Government of Western Australia
School Curriculum and Standards Authority

FOOD SCIENCE AND TECHNOLOGY

GENERAL COURSE

Year 12 syllabus

Acknowledgement of Country

Kaya. The School Curriculum and Standards Authority (the Authority) acknowledges that our offices are on Whadjuk Noongar boodjar and that we deliver our services on the country of many traditional custodians and language groups throughout Western Australia. The Authority acknowledges the traditional custodians throughout Western Australia and their continuing connection to land, waters and community. We offer our respect to Elders past and present.

Important information

This syllabus is effective from 1 January 2024.

Users of this syllabus are responsible for checking its currency.

Syllabuses are formally reviewed by the School Curriculum and Standards Authority (the Authority) on a cyclical basis, typically every five years.

Content

Rationale

Food impacts every aspect of daily life and is essential for maintaining overall health and wellbeing. The application of science and technology plays an important role in understanding how the properties of food are used to meet the needs of consumers and producers. Food laws and regulations govern the production, supply and distribution of safe foods. Students develop practical food-related skills, understandings and attitudes that enhance their problem-solving abilities and decision-making skills.

In the Food Science and Technology General course, students develop their interests and skills through the design, production and management of food-related tasks. They extend their knowledge of the sensory, physical, chemical and functional properties of food and apply these in practical situations. Students explore innovations in science and technology and changing consumer demands. New and emerging foods encourage the design, development and marketing of a range of products, services and systems.

Food and allied health sectors represent a robust and expanding area of the Australian and global employment markets. The Food Science and Technology General course enables students to connect with further education, training and employment pathways, and enhances employability and career opportunities in areas that include nutrition, health, food and beverage manufacturing, food processing, community services, hospitality, and retail.

Course outcomes

The Food Science and Technology General course is designed to facilitate achievement of the following outcomes.

Outcome 1 – Understanding food

Students understand foods are used and processed to meet identified needs.

In achieving this outcome, students:

- understand the properties of foods and related equipment used to meet needs
- understand foods are used to meet the body's needs
- understand the nature and operation of food-related systems.

Outcome 2 – Developing food opportunities

Students apply the technology process to develop food-related products, services or systems.

In achieving this outcome, students:

- investigate issues, values, needs and opportunities
- devise and generate ideas and prepare production proposals
- organise, implement and manage production processes in food-related environments
- produce food products, services or systems
- evaluate plans, results and actions.

Outcome 3 – Working in food environments

Students apply skills and operational procedures to work in productive food-related environments.

In achieving this outcome, students:

- apply self-management and communication skills in food-related environments
- apply organisational skills when undertaking food-related challenges and activities
- apply operational procedures and practical skills to safely meet defined standards.

Outcome 4 – Understanding food in society

Students understand food products, systems and innovations in relation to current and future development.

In achieving this outcome, students:

- understand that beliefs and values of consumers and producers impact on food-related technologies
- understand that resource management decisions affect developments in food-related industries
- understand the importance of safe, sustainable practices when developing and using food-related technologies.

Organisation

This course is organised into a Year 11 syllabus and a Year 12 syllabus. The cognitive complexity of the syllabus content increases from Year 11 to Year 12.

Structure of the syllabus

The Year 12 syllabus is divided into two units which are delivered as a pair. The notional time for the pair of units is 110 class contact hours.

Unit 3 – Food science

This unit explores the societal, lifestyle and economic issues that influence food choices. Students research the effect of under-consumption and over-consumption of nutrients on health and investigate a range of diet-related health conditions that affect individuals and families.

Using scientific methods, students examine the functional properties that determine the performance of food and apply these in the planning and preparation of food products and processing systems.

Students develop their expertise with technology and communication skills to implement strategies to design food products and processing systems. They select resources to meet performance requirements and use evaluation strategies to monitor and maintain optimum standards. Students follow occupational safety and health requirements, implement safe food handling practices and use a variety of foods and processing techniques to produce safe, quality food products.

