



Food Science and Technology

GLOSSARY

These terms are used in the Food Science and Technology syllabus and have specific meaning in the context of this syllabus.

Copyright

© School Curriculum and Standards Authority, 2013

This document—apart from any third party copyright material contained in it—may be freely copied, or communicated on an intranet, for non-commercial purposes in educational institutions, provided that the School Curriculum and Standards Authority is acknowledged as the copyright owner, and that the Authority's moral rights are not infringed.

Copying or communication for any other purpose can be done only within the terms of the *Copyright Act 1968* or with prior written permission of the School Curriculum and Standards Authority. Copying or communication of any third party copyright material can be done only within the terms of the *Copyright Act 1968* or with permission of the copyright owners.

Any content in this document that has been derived from the Australian Curriculum may be used under the terms of the [Creative Commons Attribution-NonCommercial 3.0 Australia licence](#)

Disclaimer

Any resources such as texts, websites and so on that may be referred to in this document are provided as examples of resources that teachers can use to support their learning programs. Their inclusion does not imply that they are mandatory or that they are the only resources relevant to the course.

Active packaging

Food packaging that interacts chemically or biologically with its contents so that its shelf-life is extended or the product is modified during storage.

Additives

Substances added to food by the manufacturer that are not normally consumed alone as an ingredient. Additives can improve flavour, appearance (colour), and nutritional value, extend storage life and preserve flavour.

Aeration

Incorporation of air into a mixture in order to increase its volume, improve texture and flavour of certain foods and beverages.

Anaerobic breakdown

A series of biological process whereby microorganisms break down organic substances in the absence of oxygen, for example, fermentation.

Aseptic packaging

Packaging of ultra high temperature (UHT) treated food into a sterilised package in order to create a shelf stable product.

Biotechnology

The use of living microorganisms (animal, plant, protozoa) to create new products with specific characteristics and attributes, for example, developing or selecting microorganisms to make yoghurt with new characteristics, such as flavour, texture, or improved gut health for the consumer.

Caramelisation

Caramelisation occurs when carbohydrates like sugar are treated with heat causing them to turn brown, for example, caramel sauce and browning of onions when cooked.

Chemical properties

Components of food such as enzymes, acids, alkalis, moisture and nutrients, that enable foods to change during processing and storage.

Coagulation

The process that occurs when proteins separate from other nutrients and change from a liquid to a semi solid state with the application of heat, addition of acids, enzymes, alcohols or salts, for example, scrambled egg, custard.

Commodity

A food category referring to raw agricultural products, for example, wheat, corn, that are produced in large quantities by many different producers. After trade or purchase, commodities are processed into other higher value food products.

Consumer

A person who purchases or uses goods, products and services, for example, purchasing food at the supermarket.

Cross contamination

The transfer of microorganisms to food from other sources, for example, hands, equipment and other food or between unprocessed/raw material and processed/final food products.

Crystallisation

Techniques which are used to separate a solid that is dissolved in a liquid. For example, heating a syrup which causes evaporation and leaves sugar crystals upon cooling. Acids help prevent crystallisation in supersaturated foods like honey and jam.

Demographic group

A population subset with similar characteristics such as socio-economic state, age, education level, ethnicity.

Denaturation

The permanent and irreversible break down of protein molecules in food. Denaturation occurs with the application of heat, addition of acids or bases, irradiation or mechanical actions, for example, beating egg whites, cooking of meat.

Design brief/specifications/task

A context within which a problem is set.

Dextrinisation

Browning and chemical change occurring to starch when subjected to heat. Upon heating starch is broken down into dextrins causing the colour, taste, aroma and flavour of the food to change, for example, browning of bread during baking.

Emulsification

Prevents mixtures containing dissimilar liquids, such as oil and vinegar, from separating. For example, egg yolks are an emulsifier used to stabilise mayonnaise—an oil and vinegar emulsion.

Emerging foods

Foods developed as a result of new technology that may enhance food characteristics, food production, food storage and packaging.

Enzymes

Protein molecules found in food that acts as biological catalysts causing food to change, for example, ripen or brown (enzymatic browning).

Enzymatic activity

Chemical reactions that occur at enzyme reactive sites resulting in the conversion of one molecule into another. The rate of enzyme activity may be influenced by factors such as pH, temperature.

Environmental factors

Conditions created by an environmental event such as weather events, temperature, sunlight and soil type which affect the production of food and the survival of organisms.

