Stage 5 – Food Technology – Food product development

## **Summary**

An ever increasing variety of food products are available in the marketplace as a result of food product innovations. Students examine the reasons for developing food products and the impact of past and present food product innovations on society. They explore the processes in food product development, produce and evaluate a food product and or package.

## **Duration**

10 weeks, 1 hour lessons.

## **Outcomes**

* **FT5-1** demonstrates hygienic handling of food to ensure a safe and appealing product
* **FT5-2** identifies, assesses and manages the risks of injury and WHS issues associated with the handling of food
* **FT5-5** applies appropriate methods of food processing, preparation and storage
* **FT5-7** justifies food choices by analysing the factors that influence eating habits
* **FT5-8** collects, evaluates and applies information from a variety of sources
* **FT5-9** communicates ideas and information using a range of media and appropriate terminology
* **FT5-10** selects and employs appropriate techniques and equipment for a variety of food-specific purposes
* **FT5-12** examines the relationship between food, technology and society
* **FT5-13** evaluates the impact of activities related to food on individual, society and the environment

[Food technology 7-10](https://educationstandards.nsw.edu.au/wps/portal/nesa/k-10/learning-areas/technologies/food-technology-2019) syllabus © NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales, 2019.

## **Unit overview**

Students examine a range of food product developments, the reasons for food product development and their effect on society. Students will investigate a range of emerging technologies in the food industry. Students will develop a food product and outline the steps in food product development.

## **Resources overview**

### Physical resources

* Access to the internet
* Student workbook
* PowerPoint Presentations – food product development 1 – 3

### Websites

* [Food product development 1 - Reasons for new products](https://www.youtube.com/watch?v=ot24j0VXJ3c) – duration 12:17
* [How technology influencing the future of food and housing - whilst respecting the environment](https://www.youtube.com/watch?v=Zf-21GBD31A) – duration 12:00
* [Future of food technology](https://www.youtube.com/watch?v=x4Y1PrBfkS8) – duration 6:07
* [11 innovations that could build the food of the future- website](https://interestingengineering.com/11-innovations-that-could-build-the-food-of-the-future)
* [Satisfying Food Manufacturing Process You Must See](https://www.youtube.com/watch?v=vYZzMk0NkgM) – duration 11:40
* [Sensory analysis and testing techniques: food technology- duration 3:03](https://www.youtube.com/watch?v=pbfCV2OEZk4)
* [What is product line extension? What does product line extension mean?](https://www.youtube.com/watch?v=QNN-Ful-KU0) - duration 4:15
* [Food product development 1 - Reasons for new products](https://www.youtube.com/watch?v=ot24j0VXJ3c)- duration 12:17
* [Food and the impact of social media - Counting the Cost](https://www.youtube.com/watch?v=0LUIcFeN5k4) – duration 4:49
* [Top 10 Unhealthy Foods](https://www.youtube.com/watch?v=IZihRNJqyH4) – duration 13:27
* [Connections between food and the environment](https://www.bing.com/videos/search?q=new+foods+and+effect+on+the+environment&&view=detail&mid=8F76EA1E92EF1E4400308F76EA1E92EF1E440030&&FORM=VRDGAR) – duration 21:31
* [Additives in food- Why are additives added to food?](https://www.youtube.com/watch?v=t8ZKOV71GJA) – duration 1:37
* [What is the role of food additives- website](https://www.helpingwomenonline.com/dangerous_food_additives.html)
* [6 futuristic food packaging technologies that could change everything](https://www.fooddive.com/news/6-futuristic-food-packaging-technologies-that-could-change-everything/94763/) - website
* [10 product packaging design mistakes to avoid](https://medium.com/%40grandprints/10-product-packaging-design-mistakes-to-avoid-right-now-402d4c390fa1) – website
* [Packaging and the Environment](https://www.youtube.com/watch?v=0siDq8TqOgM)- duration 4:01
* [How has technology changed in the kitchen?](https://www.ebuyer.com/blog/2014/05/how-has-technology-changed-in-the-kitchen/) - website
* [Teching Out Our Kitchen! (Smart Kitchen Tour 2019)](https://www.youtube.com/watch?v=NvagllRGpQ0) – website
* [Good product, bad packaging- website](https://www.theguardian.com/sustainable-business/2014/jul/18/good-product-bad-package-plastic-recycle-mistakes)
* [10 ways technology is changing our food](https://www.techrepublic.com/article/10-ways-technology-is-changing-our-food/) - website
* [Product packaging](https://www.youtube.com/watch?v=WyFLfE2PomI) – duration 9:32
* [NSW Food Authority: Food labelling and the Law](http://www.foodauthority.nsw.gov.au/foodsafetyandyou/food-labelling/labels-and-the-law) - website
* [The marketing mix: 4P’s of marketing](https://www.youtube.com/watch?v=hHtJwTU9kg8) – duration 2:22
* [MarketingTips: Innovative Marketing Ideas](https://www.youtube.com/watch?v=Q8FjdVP4Qn0) – duration 4:27
* [McDonalds video game- sustainability](https://games4sustainability.org/gamepedia/mcdonalds-video-game/) – website