Unit 4 – The undercover story

This unit focuses on food spoilage and contamination and explores reasons for preserving food. Students investigate food processing techniques and the principles of food preservation. They examine the regulations which determine the way food is packaged, labelled and stored and how the principles of the Hazard Analysis Critical Control Point (HACCP) system are administered and implemented to guide the production and provision of safe food.

Students investigate the food supply chain and value-adding techniques applied to food to meet consumer and producer requirements. Food choices are often determined by location, income, supply and demand and the environmental impact of food provision. Students examine influences on the nutritional wellbeing of individuals that arise from lifestyle and cultural traditions. They implement principles of dietary planning and adapt recipes and processing techniques when considering specific nutritional needs of demographic groups.

Students apply the technology process to address a product proposal and produce a preserved food product. They justify the equipment, resources and processing techniques used, and evaluate sensory properties. Students show the use of the preserved food product in another food product.

Each unit includes:

- a unit description – a short description of the focus of the unit
- unit content – the content to be taught and learned.

Organisation of content

For each unit, the content is organised into:

- Nature of food
- Processing food
- Food in society.

Nature of food

Food as a commodity

Food commodities come from many different sources and the development and use of varieties of food commodities alters nutritional content, sensory and physical properties, and improves the yield to provide wider food choices for consumers and producers. The variety of a raw food influences its potential use and performance during processing. Consumers consider the economic cost of raw and processed food products when making food choices. To meet the requirements of different demographic groups, foods are modified, fortified and value-added during processing and production. A continuous supply of safe, quality food is achieved by ensuring safeguards are implemented throughout the food supply chain.

Properties of food

Foods are complex mixtures of substances composed of nutrients and chemical compounds. These mixtures, and how they are processed, give foods their sensory, physical and chemical properties. The changes that occur during food preparation, processing and storage are described as the functional properties of foods, not all of which are desirable. The functional properties determine the way foods are selected, stored, prepared and presented. Food spoilage and contamination can occur from certain environmental factors, enzymatic activity and microbial contamination. Foods can be preserved to extend shelf life, preserve nutritional value, provide out of season availability and economic viability.

Nutrition

Ensuring a balanced diet appropriate to individual needs and optimal health requires an understanding of food values, the food source and the role of specific macronutrients and micronutrients in the body. Nutrition-related health conditions, such as the effect of under-consumption of nutrients on health, including anaemia, osteoporosis, malnutrition and constipation and the over-consumption of nutrients, including obesity, cardiovascular disease and Type 2 diabetes are explored. Food selection models, guidelines and goal-setting are used to achieve and evaluate nutritional health.

Processing food

Food products and processing systems

The technology process is used to create food products and processing systems. The process involves investigating, devising, producing and evaluating wet processing techniques and dry processing techniques to develop a range of food products. Product proposals are used to guide the technology process and evaluate the final outcome. Technology skills include practical, organisational and operational processes when working with food, equipment and information systems. Food handling skills and processing techniques are used to improve physical appearance, palatability, digestibility and the nutritional value of food products. They are dependent on an understanding of the properties of food and how their behaviour

is altered during food handling and processing. A range of methods are used to test, report, evaluate and analyse food products and processing systems.

Food in society

Food issues

Beliefs and values that relate to needs, wants, lifestyles, health and living standards underpin food issues of individuals and communities. Solutions to issues often trigger innovations in foods and related industries. These, however, may have unforeseen ethical, environmental, economic, social and health consequences that in turn create new and different issues. Informed consumers understand concepts such as planning, pricing, placement, packaging, distribution and advertising when making decisions about product and service selection.

Laws and regulatory codes

Legal processes regulate the interaction between consumers and food-related enterprises. Consumer associations work to influence policy, legislation and practices impacting on systems that regulate food availability, safety and quality. Food handling practices, labelling, packaging, advertising, risk management systems, and occupational safety and health are regulated in Australia.

Representation of the general capabilities

The general capabilities encompass the knowledge, skills, behaviours and dispositions that will assist students to live and work successfully in the twenty-first century. Teachers may find opportunities to incorporate the capabilities into the teaching and learning program for the Food Science and Technology General course. The general capabilities are not assessed unless they are identified within the specified unit content.