Ethics

Moral principles that govern a person's or a group's behaviour.

Fair trade

Seeks equity in international trade. It contributes to sustainable development by offering better trading conditions for producers and workers in the developing world.

Fermentation

The anaerobic conversion of sugar to carbon dioxide and alcohol by yeast. The properties of molecules are altered producing a desired product with a different flavour, easier digestion and increased nutrition and shelf life. Examples of fermented foods and beverages include kefir, sauerkraut, yoghurt and lager.

Food and beverage advertising practices

Techniques and strategies used to promote food and beverages to consumers, such as colour, slogans, music and graphics.

Food allergy

Abnormal reaction by the body to a food protein. The reaction causes the immune system to produce antibodies that react with the allergen causing severe symptoms including anaphylaxis. Most food allergies are caused by peanuts, tree nuts, milk, eggs, sesame seeds, fish, shellfish, soy and wheat.

Food distribution

The process of supplying and transporting food to consumers.

Food diversity

Wide ranging food and food products that individuals consume, for example, culturally diverse foods or foods from various food groups.

Food handling practices

Practical working practises, which promote food safety.

Food hygiene

The practice of cleanliness in relation to food and food manufacturing facilities.

Food intolerance

A non allergic food hypersensitivity to a certain food. Food intolerance is not an immune response, rather a chemical reaction that occurs after eating or drinking some foods. Food intolerance has been associated with asthma, chronic fatigue syndrome and irritable bowel syndrome. For example, lactose intolerance – a person reacts to lactose, the sugar in milk.

Food miles

The distance a food travels from the place it is produced to the point it reaches the consumer.

Food poisoning

Illness caused by consuming food that has been contaminated by chemicals, viruses or any other pathogenic microorganism.

Food processes

Transforming raw animal or plant produce into edible food.

Food products

Processed food sold to consumers for consumption.

Food security

Ensures that people's dietary needs are always met and that they have access to culturally acceptable safe and nutritious food through non-emergency sources.

Food service

Individuals or organisations whose main function is to provide food or related assistance to consumers.

Food spoilage

Damage to food, which causes deterioration in the colour, flavour, odour or consistency of a food product.

Food systems

The combined actions of people, processes and infrastructure to produce food for a population.

Food sustainability

The processing and trading of food in ways that contribute to local economies, protect the diversity of animals and plants, and avoid damage to natural resources.

Fortification

The deliberate addition of specific micronutrients to processed foods. Fortification can be used to replace nutrients lost during food processing or correcting a demonstrated dietary deficiency in the population, for example, addition of vitamins to cereals.

Functional foods

A food or food component to which an existing ingredient or a new ingredient has been added to provide additional benefits, usually disease prevention or improved health.

Functional properties

Functional properties alter the physical and chemical characteristics of protein, carbohydrate and lipid containing foods when they are exposed to air, heated, cooled or come into contact with acids or alkalis during processing, preparation, presentation or storage.

Gelatinisation

The process through which starch granules are mixed with a liquid, heated, and burst, then absorb the moisture to form a gel, for example, sauce making.

Genetically modified foods

The use of biotechnology to alter the genes of a animal or plant in order to improve the characteristics of that animal or plant, for example, increased yield, increased nutritive value, increased insect resistance.

Globalisation

The movement of people, money, goods and services due to increased global trade and investment.

Hazard Analysis Critical Control Point (HACCP) system

A food safety system that aims to prevent food contamination through the identification of potential hazards and their control points during all stages of food production, storage and transport.

High pressure processing

A technological process that uses high pressure to destroy microorganisms and enzymes whilst retaining food quality.

Innovation

New foods and technologies that affect the development, production, distribution, marketing and storage of food.

Leavening agent

Substances that release gases within doughs and batters when mechanical processes are applied. This causes expansion of such mixtures and in baking produces products with porous structures. Such agents include, air, steam, yeast, baking powder and baking soda.

Local food

Food produced within the closest proximity to the consumers.

Macronutrients

Nutrients that the body requires in relatively large amounts to provide calories and perform other functions. The three major macronutrients are proteins, carbohydrates and lipids.

Market research

The organised collection and analysis of consumer information (needs and wants) used by companies to guide decisions regarding new product development, overcoming problems or discovering new opportunities.

Membrane technology

Separation processes involving use of a semi permeable membrane to segregate particles out of a fluid, for example, reduction of milk's fat percentage.

