Stage 5 Food Technology: Year 9

Focus area: Food product development

An ever increasing array of food products is available in the marketplace as a result of food product innovations. Students will examine the reasons for developing food products and the impact of past and present food product innovations on society and explore the processes in food product development. Students will develop, produce and evaluate a food product

Focus outcomes

A student:
5.3.2 justifies food choices by analyzing the factors that influence eating habits
5.5.1 selects and employs appropriate techniques and equipment for a variety of food-specific purposes
5.5.2 plans, prepares, presents and evaluates food solutions for specific purposes
5.6.1 examines the relationship between food, technology and society

Core (C) outcomes

A student:
5.1.1 demonstrates hygienic handling of food to ensure a safe and appealing product
5.2.1 describes the physical and chemical properties of a variety of foods
5.2.2 accounts for changes to the properties of food which occur during food processing, preparation and storage
5.6.2 evaluates the impact of activities related to food on the individual, society and the environment

Time allocation: 12 weeks (Term IV)

Outcomes	Students learn about:	Students learn to:	Teaching and learning strategies	Register
The following elements of quality teaching will be addressed: problematic knowledge, knowledge integration, deep understanding, student self regulation, background knowledge, engagement, connectedness, narrative, metalangauge, social support Problematic knowledge developed as students understand reasons for development of different food products. Knowledge integration occurs with students linking background knowledge and deep understanding to new products (like probiotics). Student self-regulation will be evident in packaging knowledge.				
3 weeks 5.5.2 5.6.1 5.1.1	• reasons for developing food products including – market concerns, e.g. health concerns, environmental issues – technological developments, e.g. packaging – increasing company success, e.g. line enhancements, innovative products – consumer demand, e.g. tamper-evident, increasing convenience – special applications, e.g. army rations, camping supplies, space foods, medical – target market changes, e.g. aging, reduced size of households, multicultural	• explore the purpose of product development • identify new food products • examine the characteristics of new food products *Core* • describe legislation specifically linked to food safety. (Revision from previous unit.)	**Reasons for developing food products** • Brainstorm purpose of product development. • Class to identify new food products, e.g. McDonalds' breakfast/lunch menus to counteract negative image. • Note making on reasons including market concerns, technological developments, increasing company success, consumer demand, special applications, targeting market change. • Revise legislation linked to food safety (covered in previous unit). • Examine characteristics of new food products, e.g. breakfast cereal OT, Thorpie promotion. • Note making on food packaging – functions, suitability, identifying foods, labeling requirements, ethical considerations. • *Practicals:* 1) Supermarket visit to analyse and critically review packaging of *new* food products. Purchase items to compare next lesson. 2) Comparison of pre-prepared food. Pizza: frozen base, add toppings, bake Pizza: fully prepared, bake Class to compare cost, taste, time, nutritional value. etc. 3) Visit to butchery. Visit butcher to review new food products, legislation linked to food safety, ethical considerations in display and labeling of food.	

Outcomes	Students learn about:	Students learn to:	Teaching and learning strategies	Register
5.6.2	*Core* • food packaging – forms/materials – functions – technological developments such as barrier, active, vacuum and gas – environmental impact – labeling/legal requirements	*Core* • outline the functions of packaging, including the persuasive purpose of food packaging • suggest suitable packaging for a variety of food types in different circumstances • identify food labeling requirements • ethical considerations in declaration of ingredients		
The following elements of quality teaching will be addressed: cultural knowledge, higher order thinking, background knowledge, knowledge integration, students direction, deep knowledge, narrative, deep understanding, inclusivity, connectedness, problematic knowledge metalanguage, substantive communication, explicit quality criteria, engagement, high expectations, social support, student's self regulation Cultural knowledge of past and present food products. Higher order thinking needed for introduction of new food products and their effect on society.				
3 weeks 5.5.1	• impact of past and present food product innovations on society including – social/cultural, e.g. acceptance, lifestyle – economic, e.g. increase in spending on new products versus decrease in traditional purchases, cost of new products – environmental, e.g. sustainable	• relate the introduction of new food products and their effect on society	**Impact of past and present food product innovations** • Discussion about new food products and their effect on society, including social/economic/environmental and nutritional aspects, e.g. meat and three vegetables in a baked dinner being superseded by food that is quicker to prepare and healthier. Class to make note of three changes. • Visit computer room and conduct a web search to identify trends in food consumption. • Tabulate data (on a spreadsheet) and generate graphs for analysis. • Revise how the preparation of meat for sale affects the physical characteristics of food, e.g. hanging, chilling, dressing, packaging, value adding, etc. • Note making on the physical and nutritive effects of preparation in domestic and industry	