Literacy

Students develop literacy capability as they communicate ideas, concepts and detailed proposals for a variety of audiences. They comprehend and compose a range of visual and digital texts, read and interpret detailed written instructions, such as product proposals and recipes for devising, producing and analysing food products and processing systems. They prepare detailed specifications for production, evaluate sources of information that influence food choices and the health and wellbeing of individuals, families and communities in an organised, logical and coherent manner. They learn to understand and use language to discuss and communicate information, concepts and ideas related to the production of food products and systems.

Numeracy

Students develop and apply numeracy knowledge and skills to gather, analyse, interpret and present information in numerical and graphical form, draw conclusions and make recommendations. They identify patterns and relationships in data and use these to identify trends in consumer choices, food innovation and food production practices. Students use numerical skills to calculate and estimate quantities and costings, and measure and record throughout the process of developing food products and production processes.

Information and communication technology capability

Students develop information and communication technology (ICT) capability as they learn to use and apply ICT effectively and appropriately to access, create and communicate information and ideas, solve problems and work collaboratively. They develop the knowledge and skills to use digital technologies to locate, organise, analyse, represent and present information to create prototypes, and control and monitor processes. Students develop design ideas, generate production plans and communicate solutions when producing safe, quality food.

Critical and creative thinking

Students develop capability in critical and creative thinking as they learn to generate and evaluate knowledge, clarify concepts and ideas, seek possibilities, consider alternatives and solve problems. They learn how to critically evaluate evidence, explore alternatives and share ideas by engaging in innovative practices in the provision of food products and food services for consumers.

Personal and social capability

Students develop personal and social capability as they learn to understand themselves and others, and manage their relationships, appreciate their own strengths and abilities and develop a range of self-management and interpersonal skills. Students learn to work collaboratively and use management strategies that recognise strengths, promote negotiation, enhance leadership, personal and social resilience and encourage effective relationships within the workspace and in project management roles.

Ethical understanding

Students develop ethical understanding as they identify and investigate the nature of ethical concepts, values and principles, and understand how reasoning can assist ethical judgement. They learn the importance of treating others with integrity, compassion and respect, value diversity and reflect on ethical principles of food choices considering animal welfare, fair trade and resource use. Students are encouraged to develop informed values and attitudes.

Intercultural understanding

Students develop intercultural understanding as they learn about, and engage with, diverse cultures in ways that recognise commonalities and differences, and cultivate mutual respect, particularly when making food decisions. They develop an understanding of how culture shapes personal and social perspectives, and appreciate differences in beliefs and perspectives that may cause tension between individuals and groups. Students develop strategies to maintain and foster cultural diversity in the preparation, processing, storage, and presentation of food and during food service.

Representation of the cross-curriculum priorities

The cross-curriculum priorities address the contemporary issues which students face in a globalised world. Teachers may find opportunities to incorporate the priorities into the teaching and learning program for the Food Science and Technology General course. The cross-curriculum priorities are not assessed unless they are identified within the specified unit content.

Aboriginal and Torres Strait Islander histories and cultures

This course provides an opportunity for students to learn about, and appreciate, Aboriginal and Torres Strait Islander histories and cultures through similarities and differences in food sources, preparation methods and environmental practices. Students may explore a range of practices and strategies used within different communities to manage, maintain and promote healthy lifestyles and wellbeing of all members and ensure the sustainability of food sources from one season to the next.

Asia and Australia's engagement with Asia

This course provides an opportunity to learn about the uniqueness and diversity of social structures and systems, ethnic backgrounds, cultures and food choices in communities within the Asia region. An understanding of Asia underpins the capacity of Australian students to be active and informed citizens, working together to build harmonious local, regional and global communities. Students may reflect on traditional, contemporary and emerging technological achievements in the supply, processing and development of varieties of fresh produce, and influences on food choices, such as culture, traditions and ethical issues, and lifestyle; all of which impact on Asia and Australia's engagement with Asia.