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| Content | Teaching and learning | Evidence of learning | Adjustments and registration |
| **Week 1*** Describe a range of food product developments
 | **Teacher:*** Introduce unit and assessment **task**.

**Teacher and students:*** View [Food Product Development](https://www.youtube.com/watch?v=ot24j0VXJ3c) – duration 12:17.
* View [Product line extensions](https://www.youtube.com/watch?v=QNN-Ful-KU0) - duration 4:15.
* View food product development presentation 1.

**Students:*** Define and discuss food product development in student workbook.
* Complete the following in the student workbook:
	+ Food product development descriptions: complete definition and table page 4
	+ Food product development examples: complete table page 5-6.
 | * Students demonstrate prior knowledge by participating in class discussions.
* Students define food product development.
* Students’ responses demonstrate an understanding of food product development categories- new to world, line extensions and me too.
* Students identify examples for each food product development category.
 |  |
| **Week 2*** Explain reasons for food product development
 | **Teacher and students:*** View food product development presentation 1, ‘reasons for food product development’.
* view [Reasons for food product development](https://www.youtube.com/watch?v=ot24j0VXJ3c) - duration 12:17

**Students**:* Complete student workbook:
	+ Reasons for food product development.: complete table, page 7
	+ technological developments and increasing demand for convenience foods and packaging, pages 8 to 9.
 | * Students are able to explain each reason for food product development.
 |  |
| * Demonstrate appropriate selection of equipment and techniques used in food preparation
 | **Optional practical:*** Taste test new foods on the market
* Taste test new convenience foods on the market.

**Students:*** In their own books or in a table in a word document, students:
	+ List new foods on the market
	+ List new convenience foods on the market
	+ Categorise each sample as new to world, me too or line extensions
	+ Explain the reason each food is categories into new to world, me too, line extensions.
 | * Students are able to sensory evaluate new food products
* Students are able to identify new food products
* Students are able to categorise new food products
* Students are able to explain the reasons for new food product develop.
 |  |
| * Discuss the introduction of new food products and their effect on society
 | **Teacher and students:*** view food product development presentation 2.

**Teachers:*** students are to view:
	+ [Connections between food and the environment](https://www.bing.com/videos/search?q=new+foods+and+effect+on+the+environment&&view=detail&mid=8F76EA1E92EF1E4400308F76EA1E92EF1E440030&&FORM=VRDGAR) – duration 21:31
	+ [10 ways technology is changing our food](https://www.techrepublic.com/article/10-ways-technology-is-changing-our-food/) - website
	+ [11 innovations that could build the food of the future- website](https://interestingengineering.com/11-innovations-that-could-build-the-food-of-the-future).
 | * Students identify how technology has influenced the future of food, housing, demand for convenience foods.
* Students identify food innovations of the future.
* Students explain why new foods are being developed.
* Students identify the impact food product developments have on society, emerging technologies, nutrition and special dietary needs.
 |  |
|  | **Teachers and students:*** brainstorm new food products and their effect on society from viewing the websites, videos and power point presentation.