Microbial food spoilage

Deterioration of the sensory, physical or chemical properties of food due to exposure to conditions that result in the production of moulds, yeasts or bacteria.

Micro-encapsulation

Small particles of a functional ingredient packaged in a minute capsule for inclusion in a food.

Micronutrients

Nutrients such as vitamins and minerals, which are required in relatively small quantities to ensure good health.

Mise-en-place

A French term meaning to have everything in its place. It refers to everything that must be made ready before food service begins.

Modified atmosphere packaging (MAP)

A packaging container is flushed with three gases (carbon dioxide, nitrogen and oxygen) with the mix dependent on the physical and chemical properties of the food. The unique combination of the gas trio combined with a lowered temperature results in extended shelf life, minimisation of waste, improved quality and presentation and reduction in the need for artificial preservatives.

Modified foods

Foods having an altered characteristic, for example, less salt, less sugar, more fibre, increase in vitamins or minerals. Changing an existing food can create more nutritious products and enable a company to extend their product line and thus cater for a larger variety of consumers.

Nanotechnology

Manipulation of matter at the molecular scale.

Occupational Safety and Health (OSH) Act

Procedures for the health and safety of personnel in the workplace.

Oxidation

An irreversible process by which molecular oxygen combines with nutrients in food, a process which decreases the quality of the food by creating rancidity. It occurs in peeled fruits and vegetables such as bananas, apples and potatoes, as well as fats and oils.

Pasteurisation

The process of heating a liquid to a specific temperature for a predefined length of time and immediately cooling it. The process slows spoilage due to microbial growth.

Physical properties

Properties which determine a food size, shape, colour, volume, viscosity and elasticity properties.

Preservation

The processing of food to eliminate or control conditions that cause spoilage, that is, dehydration, canning, freezing, jam making, pickling, ultra heat treatment.

Primary food processing

The conversion of raw materials to food commodities, for example, milling of wheat in to flour.

Processing techniques

Alteration of the sensory, physical and chemical properties of food by:

- use of acids, e.g. pickles; alkalis e.g. salting olives, preserved lemon
- application of heat, e.g. cooking, canning
- cooling, e.g. refrigeration, freezing
- exposure to heated air, e.g. drying, baking
- manipulation, e.g. beating, chopping.

Rancidification (see oxidation)

The spoilage and decomposition of fats, fatty acids and oils through exposure to oxygen. Causes an unpleasant odour and flavour in food.

Secondary food processing

The conversion of ingredients into edible products. This process involves combining foods in a particular way to change its properties, for example, heating cake batter to form a cake.

Sensory properties

The characteristics of food which encompass the senses; appearance, texture, aroma, flavour, sound.

Service

An intangible commodity in the form of an experience, an action or and activity which provides the consumer with a benefit.

Stabilisers

Substances or chemicals that allow food ingredients, which do not mix well, to remain in a homogenous state after blending and/or processing. Stabilisers may work in combination with emulsifiers. Common stabilisers include carrageenan, gelatin and pectin.

Staple foods

A food that makes up the dominant part of a population's diet. They are eaten regularly and are generally high in energy and carbohydrate. Common staple foods are, either of cereal origin such as rice, wheat, maize (corn), barley and rye or a starchy root vegetable such as potato, yams, taro and cassava.

Sustainability

Producing, manufacturing and transporting food in a way that maintains an ecological balance to ensure sufficient healthy food is available for future generations.

Sustainable food processing and production practices

Practices that ensure a nutritious food supply for current and future generations with minimal impact on the environment.

Systems

People and components functioning together to produce a product.

Technology process

A process used to create or modify products, processes, systems, services or environments to meet human needs and realise opportunities.

Ultrafiltration

A process in which a liquid is passed over membranes, which have minute pores that prevent macronutrients such as protein passing through.

Vacuum packaging

A packaging method in which all of the air is mechanically removed from the package prior to sealing in order to prevent the growth of certain microorganisms and enzymatic reactions.

Value-adding

Any step in the production process that improves the product for the customer and results in a higher net worth (or value). All processed foods are the result of value adding of basic commodities e.g. wheat to bread.

Waste management

The controlled disposal of any food substance or food packaging, to minimise environmental and health impacts.

Workflow or production plan

Outline showing the sequence and timing of tasks, and equipment involved in producing one or more recipes or components of a recipe.