Sustainability

This course provides an opportunity for students to learn how changes in Australian and global demographics, trends in life expectancy, the diversity and nature of society, technological advances and social, economic and environmental factors are related to sustainable development and supply of safe, fresh food. The sustainability priority provides insights into future generations and promotes sustainable farming and processing practices to meet the needs of the present population without compromising the ability of future generations to meet their food needs. Students evaluate the extent to which the process of supplying food embraces sustainability. They reflect on past and current farming and processing practices and assess new and emerging technologies from a sustainability perspective.

Unit 3 – Food science

Unit description

This unit explores the societal, lifestyle and economic issues that influence food choices. Students research the effect of under-consumption and over-consumption of nutrients on health and investigate a range of diet-related health conditions that affect individuals and families.

Using scientific methods, students examine the functional properties that determine the performance of food and apply these in the planning, preparation and processing of food.

Students develop their expertise with technology skills to implement strategies to design food products and processing systems. They select resources to meet performance requirements and use evaluation strategies to monitor and maintain optimum standards. Students follow occupational safety and health requirements, implement safe food handling practices and use a variety of foods and processing techniques to produce safe, quality food products.

Unit content

An understanding of the Year 11 content is assumed knowledge for students in Year 12. It is recommended that students studying Unit 3 and Unit 4 have completed Unit 1 and Unit 2.

This unit includes the knowledge, understandings and skills described below.

Nature of food

Food as a commodity

- the economic cost of raw and processed food products
- the development and use of varieties of food commodities, such as apples and potatoes, to:
  - alter sensory and physical properties
  - alter nutritional content
  - improve yield

Properties of food

- functional properties that determine the performance of food
  - dextrinisation
  - caramelisation
  - crystallisation
  - emulsification
  - gelatinisation
  - oxidation
  - denaturation
  - coagulation
  - leavening
  - aeration
  - rancidity

Nutrition

- food sources and role of micronutrients for health
  - fat-soluble vitamins: A and D
  - water-soluble vitamins: B1 (thiamine), B2 (riboflavin), B3 (niacin) and C (ascorbic acid)
  - minerals: calcium, iron and sodium
- effects of under-consumption of nutrients on health
  - anaemia
  - osteoporosis
  - malnutrition
  - constipation
- effects of over-consumption of nutrients on health
  - obesity
  - cardiovascular disease
  - Type 2 diabetes

Processing food

Food products and processing systems

- investigate wet processing techniques and dry processing techniques
  - suitable food commodities
  - effect on nutrition
  - heat transfer
  - sensory properties
  - cost of ingredients and energy
- devise food products
  - interpret and adapt recipes
  - devise food orders
  - trial recipes
  - devise production plans
  - apply preparation and processing techniques
  - cost recipes
- the technology process to produce a food product that demonstrates a wet processing technique and a dry processing technique based on a product proposal
  - investigate
  - devise
  - produce
  - evaluate
- evaluate the food product
  - product's compliance with the proposal
  - product's sensory properties
  - selection of processing techniques
  - selection of equipment and resources
  - time requirements

Food in society

Food issues

- societal influences on food choices
  - lifestyle
  - culture
  - religion
  - health promotion campaigns
  - advertising
- economic influences on food choices
  - competition in the marketplace
  - product availability
  - consumer resources

Laws and regulatory codes

- role of *Food Standards Australia New Zealand* (FSANZ)
- *Australia New Zealand Food Standards Code* for food labelling requirements
  - nutrition information panel
  - percentage labelling
  - food identification
  - information for food allergies or intolerances
  - date marking
  - ingredient list
  - labels must tell the truth
  - food additives
  - directions for use and storage
  - legibility requirements
  - country of origin
  - nutrition and health claims
- categories of food exempt from food labelling laws
- objectives of *Food Act 2008* (WA)
- purpose of the *Work Health and Safety Act 2020*

Unit 4 – The undercover story

Unit description

This unit focuses on food spoilage and contamination and explores reasons for preserving food. Students investigate food processing techniques and the principles of food preservation. They examine the regulations which determine the way food is packaged, labelled and stored and how the principles of Hazard Analysis Critical Control Point (HACCP) system are administered and implemented to guide the production and provision of safe food.