**Students:*** copy notes from brain storming discussion into their own book using the heading ‘the impact of technology on the future of food’.
* Complete student workbook:
	+ Increasing demands for convenience foods:
	+ How has technology influenced the future of food?
	+ How has technology influenced the future of housing?
 | * Students are able to give examples of each reason for food product development.
 |  |
| **Week 3 - 4*** Investigate the role of food additives in food processing
 | **Teacher and students:*** view food product development presentation 1.
* View video [Additives in food- Why are additives added to food?](https://www.youtube.com/watch?v=t8ZKOV71GJA) Duration 1:37
* Read the article [What is the role of food additives](https://www.helpingwomenonline.com/dangerous_food_additives.html)
* discuss food additives and there role in food processing.

**Students:*** Complete student table in workbook:
	+ the role of food additives in food processing
	+ define food additives, p 11 to 12
	+ the role of additives ( maintain product consistency, improve or preserve the nutrient value, maintain the wholesomeness and the palatability of foods, control the acidity and alkalinity and provide leavening)
	+ types of food additives
	+ examples of food additives.
 | * Students are able to define food additives.
* Students are able to identify food additives.
* Students are able to explain the role of food additives
* Students are able to recognise examples of food additives.
 |  |
| * Discuss the role of technology in the preparation of food domestically and industrially
 | **Teacher and students:*** View Food Product development presentation 2.
* View [How has technology changed in the kitchen?](https://www.ebuyer.com/blog/2014/05/how-has-technology-changed-in-the-kitchen/) and [Teching out our kitchen](https://www.bing.com/videos/search?q=technology+in+the+domestic+kitchen&&view=detail&mid=0FF4FF7FAD682F754ACB0FF4FF7FAD682F754ACB&&FORM=VRDGAR).
* Discuss the role of technology in food preparation domestically and commercially.

**Students*** Complete activities in the booklet ‘the role of technology in food preparation’.
 | * Student identify and explain the differences between technology used in food preparation both in the home (domestically) and commercially ( hospitality industry)
 |  |
| * Investigate a range of emerging technologies in the food industry
 | **Teacher and students:*** View Food Product development presentation 2.
* View the website [10 ways technology is changing our food](https://www.techrepublic.com/article/10-ways-technology-is-changing-our-food/)
* Discuss a range of emerging technologies, such as:
	+ Sustainable food production methods
	+ Packaging innovations
	+ Augmented reality shopping (AR)
	+ 3D printing
	+ Unmanned aerial vehicles (UAV).
 | * Students identify and explain a range of emerging technologies in the food industry.
 |  |
| **Weeks 5 - 6*** Outline steps in food product development
 | **Teacher and students:*** View Food Product development presentation 2, ‘Steps in food product development’.

**Students:*** Complete table on pages 15 to 16 in student booklet and explain each of the following steps step in detail:
	+ Brief
	+ Market research
	+ Design specification
	+ Shortlisting and testing
	+ Manufacturing specification
	+ Quality control.
 | * Students recall, identify and explain the importance of each step within the food product development process
 |  |
| * Outline the functions of food packaging
 | **Teacher and students:*** View Food Product development presentation 2.
* view [6 futuristic food packagings](https://www.fooddive.com/news/6-futuristic-food-packaging-technologies-that-could-change-everything/94763/) - website
* Read [10 product packaging design mistakes to avoid](https://medium.com/%40grandprints/10-product-packaging-design-mistakes-to-avoid-right-now-402d4c390fa1) – website
* View [The changing world of food packaging](https://www.youtube.com/watch?v=0siDq8TqOgM) - duration 4:01
* View [Reasons for Packaging](https://www.bing.com/videos/search?q=functions+of+food+packaging+&&view=detail&mid=8EA8B301529A034C54138EA8B301529A034C5413&rvsmid=E5833A31254201231ABAE5833A31254201231ABA&FORM=VDRVRV) – duration 9:32

