory Evaluation

All the senses are needed to evaluate a new product. Using the scale below, rate the food formulated by your group by batch number. (Do not share your answers or identify the batch until all have completed the tasting.) When your team is satisfied with the new product, conduct sensory evaluations of the final formula with your class. Make as many copies of this form as you need. Up to three student evaluations can be recorded on this sheet.

Scale: 1 low to 5 high

Student #	Formula #	Batch #	Batch #	Batch #	Batch #	Batch #	Batch #
1	Appearance						
2							
3							
1	Color						
2							
3							
1	Aroma						
2							
3							
1	Texture						
2							
3							
1	Taste						
2							
3							
	Total 25						

Which batch(es) had the highest ratings for:

Appearance?_____ Color?_____

Mouth feel, texture?_____ Best taste?_____

Which batch had the highest total of points?_____

Identify what made each batch unique and why the batch with the highest points was liked the most.

Comments:_____

Worksheet #7

Microbial Lab: Shelf Life Experiment

You usually need a microscope to see microorganisms, but when they multiply and grow in colonies they can be seen as forms of mold or other types of spoilage on food. This experiment will help you determine the shelf life of your product.

Objective

To determine the factors that impact the shelf life of the product.

Materials

- A supply of the food to be tested.
- Various containers, a refrigerator, petri dishes with sterile gelatin media, a sterile needle or wire.

Procedure

1. Put a sample of the food into three plastic bags.
2. Incubate one bag in the refrigerator, leave one on the counter, place one in the freezer.
3. Label three petri dishes for Day 1, three for Day 2, three for Day 3, three for Day 4, and three for Day 5. (You will need a total of 15 petri dishes.)
4. Every day, plate the food by spreading a very small amount lightly on the gelatin surface of the petri dishes, using a sterile needle or wire. Be sure to label each dish as to which came from the refrigerator, the counter and the freezer for each day. Observe each day.
5. Fill out the observation form below daily. Describe in your data table any growths that may have appeared in the petri dishes.

Sample Data Table

Storage	Day 1	Day 2	Day 3	Day 4	Day 5
Counter					
Refrigerator					
Freezer					

Worksheet #8

Marketing the Product

Three separate groups will create advertising and promotion for your class product. Group I will design a magazine ad, coupon and/or label. Group II will write the script for a TV commercial and, if possible, videotape it. Group III will write (and possibly put to music) a jingle and tag line. Additional groups may be formed to work on other types of promotions.

This worksheet will help you understand the various factors to consider in your planning.

Who is the target market?	
Advertising medium to be used: (ad, jingle, etc.) **Print ad:** Determine size, black/white, 2-color, 4-color, etc. **TV commercial:** Length; actors or "real" people, location, etc. **Creative cost:** (writing, artwork, production) (Call a local TV or cable station or production studio for help with costs.)	
Ad placement: Magazines or newspapers? Which ones go to target market? Costs? (Call the publications and ask for a media kit.) **Commercial:** Broadcast or cable TV? Which stations? Local or national? How often? Cost? (Call local TV or cable outlet advertising dept. for costs.)	
Evaluation: How will we know the ad is effective? Measurement standards.	

Additional Comments:_____

_____

_____

_____

_____

_____

Worksheet #9

Summary

You have decided on your product, given it a name, investigated the competition, determined the target market, formulated and tested the product, and created packaging and a marketing campaign. Complete the following form as a culminating activity for this project and to have a complete record of your project.

Decide

Product name_____
Type of food_____
Size or weight_____
Color_____
Flavor_____

Discover

Competition_____
Share of market_____
Target audience _____

Define

Ingredients to be used_____
Type of packaging_____
Information on label _____

Develop

Final formula_____
Shelf life_____
Packaging _____
Design _____

Deploy

Pricing_____
Promotion_____
Advertising _____

Questions

1. Do you think your product will be successful if produced and marketed? Why or why not?
2. What should be added or omitted to give it a greater chance for success?
3. Were any steps missing or not thoroughly researched? Does that have an effect on your decision?

Worksheet #10

Glossary

Acidification	The addition of an acid ingredient such as vinegar to lower the pH level to below 4.6.
Co-branding	Using two brand names together, or selling the use of a product name to another company.
Cold-processing	Preserving through refrigeration or freezing. Does not kill the microbes but does significantly slow down their growth.
Dehydration	A method of food preservation where water is removed from the food by drying in air, in a vacuum, in inert gas or by direct application of heat.
Fermentation	The breakdown of sugars by microorganisms which result in the production of acids which inhibit the growth of other organisms.
Freeze drying	A method of food preservation by freezing and then drying under a vacuum.
Innovation	A totally new product.
Irradiation	A process in which foods can be exposed to ionizing radiation to lengthen storage life.
Line extension	Adding a similar product to an existing line.
New product forms	Taking a product and changing its form, e.g. cookie, cookie crumbs, cookie crumb toppings.
Mimicking	Copying a brand name.
Pasteurization	The process of destroying harmful microorganisms by heating food, milk, or juice, to a specific temperature, holding it for a specific length of time and cooling rapidly.
Vacuum packaging	Removal of air.