Students investigate the food supply chain and value-adding techniques applied to food to meet consumer and producer requirements. Food choices are often determined by location, income, supply and demand and the environmental impact of food provision. Students examine influences on the nutritional wellbeing of individuals that arise from lifestyle and cultural traditions. They implement principles of dietary planning and adapt recipes and processing techniques when considering specific nutritional needs of demographic groups.

Students apply the technology process to address a product proposal and produce a preserved food product. They justify the equipment, resources and processing techniques used, and evaluate sensory properties.

Unit content

This unit builds on the content covered in Unit 3.

This unit includes the knowledge, understandings and skills described below.

Nature of food

Food as a commodity

- the food supply chain
  - production
  - processing
  - packaging
  - storage
  - distribution of food commodities
- the concept of value-adding to food
  - changes to nutritional content
  - additional processing of food
  - presentation and service
  - packaging

Properties of food

- reasons for preserving food
  - extend shelf life
  - preserve nutritional value
  - out of season availability
  - palatability
  - convenience
  - economics
  - reduce waste

- causes of food spoilage and contamination
  - environmental factors, such as oxygen, light, heat, water, infestation
  - enzymatic activity on food
  - microbial contamination of food, such as mould, yeast, bacteria
- principles of food preservation
  - control of temperature, such as pasteurisation, ultra-high temperature treatment, freezing, and canning or bottling
  - anaerobic breakdown of organic substances or nutrients such as fermentation
  - addition of chemicals, such as salt, sugar, acid, and artificial preservative
  - removal of moisture through dehydration and evaporation
  - removal of oxygen through vacuum packing

Nutrition

- dietary planning
  - *Healthy Eating Pyramid (Nutrition Australia May 2015)*
  - *Australian Guide to Healthy Eating*
  - *Australian Dietary Guidelines*
- the nutritional needs of demographic groups, such as adolescents and adults
- modification and fortification of foods by altering nutrient content
- influences on the nutritional wellbeing of individuals
  - lifestyle
  - cultural traditions

Processing food

Food products and processing systems

- food processing techniques are used to control the performance of food
  - temperature – heat, cold
  - exposure to air
  - pH level
  - addition of chemicals – salt, sugar
  - removal of moisture
  - manipulation
- devise food products
  - interpret and adapt recipes
  - devise food orders
  - develop, produce and evaluate prototypes
  - devise production plans
  - apply preparation and processing techniques
  - cost recipes

- the technology process to produce a preserved food product based on a product proposal
  - investigate
  - devise
  - produce
  - evaluate
- evaluate the preserved food product
  - product's compliance with the proposal
  - product's use in another food product
  - product's sensory properties
  - selection of processing techniques
  - selection of equipment and resources
  - time requirements

Food in society

Food issues

- factors that influence food choices
  - location
  - income
  - supply and demand
  - environmental impact
  - advertising and marketing
- sponsorship, tokens and free gifts, and supersizing techniques used to market food products

Laws and regulatory codes

- principles of the Hazard Analysis Critical Control Point (HACCP) management system
  - conduct a hazard analysis
  - identify critical control points
  - establish critical limits for each critical control point
  - establish critical control point monitoring requirements
  - establish corrective actions
  - verify procedures
  - establish record keeping procedures
- regulation of food safety in Australia
  - state authorities
  - local authorities
- *Work Health and Safety Act 2020* and the rights and responsibilities of employers and employees in food environments

School-based assessment

The *Western Australian Certificate of Education (WACE) Manual* contains essential information on principles, policies and procedures for school-based assessment that needs to be read in conjunction with this syllabus.

Teachers design school-based assessment tasks to meet the needs of students. The table below provides details of the assessment types for the Food Science and Technology General Year 12 syllabus and the weighting for each assessment type.