Outcomes	Students learn about:	Students learn to:	Teaching and learning strategies	Register
5.3.1 5.2.2	resources nutritional *Core* • changes in consumption patterns in relation to processed and unprocessed food *Core* • physical and nutritive effects of preparation and processing in domestic and industrial setting	*Core* • conduct an advanced web search using appropriate search engines to identify trends in food consumption • tabulate data using a spreadsheet and generate graphs for analysis *Core* • explain how various methods of food processing and preparation affect the physical characteristics of food • outline ways in which nutritive loss can be minimised during preparation and processing	settings. Minimising loss. • *Practical* 1) Computer usage – food consumption Spreadsheet Graphs 2) Making biscuits, then packaging (class design labels). 3) Slice making (preparation for freezing for later use).	
The following elements of quality teaching will be addressed: cultural knowledge, higher order thinking, background knowledge, knowledge integration, students direction, deep knowledge, narrative, deep understanding, inclusivity**,** connectedness, problematic knowledge, metalanguage, substantive communication, explicit quality criteria, engagement, high expectations, social support, students self regulation Narrative to be used as background for development of a new food product, e.g. suitable *new* canteen food. Deep understanding of the causes of food deterioration and spoilage will be developed as this will influence food product development.				
3 weeks 5.5.2	• steps in food product development including – design, e.g. identify market, develop ideas, assess options – produce, e.g. recipe development, prototype production – evaluate, e.g. market evaluation – sensory	• outline the design and development process for food products • design, produce and evaluate a food product	**Steps in food product development** • Class to follow process of designing, producing and evaluating a product suitable for sale in the school canteen. • Prototype to be produced and selected, Year 9 students to evaluate. • Food Technology students are to hand in (for assessment) a recipe (including design steps) to teacher to mark. • Student group are to undertake peer assessment and the best three will be produced (for evaluation). • Note making on food spoilage and deterioration	

Outcomes	Students learn about:	Students learn to:	Teaching and learning strategies	Register
5.5.1 5.1.2	assessment by target market *Core* • causes of food deterioration and spoilage – microbial activity – enzymic changes – physical and chemical reactions – environmental factors *Core* • principles of food preservation and storage – moisture levels – addition of chemicals – temperature – pH level – oxygen	*Core* • outline the causes of food deterioration and spoilage • identify ingredients that pose a high risk for food deterioration and spoilage • describe techniques and methods that make food products less prone to deterioration and spoilage *Core* • explain the principles of food preservation • describe a range of methods used to preserve and store foods safely • apply the principles of food preservation and storage when producing food products	– including causes, high risk foods, techniques and methods, making food products less prone to deterioration and spoilage, principles of food preservation, how to preserve and store foods safely. • Experiment on a range of foods that are to be left exposed to the air for 10–12 days, class to observe progression of spoilage and record results. • *Practicals:* 1) Design, produce and evaluate canteen food. 2) Food spoilage activity. Begin preparation for Christmas cake. 3) Using dried (preserved) foods make fruit cake (small mixture).	

The following elements of quality teaching will be addressed: cultural knowledge, higher order thinking, background knowledge, knowledge integration, students direction, deep knowledge, narrative, deep understanding, inclusivity, connectedness, problematic knowledge, metalangauge, substantive communication, explicit quality criteria, engagement, high expectations, social support, students self regulation.

Student direction evident in market research. Inclusivity revealed with background knowledge of students in current marketing ploys. Higher order thinking with examination of industrial food preparation.

Outcomes	Students learn about:	Students learn to:	Teaching and learning strategies	Register
3 weeks 5.5.2	• role of market research in product development including – identifying needs – economic viability – consumer feedback – sensory assessment • promotion of new food products including – marketing mix – promotional techniques – competitions, advertising campaigns, celebrity endorsements	• outline the role of market research in new food product design and development • identify the elements of a marketing mix • analyse the effectiveness of a range of marketing and promotional techniques for new food products • promote a new food product for a specific market	**Role of market research in product development** • Note making on role of market research in new food product design (after brainstorming class ideas). • Discussion on promotion of new food products leading to notes on marketing, promotional techniques, competitions, advertising, celebrity endorsements. • Class to undertake a promotion for their canteen food. This will be included in assessment mark for the topic. • Video on industrial food preparation: *The Seton Bakery System*. Class to answer questions on system. • Produce an air-tight container decorated for Christmas. • *Practical:* 1) Computer room: promotional material design for canteen food. 2) Icing of Christmas cake to assist in preservation of cake and aid presentation. 3) Gingerbread Men and Christmas cookies	
5.2.2	*Core* • industrial food preparation – levels of processing – additives – environmental, social, health and economic effects	• identify the varying levels of processing and the accompanying changes that occur to food • identify the role of additives in food processing • discuss the environmental, social, health and economic implications of food processing		
	Additional content • emerging technologies and new food products	• investigate the application of an emerging technology in the development of a new food product • design an innovative, new-to-the-world food product		