**Students*** Complete student workbook, page 15 to 16 Summarise the six examples of food packaging
	+ Analyse what each example is made from
	+ Why is it used?
	+ Technology used in its production.
 | * Students analyse the functions of a range of packaging (to contain, to preserve, to inform/ persuade)
 |  |
| * Outline legislative food-labelling requirements
 | **Teacher and students:** * View Food Product development presentation 3.
* View [NSW Food Authority: Food labelling and the Law](http://www.foodauthority.nsw.gov.au/foodsafetyandyou/food-labelling/labels-and-the-law) – website

**Students:*** In the own books, make notes from power point presentation 2 on:
	+ Food Labelling and the Law
	+ Food Label Information
	+ Our Role- Labels
	+ Labelling Laws
	+ Country of Origin
	+ Declaring Allergies
	+ Date Marks and Storage
	+ Health and Nutrition Claims
	+ Health Star Ratings.
* Upload or draw an image of food packaging. Annotate:
	+ Product name
	+ Use by date
	+ Health star rating
	+ Health and nutrition information
	+ Country of origin
	+ Instructions of use.
 | * Students identify and analyse the requirements of a food label (laws and legislation)
* Student use the information of a food label to make educational choices regarding food product selection
 |  |
| **Weeks 7 - 9*** Outline the role of market research in food product development
 | **Teacher and students:*** View food product development presentation 2
* View [Innovative Marketing Strategies](https://www.bing.com/videos/search?q=effective+marketing+strategies+in+promoting+new+products&&view=detail&mid=845EDE35064C4F36DBD8845EDE35064C4F36DBD8&&FORM=VRDGAR)
* Discuss the elements of marketing mix:
* 4P’s of marketing mix (product planning, price, placement and distribution, promotion).
 | * Students’ responses demonstrate an understanding of the elements of marketing, including marketing mix and 4P’s.
 |  |
| * Design, plan, prepare and present appealing contemporary foods that reflect food trends
* Demonstrate safe and hygienic work practices
* Demonstrate appropriate selection of equipment and techniques used in food preparation
 | **Teacher and students:*** View food Product development presentation 3.

In the case of remote learning, two options have been included: option 1 at school or option 2 at home.* Option 1:
* Prepare packet mix and package the ingredients
* This activity requires students to design menu items based on current food trends. Planning and preparation for this activity is to be documented (in booklet).
* View food product development presentation 3.
* Option 2: view food product development presentation 3.
* [McDonalds video game- sustainability](https://games4sustainability.org/gamepedia/mcdonalds-video-game/).
 | * Students produce food items in relation to an identified current trend.
* Students produce a food label considering laws and legislation
* Students produce a package considering its function for the food product produced.
 |  |
| **Week 10*** Evaluate the effectiveness of a range of marketing strategies in promoting new products
 | **Students** answer the questions relating to evaluating a product.* Complete student booklet: pages 22 to 23, considering:
	+ Food product development
	+ Labelling requirements
	+ Packaging requirements.
 | * Students evaluate the completion of a food product, food label and package.
 |  |
| * Evaluation and testing of food product and packaging
 | **Students:*** Complete student booklet, evaluation on page 27 considering:
	+ Marketing and promotion
	+ Testing.
 | * Students evaluate the effective of the marketing and promotion and testing of the food product, food label and food package
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## Evaluation

Evaluation of learning activities should be an ongoing process that happens throughout the delivery of this unit. Teachers should document their evaluation of learning activities throughout the program. The space provided below is to evaluate the overall unit of work.

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