Assessment table – Year 12

Type of assessment	Weighting
Investigation Directed research in which students plan, conduct and communicate an investigation of an issue related to food science and technology. They apply processes to food-related practices, use a variety of investigative approaches to individually and/or collaboratively collect and interpret primary sources and produce secondary sources. Processes include testing, analysing, evaluating and communicating findings. The investigation can be presented as a written report or a multimedia presentation. Other evidence can include: practical investigations, investigation plans, self or peer evaluations and/or journal reflections.	30%
Production A production project in which students explore ideas, design products and/or implement production processes. Students manage a range of production processes, evaluating and modifying them as necessary. This includes making products, prototypes or implementing processes and systems in response to a proposal and evaluating design ideas while managing a range of production processes. Evidence can include: survey results, design ideas, recipes, nutritional values, sensory properties, food products, production plans, production processes, and/or food systems; modifications used to manage quality control, product test results, evaluation tools (target market group) and/or journal reflections.	40%
Response Students respond to questions which can require them to refer to stimuli or prompts, such as production practices, case studies, scenarios, and primary and secondary sources. Tasks can be conducted inside or outside class time. Students apply their understandings and skills to analyse, and/or interpret information, solve problems and/or answer questions. Formats can include short and extended written responses and/or oral presentations. Other evidence can include: situation analysis exercises, observation records and checklists, journal entries and/or self, peer or target group evaluations.	15%
Externally set task A written task or item or set of items of 50 minutes duration developed by the School Curriculum and Standards Authority and administered by the school.	15%

Teachers are required to use the assessment table to develop an assessment outline for the pair of units.

The assessment outline must:

- include a set of assessment tasks
- include a general description of each task
- indicate the unit content to be assessed
- indicate a weighting for each task and each assessment type
- include the approximate timing of each task (for example, the week the task is conducted, or the issue and submission dates for an extended task).

In the assessment outline for the pair of units, each assessment type must be included at least once over the year/pair of units. The externally set task occurs in Term 2.

The set of assessment tasks must provide a representative sampling of the content for Unit 3 and Unit 4.

Assessment tasks not administered under test/controlled conditions require appropriate validation/authentication processes. For example, student performance for an investigation could be validated by a task (such as a structured essay, extended answer or evaluate of the sources used in the investigation) in class after the final presentation is submitted.

Externally set task

All students enrolled in the Food Science and Technology General Year 12 course will complete the externally set task developed by the Authority. Schools are required to administer this task in Term 2 at a time prescribed by the Authority.

Externally set task design brief – Year 12

Time	50 minutes
Format	Written
	Conducted under invigilated conditions
	Typically between two and five questions
Content	The Authority informs schools during Term 3 of the previous year of the Unit 3 syllabus content on which the task will be based

Refer to the *WACE Manual* for further information.

Grading

Schools report student achievement in terms of the following grades:

Grade	Interpretation
A	Excellent achievement
B	High achievement
C	Satisfactory achievement
D	Limited achievement
E	Very low achievement

The teacher prepares a ranked list and assigns the student a grade for the pair of units. The grade is based on the student's overall performance as judged by reference to a set of pre-determined standards. These standards are defined by grade descriptions and annotated work samples. The grade descriptions for the Food Science and Technology General Year 12 syllabus are provided in Appendix 1. They can also be accessed, together with annotated work samples, through the Guide to Grades link on the course page of the Authority website at www.scsa.wa.edu.au.

To be assigned a grade, a student must have had the opportunity to complete the education program, including the assessment program (unless the school accepts that there are exceptional and justifiable circumstances).

Refer to the *WACE Manual* for further information about the use of a ranked list in the process of assigning grades.

Appendix 1 – Grade descriptions Year 12

A	**Investigation** Independently selects, organises, and interprets appropriate information and data from a variety of relevant and recent primary and secondary sources, and practical investigations. Examines and correctly applies appropriate food-related practices and food processing systems. Provides detailed explanations based on accurate, relevant observations and research. Applies relevant evidence to make logical recommendations and informed decisions. Effectively communicates ideas, issues, and opinions in an organised, logical format, and appropriate structure using concise food science terminology supported by relevant examples.
	Production Consistently uses initiative and manages time, equipment and resources efficiently. Selects and applies appropriate food processing techniques to prepare and produce food products suitable for specified food-related issues. Effectively plans in detail to devise food products and resources, and accurately incorporates cost constraints. Methodically manages a range of appropriate production processes; evaluates and modifies as needed. Accurately interprets and adapts recipes and procedures to produce quality food products based on a product proposal, correctly using a range of processing techniques and principles of food preservation. Critically evaluates the product produced and clearly explains how the product complies with the product proposal.
	Response Provides detailed explanations for a range of specified food-related issues that arise due to the influence of food and lifestyle factors, nutrition, preservation, and processing techniques. Provides detailed explanations for the appropriate application of specific laws and regulatory codes, and relationships between food consumers and food producers/enterprises. Responds accurately to food-related issues, applying relevant examples, appropriate evidence and personal experience, where applicable, to develop, justify and substantiate points of view; uses concise food science terminology.

B	**Investigation** Gathers, organises, and uses information and data from relevant and recent primary and secondary sources, and practical investigations. Describes and applies appropriate food-related practices and food processing systems. Provides explanations based on relevant observations and research. Provides relevant evidence to make recommendations and informed decisions. Communicates issues and opinions in an organised format and structure using appropriate food science terminology, with relevant examples.
	Production Uses initiative and manages time, equipment and resources as required. Applies appropriate food processing techniques to prepare and produce food products suitable for food-related issues. Effectively plans to devise food products and resources, and considers cost constraints. Manages production processes; evaluates and modifies as needed. Interprets and adapts recipes and procedures to produce quality food products based on a product proposal, using a range of processing techniques and principles of food preservation. Evaluates the product produced and describes how the product complies with the product proposal.
	Response Provides explanations for specified food-related issues that arise due to the influence of food and lifestyle factors, nutrition, preservation, and processing techniques. Provides explanations for the application of specific laws and regulatory codes, and relationships between food consumers and food producers/enterprises. Responds to food-related issues, referring to relevant examples, appropriate evidence and personal experience to develop and support points of view; uses appropriate food science terminology.

C	**Investigation** Uses general information and data from mostly relevant and recent primary and secondary sources, and some practical investigations. Identifies and uses some food-related practices and food processing systems. Provides general descriptions based on observations and research. Provides some general evidence to make broad, wide-ranging recommendations or decisions. Communicates issues and opinions in a simple format and structure using some food science terminology, with examples.
	Production Manages time, equipment and resources for simplified tasks. Implements most food processing techniques to prepare and produce food products suitable for food-related issues. Plans to devise food products and resources, and considers some cost constraints. Implements production processes and makes some modifications. Adapts recipes and procedures generally to produce food products based on a product proposal, using some appropriate processing techniques and principles of food preservation. Evaluates in general terms the product produced and its compliance with the product proposal.
	Response Provides general descriptions for some food-related issues that arise due to lifestyle factors, nutrition, preservation, and processing techniques. Provides general descriptions for the application of most laws and regulatory codes, and some connection between food consumers and food producers/enterprises. Responds generally to food-related issues, referring to some examples and personal experience to support points of view; uses some food science terminology.

D	**Investigation** Uses minimal information or data from limited sources and practical investigations. Lists some elements of food-related practices or food processing systems. Provides brief unsubstantiated statements based on superficial observations and/or research. Provides limited evidence and rarely make recommendations or decisions. Communicates a personal opinion using minimal food science terminology, with or without simple examples.
	Production Ineffectively manages time, equipment and resources for simple tasks. Often implements inappropriate food processing techniques to prepare and produce food products for given food-related issues. Briefly plans to devise simple food products with minimal consideration for costs. Uses simplified production processes with limited modifications. Follows simple recipes and procedures to produce food products broadly based on a product proposal, using limited processing techniques and principles of food preservation, with frequent errors. Evaluates in simple terms the product produced with limited links to the product proposal.
	Response Provides brief statements for a limited range of food-related issues due to lifestyle factors, nutrition, preservation, and/or processing techniques. Anecdotally and briefly states one or two laws or regulatory codes with limited connection to food consumers or food producers/enterprises. Responds briefly to food-related issues and relies on personal experience, with frequent errors; uses limited food science terminology.

E	Does not meet the requirements of a D grade and/or has completed insufficient assessment tasks to be assigned a higher grade.